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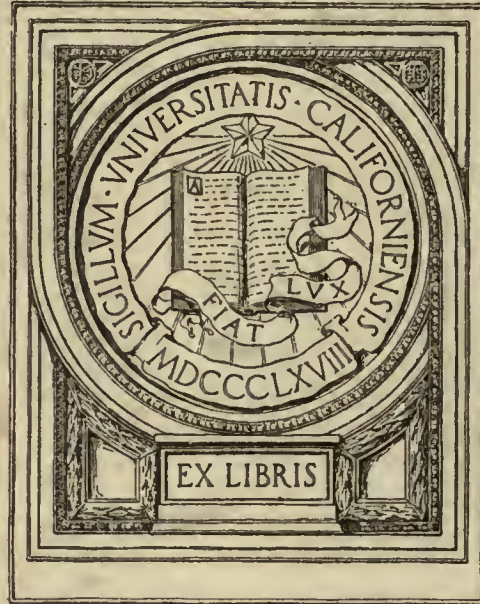
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AUSTRALIA



UNLIMITED

EXCHANGE



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An Australian Pastoral
Ramarnie Station, on the Clarence River, New South Wales

AUSTRALIA UNLIMITED

BY

EDWIN J. BRADY

Author of "The King's Caravan," "The Ways of Many Waters,"
"River Rovers," "Bells and Hobbles," &c.



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EXCHANGE

TO VIND
ABSORBULO



INTRODUCTION		Page
My Country (Poem by Dorothea Mackellar)		16
 THE DAWN OF HISTORY		
The Genesis of Australian Settlement		26
Old Colonial Days		33
Inland Exploration		39
Australia's Political Evolution		55
 THE COMMONWEALTH		
Federation of the Australian States		64
Canberra, the Federal Capital		68
Transcontinental Railways: East-West		71
" " North-South		74
Irrigation, Storages and Artesian Water		87
Undeveloped Industries		101
Federal Administration: Post, Telegraph, and Telephones		107
Customs and Tariff		111
Commerce and Finance		113
Immigration		119
Social and Intellectual Life		123
Outdoor Sports in Australia		131
 NEW SOUTH WALES		
Revenues and Resources		143
Trade and Production		159
Sydney Harbor at Night		173
North Sydney and Beyond		178
Picturesque New South Wales		183
Mount Kosciusko		193
The North Coast		199
The South Coast		217
Out West		225
The Western Division: From Wentworth to Bourke		232
" " What a Railway Will Do		248
Broken Hill		255
The Land of Milk and Honey		263
Irrigation and the Riverina		275
The Future		283
 VICTORIA		
Evolution and Progress		291
Port Phillip and the Hills		305
The Western District		325
Gippsland		339

AUSTRALIA UNLIMITED

	Page
VICTORIA (<i>cont.</i>)	
The Victorian Alps	355
Victorian Agriculture	367
Irrigation Settlements	385
Mallee Lands	398
QUEENSLAND	
Queen of the North	405
The Trail of the Tropics	417
Cedar and Gold	433
Cooktown, Cape York, the Gulf	451
The Heart of Queensland	461
East and West	475
Southern Queensland	489
NORTHERN TERRITORY	
Pioneers and Outposts	515
Coastal Climate and Production	524
Darwin and Pine Creek	539
The Daly River	550
On the Adelaide	563
Inland Districts	577
Mineral Resources	594
SOUTH AUSTRALIA	
Adelaide and the Hills	611
Port Augusta, Hergott and the Great Inland	615
Primary Production	621
The "Desert" Myth	628
Drought and Dry Country	638
Irrigation, Water Conservation, and Drainage	649
WESTERN AUSTRALIA	
Dampier's "Miserablest Country"	659
What the West Will Do	679
South to Leeuwin and Round Again	687
The Glamor of Gold	701
Kalgoorlie	715
The Six Divisions	725
TASMANIA	
Launceston and the Tamar	743
Hobart and the Derwent	754
Settlement and Development	761
Agriculture and Production	770
BRITISH NEW GUINEA (PAPUA)	787
PATRIOTIC, BENEVOLENT AND NATIONAL	
Australia's Army and Navy	795
State Education in New South Wales	803
State Education in Victoria	811
The State Samaritan	815
The late Thomas Walker, of Yaralla	821
The Angas Family	829
George Lansell: Bendigo's "Quartz King"	845

TO THE
AIRPORT



The City of Rockhampton, Queensland.



ILLUSTRATIONS



The title designs, end-papers, and decorations from drawings by Christian Yandell and Walter Seed.

An Australian Pastoral	Frontispiece
	Page
Edwin J. Brady (Photo: R. Buchner) .. .	14
A Victorian Country Road (Photo: F. W. Littlejohn)	15
Decorative Border: My Country (Christian Yandell)	16

THE DAWN OF HISTORY

The Illustrations in this Section are from photographs by the Government Printers of New South Wales and Victoria; George Bell, Sydney; E. E. Pescott, F.L.S., Melbourne (botanical subjects, pages 49 and 54); W. H. Cooper, Melbourne; E. L. Mitchell, Perth; and the author.

	Page		Page
Title Design by Walter Seed	17	The River Tweed	41
Sunset—Torres Straits. Native Dance, Ham- ond Island	18	Hospital Sunday Procession, Broken Hill ..	42
Dirck Hartogs' Plate	19	A Landing on the River Murray	43
The Lighthouse at Cape Leeuwin	20	Sir Thomas Mitchell	44
Mouth of the Blackwood River	22	Overlanding Cattle	45
Goonabooka Pool, near Roeburne	23	Distant View of the MacDonnell Ranges ..	46
The Harding River in Flood	24	Newcastle Waters, Central Australia ..	47
Gathering Guano at the Abroholos	25	Some Australian Orchids	49
Cook's Monument at Kurnell, Botany Bay ..	26	A Native Burial-place	50
Captain Cook	27	Myall Blacks Beside a Central Australian Watercourse	51
Mallacotta Inlet	28	In a Jarrah Forest, Western Australia ..	52
Male Australian Aborigine. Female Australian Aborigine	29	John Forrest (1874)	53
Sir Joseph Banks	30	Some Native Flowers	54
Captain Arthur Phillip	31	An Australian Jungle	55
Statue to Governor Phillip, Sydney	33	Pioneers in the Bush	56
Old Colonial Home	34	Pioneering: Making His Bed for the Night ..	57
The Heads, Sydney	36	Young Selectors: A Slab Hut in the Bush ..	58
In the Heart of Central Australia	37	A Log Hut in the Clearing	59
On the Hawkesbury River	39	A Selector's Home	60
Gregory Blaxland	39	An Australian Farmer's Home	61
Valley of the Grose River, Blue Mountains ..	40	Bridge Street, Sydney	62
		A Station Homestead	63

THE COMMONWEALTH

The Illustrations in this Section are from photographs by Lafayette, T. Humphrey & Co., F. Monteath, Broothorn, Mina Moore, Sarony, The Burlington, Talma, Melbourne; J. C. Cruden, Appleby, Judith Fletcher, Sydney; Vanduyck, Adelaide; J. W. Beattie, Hobart (portraits, pages 62, 122, 125, 127, 129); Dudley Le Souef (pages 135, 136 and 139), J. A. Kershaw (page 138), and Miss D. H. Llewellyn (page 130), for natural history subjects; the Government Printers of New South Wales and Victoria; the Department of Home and Territories; Sutcliffe & Akers, the Sears Studio, W. H. Cooper, Weston Storer, Melbourne; Greenham & Evans, Perth; Friend, Ingham; R. Vere Scott, and the author.

	Page		Page
Title Design by Christian Yandell	64	River Boats Below Murray Bridge, South Aus- tralia	91
Prime Ministers of the Commonwealth	65	Pumping Plant at Renmark, South Australia ..	96
Federal Parliament House, Melbourne	67	Irrigation Channel, Berri, South Australia ..	96
Panorama View of Canberra	70	Water for the Kitchen Garden, Yarrie, Western Australia	97
A Camel Team	71	Excavating Channels for Irrigation at Berem- bed, N.S.W.	98
At Oodea Soak: Freshwater Bore	72	The Bed of the Fitzroy River, Hughenden, Queensland	99
On the Nullarbor Plain—The High Commissioner and Party	73	Timber Workers	100
On the Border of the Northern Territory	74	Trucking Ore from Whim Creek to Balla Balla, W.A.	101
A Survey Expedition Camp	75	Cedar Logs, Atherton Scrub, Queensland ..	102
A Central Australian Scene	77	Brick and Drain-pipe Works, Lithgow, N.S.W.	103
Near Alice Springs	78	Electrolytic Room, Cobar Copper Works, N.S.W.	105
Workers on the Transcontinental Railway	79	Half a Ton of Rock Ling	106
Beyond the MacDonnell Ranges	80	Martin Place and General Post Office, Sydney ..	107
A Sheep Station in Central Australia	81	Public Works Offices, Sydney	108
On the North-South Transcontinental Route	82	Hinton Bridge, New South Wales	109
Typical Central Australian Country	83	Panoramic View of Sydney Harbor	112-114
A Northern Territorian	84	The Law Courts, Melbourne	115
A Waterhole in the "Desert," Central Australia	85	Challis House, Martin Place, Sydney	117
On the Murrumbidgee River, New South Wales	86		
Excavation for the Waranga-Mallee Channel, Victoria	87		
Inlet to Waranga Reservoir, Victoria	88		
Outlet to Waranga Reservoir, Victoria	89		

	Page		Page
"Welcome and Good-bye," Port Melbourne Pier	119	Henley-on-the-Yarra Regatta	131
The First Unit of the Royal Australian Navy, 1913	121	Crowd at a Cricket Match	132
Australian Artists and Authors of To-day	122	A Big Shoot on the Burdekin River	133
Melbourne Public Library and Museum	123	The Mountain Devil of Western Australia	134
The Mitchell Library, Sydney	124	Some Australian Animals	135
Australian Artists and Authors of To-day	125	Brush Turkey, Kangaroo, with Young in Pouch	136
Science, Music and the Drama in Australia To-day	127	"All in the Day's Sport"	137
Australian Scientists of To-day	129	Melbourne Cup, Flemington Racecourse	138
A Kookaburra (Laughing Jackass)	130	Snapper	138
		Australian Birds	139
		A Yacht Club Outing, Port Phillip	140

NEW SOUTH WALES

The Illustrations in this Section are from photographs by the New South Wales Government Printer, Water and Irrigation Commission, and Immigration and Tourists' Bureau; George Bell, Sydney; Edgar Wilkinson, Curlewa, N.S.W., and the author.

	Page		Page
Circular Quay, Sydney	142	"The Farmer's Friend."	209
Title Design by Christian Yandell	143	On the Paterson River	211
Forest and Clearing	144	A New South Wales Pasture	213
A New South Wales Wheatfield	145	Milking Machines, Manning River District	214
Burrinjuck Township, Murrumbidgee Storage Area	147	On the Manning, near Wingham	215
The Burrinjuck Dam, Murrumbidgee River	148	South Clifton	216
Sutherland Dock, Sydney	149	Seal Rocks Lighthouse	217
Hetton Colliery, Newcastle	150	Water Trees, South Coast	219
Hauling Timber, North Coast	151	Dairying at Coolangatta	221
Marbled Flathead	152	Ironbark Tree, Nowra	222
The Beach, Newcastle	153	Eden	223
Harpoon Practice, East Coast	154	Pyrmont Bridge	224
The Battery, Sachs' Molybdenum Mine, Kingsgate	155	Tumut	225
Blast Furnace, Lithgow	156	An Orchard at Wagga	226
Copper Mine, Cobar	157	Bloodwood Trees	227
Flock of Sheep in the Riverina	158	Good Wheat Land	228
Crossing a Creek	159	Old Police Station, Lake Cargellico	230
Loading Wheat at a Country Station	161	A Darling River Steamer	232
A Cherry Tree, Bathurst Experimental Farm	162	The Junction of the Murray and the Darling	233
Wine Grapes: Thompson's Seedlings, Yanco	162	Wentworth: Wharf and Bridge, View of Town	235
Wyandottes, Hooper's Farm, Epping	163	Peach-tree on Walter Sage's Block	236
A New South Wales Bee Farm	164	Sorghum, Nine Feet High	237
A Dairy Herd at Gloucester	165	Navelencia Oranges	239
Trevitt's Seedling Apple, Yanco	167	Irrigating Trees Between Fruit-trees, Yanco	240
Hog-Raising Increases the Income of the Man on the Land	168	Children at Menindie	241
Harvesting at Iandra, Grenfell District	169	A River Trading Steamer	242
Harvesters at Work	171	Shearers Leaving Tolarno, River Darling	243
Botanic Gardens, Farm Cove, Sydney	172	Bridge over the River Darling at Wilcannia	245
Open-Boat Sailing on Sydney Harbor	173	The Bore at Pera	246
Surf-Bathing at Manly	175	"All the Time He is Being Loaded He Roars"	247
Yachting on Sydney Harbor	176	What the Land is Growing To-day	248
Mosman Bay, Sydney	177	A Train from Up-country	251
In George Street, Sydney	178	An Australian Dairymaid	253
Kuring-Gai Chase	179	A Broken Hill "Landscape"	255
Hawkesbury River at Newport	180	Ore Dressing Plant, Broken Hill Proprietary	257
Tea Gardens, Como	181	Broken Hill Proprietary Silver Mine	259
The Empire Falls, Blue Mountains	182	Open-cut Workings, Broken Hill Proprietary	261
A Trout Stream in the Victorian Alps	183	A Broken Hill Silver Mine	262
Fairy Dell Falls, Blue Mountains	184	The South Coast at Eden	264
The Weeping Rock, Wentworth Falls, Blue Mountains	185	Turpentine Trees	265
The Waratah—Flannel Flowers	186	A Cream Cart	266
In National Park, near Sydney	187	Blackbutt, Bateman's Bay	267
Bulli Pass, Illawarra District	188	Moruya Cheese Factory	268
Christmas Bells	189	Narooma River	269
Bangalow Palms	190	Benjamin Boyd's Old Home, Twofold Bay	270
A Mountain Road	191	At the Whaling Station, Twofold Bay	271
Skating on Mount Kosciusko	192	A Dairy Farm at Nethercote	272
Picnic on the Snowy River	193	White Apple Tree	273
Jindabyne, on the Snowy River	194	Main Street, Milton	273
Ski-Runners at Hotel Kosciusko	195	Sluice-gate, Loch and Weir, Berembed	274
A Dog Shed, Kosciusko	196	Burrinjuck Dam (Down-stream Face)	275
Club Lake, Snowy Mountains	197	Burrinjuck Dam (Up-stream Face)	276
The Summit of Mount Kosciusko	198	An Apricot Tree, Yanco	277
Crescent Head	199	A Riverina Pasturage	278
A Dairy Herd, North Coast District	200	Irrigation at Yanco	279
A Boat Harbor on the Richmond River	201	Dairy Cows on Natural Pasture, Murrumbidgee	281
A Holiday on Richmond River	203	The Beginnings of an Ostrich Farm at Yanco	282
In the Big Scrub, Richmond River	204	Road and River (Tumut)	283
A Farm near Dorrigo	205	Raymond Terrace Viticultural Station	284
Government Experimental Farm, Grafton	207	A Farm on the North Arm, Bellingen River	285
		Girls Picking Grapes, Hunter River District	286
		A Wheat Stack at Gerogery	286
		On the Karnah River, near Bowral	287
		Jones' Bridge, Tumut	288

VICTORIA

The Illustrations in this Section are from photographs by the Victorian Government Printer, Tourist Bureau, Department of Agriculture, and Council of Agricultural Education; Kerr Bros., R. Vere Scott, F. W. Littlejohn, Mrs. Daphne Dawes (pages 321, 324 and 338), E. E. Pescott, F.L.S. (pages 329, 331, 373, 374, 377), Scars Studio, Sutcliffe & Akers, Melbourne; Foyle, Warrnambool, and the author.

	Page		Page
Collins Street, looking West, Melbourne	290	A Selector's Hut in the Gippsland Forest	353
Title Design by Christian Yandell	291	"Goods Roads are a First Essential"	354
Surgeon George Bass	292	Mount Feathertop and Ovens River	355
Captain Matthew Flinders	292	Eurobin Valley, from Mount Buffalo	356
Sorrento, on Port Phillip	293	North Wall of Buffalo Gorge	357
Melbourne, from the St. Kilda Road	295	The Chalet on Mount Buffalo	358
"The Block," Collins Street, Melbourne	296	Eurobin Creek in Buffalo Gorge	359
Town Hall, Melbourne	297	At Bright	361
Central Railway Station, Melbourne	298	Walhalla: A Victorian Mining Township	363
Fire Station, Melbourne	299	On the Acheron River	364
General Post Office, Melbourne	299	"The Hermitage," Blacks' Spur	365
On the Upper Yarra	300	A Victorian Hop Garden	366
Back Beach, Williamstown	301	Victorian Agriculture	367
Tea-tree on Port Phillip Shores	302	Crossbreeding Wheats, Rutherglen Experimental Station	368
At Fern Tree Gully	303	A Demonstration of the Value of Top-dressing Grass	370
Nyora Gully, Healesville	304	Pot-culture House, Rutherglen Experimental Station	370
On the Beach at Mentone	305	Buildings and Water Supply, State Research Farm, Werribee	371
The River Yarra at Melbourne	306	A Wool Class, Sale Agricultural High School	372
A Mountain Road in Southern Gippsland	307	Landscape Gardening at the Botanical Gardens, Melbourne	373
Rocks at Phillip Island	308	A Lily Pond at the Botanical Gardens, Melbourne	374
The Break, Cowes, Phillip Island	309	Wheat Breeding at Rutherglen Experimental Station	375
In the Drained Area, Koo-wee-rup	310	Portion of the Burnley School of Horticulture Ploughing, Rochester: Grading Land, Shepparton	377
Mathinna Falls, Healesville	311	A New District: Tongala in 1913	379
Olinda Road, Sassafras	312	Maize Grown by Irrigation	380
The River Yarra at Warburton	313	A Hay Crop at Rochester	381
On the Road to Sassafras	314	Dookie Agricultural College	382
Ballarat	315	A Veterinary Class at Dookie College	383
A Vineyard at Lilydale	316	A Victorian Forest	384
Mitchell Falls, Kyneton	316	Cohuna Main Channel	385
The River at Yea	316	Laanecoorie Weir, on the Loddon River	386
Pall Mall, Bendigo	317	Goulburn Weir, Nagambie. Pumping Station, River Murray	387
River Goulburn, Alexandra	318	Currants, Shepparton. Navel Oranges, Mildura	388
Jubilee Park, Daylesford	319	Measuring Water to the Irrigators	389
Coliban River, Kyneton	320	Orange Tree, Cohuna. A Home in an Irrigation Settlement	390
In the Grampians	321	Pear Trees, 32 months Old. Peach Orchard, 22 Months Old	391
In the Public Gardens, Bacchus Marsh	322	Measuring Water, Mildura. Sultanas at Mildura	392
On the Erskine at Lorne	323	West's, Shepparton, 30 Months After the Settlement	393
In the Victorian Bush	324	Peach Trees at West's (Planted 32 Months)	394
Warrnambool	325	Dr. Wight's, Kyabram. A Kyabram Orchardist's Home. Apple Picking, Harcourt	395
Thunder Point and Shelly Beach, Warrnambool	326	Peach Orchard, Ardmona	396
Tower Hill and Lake, Koroit	327	Campaspe Weir, near Rochester	397
Loch and Gorge, Port Campbell	328	An Old Homestead at Swan Hill	398
In the Grampian Ranges	329	Clearing the Land for Grass. Heavy Sorghum Crop	399
In the Grampians	331	Harvesting Lucerne. Two Weeks' Growth of Lucerne	400
Public Gardens, Ararat	332	A Victorian Butter Factory	401
Some Australian Orchids	333	Types of Australian Girlhood	402
Stawell	334		
Agricultural Education in Victoria	335		
Longerenong Agricultural College	336		
Rolling Down the Mallee	337		
Saw Mill, Warrandyte	338		
The Lakes Entrance	339		
Kalimna, Lakes Entrance, Gippsland	341		
"Bull-frogs," Eastern Gippsland	342		
Lake Tyers	343		
Mitchell River, Bairnsdale	344		
A Backwater of the Mitchell	345		
The Citadel, Buchan	347		
In the Buchan Caves	349		
Mount Wills in Winter	350		
Winter in the Victorian Alps	351		
Carting Timber from a Bush Sawmill	352		

QUEENSLAND

The Illustrations in this Section are from photographs by Lafayette & F. Montcath (types of Australian girlhood), the Queensland Department of Agriculture and Stock, Government Printer, and the author.

	Page		Page
Lockyer Creek, South Queensland	404	Canefields at Childers	409
Title Design, by Walter Seed	405	Kaffir Corn, Biggenden. Apples, Stanthorpe	410
Coal Mine, Tannymorel, Darling Downs	406	A Queensland Settler's Home	411
Gold Ore Crushing at Gympie	407	Papaw Tree	412
Wool Teams, Wyandra	408	Orchard, Redland Bay	413

	Page		Page
Lemon Trees, Yeppoon, Central Queensland ..	414	A Queensland Cattle Camp	465
Sleepers for Africa and India. Olive Trees, Westbrook	415	Scrub Clearing in North Queensland	467
Gattan Agricultural College	416	A Street in Longreach	469
Central Railway Station, Brisbane	417	A Street View in Barcaldine	470
General View of Brisbane (Panorama)	418-9	Grapes at Roma	471
The University, Brisbane	420	Gidyea Forest	471
Produce Markets, Roma Street, Brisbane	421	A Street in Barcaldine	472
Avenue of Palms, Botanical Gardens, Brisbane	422	Artesian Bore Drain, Barcaldine	473
Date Palms, Barcaldine	422	Sheep on a Farm near Warwick, Darling Downs Queensland Pastures	474 475
Leaving Brisbane for Northern Ports	423	A Mob of Central Queensland Cattle	476
Cronin's Artesian Bore, Barcaldine	424	"Hills that May be Rich With Gold"	477
Sapphire Fields, Anakie District	425	Gold Mines, Mount Morgan	478
A Cane Farm near Mackay	427	Rockhampton, the Capital of Central Queensland	479
Cane Train Going to Marian Mill, Mackay	428	Examining Sapphires	481
Coconut Palms at Port Douglas	429	Classing Sapphires	481
A Pineapple Plantation at Woombye, North Coast Line	430	Sisal Hemp, Childers	482
Girls of North Queensland	431	A Herd of Hereford Cattle on Coochin Coochin, Fassifern District	483
Townsville, the Capital of North Queensland	432	A Mob of Queensland Horses	484
Cedar Logs at Cairns	433	Orion Downs, Springsure District	485
A Queensland Railway Locomotive	435	An Island on the Queensland Coast	486
Manager's Residence, Kamerunga State Nursery, Cairns	436	The Florida Bore	487
Para Rubber Plantation at Kamerunga	437	Sheep at the Hermitage, Darling Downs	489
Oil Palms at Kamerunga	437	Bullocks Drawing Timber	490
A Good Crop of Pineapples	438	Wheat Field, Allora, Darling Downs	491
Palms. Cairns-Mulgrave Railway	439	Town Hall, Toowoomba	492
Barron Falls, Cairns Railway	440	Hermitage Farm, Warwick District, Darling Downs	493
Pines for Market, Woombye	441	An Early Homestead, Roma District	494
Coffee Plantations at Mackay	441	Wheat at Roma	495
Cairns Railway, Showing Robb's Monument	442	Harvesting at Roma	495
Aboriginal Climbing Tree, Herberton	443	Harvesting Wheat near Warwick	496
Mining Men of Mareeba	444	Bending Broom Millet	497
Mount Bellenden-Ker	445	Potato Field, Killarney, Darling Downs	498
Cutting Sugar Cane	447	Picking Fruit at Westbrook, near Toowoomba	499
Cattle Creek, Mackay District	448	Crop of Young Maize at Westbrook	499
Maize Growing at Eel Creek, Wide Bay District	449	Planting and Irrigating Tobacco, Texas, Darling Downs	500
Fisher Falls, Innisfail, North Queensland	450	Bridge over Dumaresque River, Texas District	501
Queensland Aborigines' Mission Band	451	Tobacco Fields, Texas, Darling Downs	501
A Wayside Station on the Cloncurry Railway	453	Ipswich, Southern Queensland	502
Wide Bay Creek, North Coast Railway	454	Quince Tree, Stanthorpe	503
A Banana Plantation	455	Rocks at Stanthorpe	503
Native Canoes on the Bloomfield River	456	Coalmining at Bundamba, near Ipswich	504
Tully Falls, Cairns Hinterland	457	Coke Ovens in the Bundamba District	505
Gallet Creek, Cairns-Mulgrave Railway	458	View from Perry's Knob, Marburg, Moreton Dis- trict	506
Whitsunday Passage, North Queensland	459	Scene on the Marburg Railway, Moreton Dis- trict	507
Stony Creek Falls, Cairns Railway	460	Emir Creek, Killarney District	509
Gill Street, Charters Towers	461	Scene on Marburg Line	510
Chinese Method of Irrigation, Hughenden	462	Bottle Tree, Burnett District	511
Result of Irrigation, Hughenden	463	Nambour Sugar Mill	512
In the Kingaroy Country, Burnett District	463		
Hauling Timber	464		

NORTHERN TERRITORY

The Illustrations in this Section are from photographs by the Department of Home and Territories, Cruden, Sydney, and the author.

	Page		Page
A Northern Territory Billabong	514	After Ten Years' Tent Life in the Territory	531
Title Design by Christian Yandell	515	Pastoral and Mineral Areas	532
Territorial Inland	516	Natives of Oodnadatta	533
Sawmillers' Camp, Melville Island	517	A Northern Territory School	534
Scene in Central Australia	518	Dairy Stock—Merino Sheep at the Batchelor Demonstration Farm	535
Permanent Water—Batchelor Demonstration Farm	519	Stack of Upland Rice Hay	536
Goats and Ant Hills	520	Coconuts	536
Cyanide Plant	521	Spiders' Nests	537
The Wealth of Tropical Production	522	A Native Canoe	538
A Flooded River	523	Pearling Luggers, Darwin	539
Kapok Trees, near Darwin	524	Chinese Residents at Darwin	540
Coconut Palms and Sisal Hemp, in the Botanical Gardens, Darwin	525	Papaws at Point Charles	540
Date Palms	526	Darwin	541
Pineapple Plant	526	Guinea Grass, Residency Grounds, Darwin	542
Bananas	527	A Darwin Verandah—New Type of Residence, Darwin	543
How the Grass Grows at Darwin	528	An Artesian Boring Party	544
In the Sand Hills	529	Botanic Gardens, Darwin	545
Weighing Pearl Shell, Port Darwin	530	A Creek in Central Australia	547
A Frontiersman	531	Government School at Pine Creek	549

	Page		Page
On the Daly River	550	Oodnadatta Railway	578
A Glimpse of Daly River	551	Horses and Cattle in the Northern Territory ..	579
Screw Palms	552	A "Heart of Australia" Station Homestead ..	580
A Water Lily Lagoon	553	A Lily Pond, Northern Territory	581
Fruits of the Tropics	554	Chambers' Pillar, Central Australia	583
Pigs bred on the Adelaide River, near Darwin	555	Pine Creek Railway	584
In Tropical Australia	555	A River of the Farthest North	585
Maize, Daly River	556	Crossing the Katherine River	587
"Good Country"	556	Northern Territory Forest	588
A Northern Territory Jungle	557	Horses from the MacDonnell Ranges	589
Aboriginal Drawings	559	An Ant-Hill	590
Myall Blacks	560	Palms, Krichauff Ranges	591
A Daly River Farm	561	A Garden at Alice Springs	593
Aborigines with Buffalo Horns, Melville Island	562	The Prospector's Camel	594
Bound for Melville Island	562	Primitive Windlass	595
On the Adelaide	563	Chinese Bagging Dried Concentrates	597
A Traveller	564	Tin Concentrates	598
A Camp	565	A Territorian	599
Black and White	566	Turtles	600
Buffalo Hunting	567	Robbing a Turtle's Nest	601
A Creek in Central Australia	569	Copper Mine, Coronet Hill	602
Repairing the Waggonette at Lawrie's	571	Central Australian Aborigines	603
"Like the Patriarchs of Old"	573	Men Who are Needed for the Territory ..	604
A Northern Territory Bushman	574	King's Cove, Fort Dundas, Melville Island ..	605
Spring near MacArthur River	575	White and Black	606
Edible Turtle	576	A Surveyor's Camp	607
A Hundred Miles up the Roper River	577	Camels Drinking at a Creek	608

SOUTH AUSTRALIA

The Illustrations in this Section are from photographs by the South Australian Intelligence and Tourist Bureau, and the author.

	Page		Page
North Terrace, Adelaide	610	Shipping Wheat on Land, once Condemned as Sterile	636
Title Design by Christian Yandell	611	In South Australia	637
Orchards in Mount Lofty Ranges	613	An Apricot Orchard	638
Piccadilly, from Mount Lofty Ranges	614	Jetty, Port Lincoln	639
Ostriches on a Port Augusta Farm	615	Agricultural Machinery for Eyre's Peninsula ..	639
Flinders Range	616	A Settler's Home in South Australia	641
Camels in Central Australia	617	A Sheep Station Homestead	642
Afghans Loading a Camel	618	A Forest Pool	643
A Horse Waggon at Hergott	618	A South Australian Mail Coach—Port Lincoln to Eucla	645
At a Hergott Springs Race Meeting	619	Grass and Water in the Interior	646
Smelting Works at Port Pirie	621	South Australian Merinos	647
Crushing and Sorting Plant, Wallaroo Mines ..	622	An Irrigated Orchard	648
Traders on the Upper Murray	623	Drying Raisins at Renmark	649
Sandstone Cliff and Pool	624	Irrigation Drain near Beachport	650
A Big Melon and a Little Kangaroo	625	The Austin Excavator Working on Swamp Lands, River Murray	651
Rock Formation	625	Steam Shovels at Work on South-Eastern Drains	651
Government Reclaimed Area, Murray Bridge ..	625	Barossa Reservoir (Capacity 1,000,000,000 gallons)	653
Angaston	626	Drain Excavated by Machinery in Limestone Country	654
The Beach at Glenelg	627	Swamp Country Before Drainage, South-East South Australia	655
The "Dead Heart" of Australia	628	Inferior Country after Irrigation, Millicent ..	655
A Forest Veteran	629		
The Bread of the Wastes	630		
Long Reach at Morgan, on the Murray River ..	631		
Lake Bonney Landing, Murray River	632		
Harvesters at Work in the Pinnaroo	633		
Sons of the "Desert"	634		
Pinnaroo	635		

WESTERN AUSTRALIA

The Illustrations in this Section are from photographs by E. L. Mitchell, Greenham & Evans, Dwyer, L. E. Shapcott, and the author.

	Page		Page
Fremantle and Rottneest	658	A Pearl Blister (containing either a Pearl or Mud)	664
Title Design by Christian Yandell	659	Port Hedland	665
"An Air of Leisured Prosperity at Geraldton" ..	659	The Chinese Tally Clerk	666
Harvesting on Hawkhurst Estate, York	660	Heaving the Lead	666
Loading Camels for Nullagine	661	A Wool Schooner	667
Unloading Pearl-shell	662	O'Meara, Boss of the Gang	667
Diver and Crew on a Pearler	663	On the Road to Marble Bar	668
Cleaning Pearls	663	Coongan River, Marble Bar	369
Pearling Luggers at Anchor, Fort Hedland ..	664		

	Page		Page
Japanese Monument, Broome	670	Coronation Day at Bamboo Creek	705
Landing at Broome	671	Sulphide Dump at Gimblet Goldmine, Ora Banda	705
A Westralian Mounted Policeman	671	Wild Flowers at Murrin Murrin—A Guamma	
A Camel Train—A Camel Sulky	672	Hole	706
The Camel as a Lady's Hack—as a Carriage		Sandstone, East Murchison Goldfield	707
Horse	673	Oroza Goldmine, Black Range, East Murchison ..	708
Captain Dalgleish and "Paddy"—A Baobab Tree,		Frazier's Mine, Southern Cross	709
Derby	674	A Currajong Tree	710
Papaws and Cabbages	554	The Weir, Murray River, Pinjarra	711
Fishing on the Estuary—Mandurah	675	Helena River, Mundaring	712
Date Palm, Yarrie—Prospectors of Kitchener		Hannan Street, Kalgoorlie	713
Mine	676	School of Mines, Kalgoorlie	714
A Ship of the Desert—A Trolley Driven by Sail		Intersection of Hannan and Maritana Streets,	
Sheep at the Harding River	677	Kalgoorlie	715
The City of Perth	678	Oranges Grown at Kalgoorlie	716
St. George's Terrace, Perth	679	A Garden in Kalgoorlie	719
Yachting on the Swan River	681	Goldfields Girls	720
Bathers on the Swan River	682	A Native of the Goldfields	721
Ascot Racecourse, Perth	683	Early Days on the Golden Mile	722
The Swan River at Perth	684	Deserted Alluvial Diggings	723
An Irrigated Crop	685	Westralian Native Flowers	724
Land that will be Cleared for Cultivation ..	686	On the Sheep Hills, Newmarracarra	725
State Saw-mill, Manjimup	687	Pearling Luggers at Broome	726
A New Selector at Brunswick	688	Whim Well Copper Mine	727
On the Busselton Road—Road near Brunswick ..	689	Westralian Natives	728
Folded Shawl, Yallingup Cave	690	Waiting for Kangaroos	729
The Old Mill at Busselton	691	A Prospector—Salt Formation in a Mine	730
Millar's Mill, Karridale	692	Natives Fishing in the De Grey River	731
Young Australians, Jarrahdale	693	A Westralian Aboriginal—Curious Aboriginal	
Unloading Jarrah Piles, Cossack	694	Marking	732
Young Jarrah Forest, The Warren	695	Murray River, Ravenswood	733
Hauling Jarrah Logs	696	Coppin's Gap, near Marble Bar	734
New Settlers in the Forest	697	Meteoritic Shower, Calgardup Cave	735
Karri	698	A Date Palm, with Fruit—Irrigated Garden,	
Wheatley's Apple Store—A Pear Tree, Bridge-		near Carnarvon	736
town	699	Avon River, York	737
Old Homestead in Western Australia	700	McGibben's Estate, Bruce Rock	738
Nuggets of Gold from Ruby Well, Peak Hill ..	701	Bullock Wool-Team, Carnarvon	738
Crowd of Miners Listening to Father Long An-		Felling a Karri Tree	939
nouncing the Locality of the "Sacred		A Camel Wool Team—Town Water Supply,	
Nugget," Kanowna, 1908	702-3	Derby—A Wheat Waggon Drawn by	
Characteristic Quartz Outcrop	704	Donkeys	740

TASMANIA

The Illustrations in this Section are from photographs by Spurling & Son, Launceston; J. W. Beattie, Hobart; and the author.

	Page		Page
Launceston	742	At Devonport Station	763
Title Design by Christian Yandell	743	The Devil's Gullet, Western Tiers	764
The Nut, Stanley	744	The Alum Cliffs, Mersey River	765
North Coast Railway, near Burnie	745	Mount Lyell Copper Mine, Gormanston	767
Hartnett Falls, Upper Mersey River	746	Ringtail Gully, Waratah	769
Electric Power Station, Launceston	747	A Young Orchard	770
Freshwater Point, River Tamar	748	Table Cape, North-West Coast	771
Wool Mills, Launceston	749	Lake Hartz, Hartz Mountains	774
Trevallyn and the River Tamar	750	Gordon River Gorge, West Coast	775
In Denison Gorge, Scottsdale	751	St. Columba Falls, George River	776
Devonport	752	Mount Olympus, Lake St. Clair	777
Mount Wellington, showing part of Hobart ..	753	Lobster Creek, Leven River	778
Carnaroon (Port Arthur)	755	Timber Train in Geeveston	779
Bushy Park, Derwent Valley	756	Packing Stores to the Ringarooma Tin-Mines	780
The River Derwent at New Norfolk	757	A Harvesting Scene, Glenore	781
Fern Tree Bower, near Hobart	759	On the North Coast Road	782
A Tamar River Orchard	761	On the River Mersey	783

PAPUA (BRITISH NEW GUINEA)

	Page		Page
Native Village, Port Moresby—Settler's Home,		A Native Village	789
Samarai	786	A New Guinea Belle	790
Samarai (Papua)	787	At Sariba, near Samarai	791
Sisal Hemp at Fairfax Harbor	788	Para Rubber Trees at Javarere, Papua	792

NATIONAL, PATRIOTIC AND BENEVOLENT

The Illustrations in this Section are from photographs by the Government Printers of New South Wales and Victoria; Geo. Bell, Hall & Co., Sydney; Sears, Darge, Melbourne; C. P. Scott, Adelaide; H. Y. Phillips, Katoomba; Bartlett Bros., Bendigo.

	Page		Page
Soldiers of Australia	794	The South Australian Company: 1st Board of Directors	831
The First Australian-made Armored Motor Car	796	The Hon. John Howard Angas	832
Aviation in Australia	797	Lindsay House, Angaston	833
Small Arms Ammunition Making in Australia	798	Collingrove House, Angaston	834
Australian Light Horse Field Artillery	799	The Church at Collingrove	835
Some of the Crew of H.M.A.S. "Australia"	799	Angas Shorthorns, Collingrove	837
Australia's Navy	801	The Angas Memorial, Adelaide	838
Infant Public School, Sydney	802	Chas. H. Angas on "Fleetwing"—Charles Howard Angas	839
A Kindergarten Class	804	Rugias Prince 40th—Charming Oxford 51st	841
Sydney Technical College and Museum	805	Hackney Stallion:"Shirley Freelance" (imp.)	842
Conservatorium of Music, Sydney	805	Capt. Ronald F. Angas—Lieut. Dudley T. Angas	843
Junior Technical Class in a Public School	807	"Fortuna," Bendigo	845
Hawkesbury Agricultural College	808	George Lansell	846
Field Work at Hawkesbury College	809	The Entrance Hall, "Fortuna"	847
Sloyd Woodwork Class, Victoria	810	The Music Room, "Fortuna"	848
A State Infant School, Auburn, Melbourne	811	City of Bendigo	849
Victorian State School Gardens	812	A Cabinet, "Fortuna"	850
Physical Training for Boys—Domestic Economy for Girls	813	Lansell's "180" Mine	851
Training College for State School Teachers, Melbourne	814	Statue to Mr. George Lansell at Bendigo	852
One of the Wards in Sydney Hospital	816	Sydney Cove in "First Fleet" Days	853
Melbourne General Hospital	817	Mrs. Eleanor K. Abbott—Mrs. Frances A. Abbott	854
"Cicada," Burwood, Sydney	818	Sir Joseph Palmer Abbott—Macartney Abbott, M.L.A.	855
Some Government Institutions under the Children's Relief Board	819	W. E. Abbott—Thos. Kingsmill Abbott	856
A Bedroom at "Cicada," Children's Home, Sydney	820	House Built by John Kingsmill Abbott at Wingen	857
The late Thos. Walker, of Yaralla	821	The Younger Generation, Abbott Family	858
"Yaralla," Sydney	822	The Old Tank Stream at Sydney Cove	859
The Entrance Hall, Yaralla	823	Jameson Valley, Blue Mountains (Panorama)	860-1
The Thomas Walker Convalescent Hospital, Sydney	824	Hon. Archibald Bell, M.L.C.	862
Dutch Tower on the Wharf	825	The Homestead, Pickering	862
Joanna Walker Memorial Children's Cottage Hospital	826	Pure-bred Durham Cattle at Pickering	864
In the Garden at "Yaralla"	827	Lieut. William Cox	865
"Yaralla" (Entrance Front)	828	Wm. Cox, jun.—John Cox	866
George Fife Angas, the Father of South Australia	829	Chas. H. Cox, J.P.—John A. H. Cox	866

THE AUSTRALIAN PASTORAL INDUSTRY

The Illustrations in this Section are from photographs by C. P. Scott, Adelaide; Geo. Bell, Hall & Co., Freeman & Co., Sydney; Greenham Studios, Newcastle; Lafayette, Sears Studio, Melbourne; the Dobson Studio, Rockhampton; J. W. Beattie, Hobart, T. J. Killen, P. J. Nally, E. A. Vidler, and others.

	Page		Page
Wool Store, at Port Adelaide, South Australia	870	Murgha Stud Ewes (Pure Wanganella)	892
Title Design by Christian Yandell	871	Uardry Homestead	893-894
Reserve Feed on a Riverina Station	871	Mr. and Mrs. Charles Mills	895
Hand-Shearing in a Riverina Woolshed: Merribee	872	The Murrumbidgee in Flood	895
A Beef Shorthorn — Windmill and Trough, Yooroobla	873	Loading Wheat for Echuca at Uardry	896
A Mob of Merino Ewes in the Riverina	874	Annual Classing of Young Rams	897
Private Bridge over the Light River, Anlaby Estate	875	Young Rams brought in to be Classed	897
A South Australian Pastoral: Keyneton	876	A Typical Uardry Stud Ram	898
Romney Marsh Ewes and Lambs, Victoria	876	Kismet: Uardry Special Ram	898
The Homestead, North Yanco Station	877	The Homestead, Yooroobla	899
The Hon. Sir Samuel McCaughey, M.L.C.	878	The late Geo. Ferguson Simpson	900
The Homestead—Turbine Windmill, Coonong	879	George F. Simpson	900
Blacksmith's Shop, Upper Yanco Station	880	The Woolshed, Yooroobla	901
Era Grader Making Drains, Upper Yanco	881	Typical Sires, Yooroobla Sale Rams	902
Men's Quarters at North Yanco	881	Perfection: Yooroobla-bred Ram	902
Sawmilling Plant, North Yanco Station	882	Yooroobla-bred Ewes (under 18 months)	902
Woolshed at North Yanco (45 stands)	883	Typical Nowranie Stud Rams	903
One of Three Haysheds at North Yanco	884	A Flock of Merino Ewes, on Nowranie	904
Mr. and Mrs. James Mitchell, Table Top	885	Herd of Cattle, on Nowranie	904
View from Verandah, Table Top Homestead	886	The Woolshed, Nowranie	905
Table Top Homestead (looking South)	887	"Rose," Champion Brood Mare, Nowranie	905
Table Top Mountain	888	Ferguson Simpson	906
Murgha Stud Rams (Pure Wanganella)	889-890	Nowranie Stud Merino Ram	906
Murgha Stud Rams: No. 94 and one of his Sons	891	The Homestead, Wangamong	907
		A Wangamong Riverina Ram	908
		Double-Stud Ewe, Wangamong	908

	Page		Page
Big Springs Homestead, from the Lake ..	909	Alfred John Cotton—Mrs. A. J. Cotton ..	982
The Woolshed and Huts ..	910	"Elected," A. J. Cotton's Champion Stallion ..	983
In the Centre of Big Springs Station, looking West ..	911	Hidden Vale Suffolk Punch Family Group ..	983
A Good Field of Wheat ..	912	Hidden Vale Shorthorn Bulls—Stud Shorthorns ..	984
O'Brien's Creek, on Big Springs Estate ..	913	"Mintohurn," Mr. Cotton's Tasmanian Home ..	985
A Part of the Garden, Big Springs ..	914	Mr. A. J. Cotton's Motor Launch ..	985
Merribee House ..	915-917	"Canobie," Mr. Cotton's Steam Yacht ..	986
William Wilson Killen ..	916	The Cotton Family ..	986
The Merribee Stud Merinos ..	918-919	The Standard of the Home of Edmund Jowett ..	987
Merribee Merino: a Good Staple ..	920	Edmund Jowett, M.P. ..	988
Mr. and Mrs. W. Killen and Family ..	920	"Manningham," Toorak, Melbourne ..	989
Merribee Country, with Mount Binya in the Distance ..	921	Captain Arthur Craven Jowett ..	990
A Flock of Merribee Ewes and Lambs ..	921	Mr. Jowett's Book-Plate ..	991
On Goobragandra and Blowering Stations ..	922	Ormiston House, near Brisbane ..	992
The Tantallon Lincolns ..	923	John Arthur Macartney ..	993
Mr. and Mrs. William Hood ..	923	Hereford Cattle at Waverley ..	994
Tantallon Lincolns—Yearling Filly by Earleston—"Wentworth," 4-year-old Draught Stallion....	924	Lagoon at Waverley ..	995
Three Lincoln Ram Lambs, 9 months old ..	925	Kooralbyn Homestead ..	996
Gunner Tom Edols Hood ..	925	View on Kooralbyn Station, from the Homestead ..	997
Welsh Mountain Pony Stallion, "Tantallon" ..	926	Chas. Wyndham Bundoock ..	997
The Homestead, Tantallon ..	926	Cattle and Horses on Kooralbyn Station ..	998
Burrawang House and Lagoon ..	927	General View of Kooralbyn Station ..	999
The Late Thos. Edols—C. Hedley Edols—Thos. Reginald Edols ..	928	Willoughby House ..	1000
Typical Burrawang Stud Rams ..	929	Part of the Garden at Willoughby ..	1001
Mount Burrawang—Shearing Sheep by Machinery ..	930	Typical Willoughby Stud Rams ..	1002
Champion Tocal Hereford Cow: Minerva ..	931	Stud Merino Rams, Willoughby ..	1002
The late Charles Reynolds ..	932	Stud Merino Ewes, Willoughby ..	1003
Imported Hereford Bull: Twyford Horace ..	933	A Willoughby Stud Ewe ..	1003
Frank Reynolds—The Homestead, Tocal ..	934	Albert Durer Alexander ..	1003
The Garden, Mooki Springs ..	935	Murray Vale House and Outbuildings, Mount Crawford ..	1004-5
Devon Long-Woolled Sheep—Suffolk Punch Horses ..	936	Mount Crawford Country ..	1006
Mooki Rotherwood: Shorthorn Stud Bull ..	937	The late John Murray ..	1007
Baron Oxford 21st: Mooki Shorthorn Stud Bull ..	938	Murray Vale House ..	1008
Young Durham Bulls ..	938	Alick J. Murray—John Murray, Junr. ..	1009
The Home Paddocks, Mooki Springs ..	939	Radium II.—Lion II. ..	1010
Mooki Springs Stud Shorthorn Cows ..	940	Murray Merino Stud Ewes ..	1010
Shaded Water-troughs on the Plain Country ..	940	The late Mrs. McBride—R. J. M. McBride—Mrs. McBride ..	1011
The Original Edinglassie ..	941	Mr. R. J. McBride's Residence, Kooringa ..	1012
Five Generations of the "Edinglassie" White Family ..	942	Grandsons and Great-Grandsons on Active Service ..	1013
Edinglassie ..	943	The Woolshed, Anlabv—Anlabv Merinos ..	1014
A Farm on the Edinglassie Estate ..	944	Anlabv House, near Kapunda ..	1015
An Imported Bull, Edinglassie ..	944	Francis Stacker Dutton ..	1016
The Hon. Jas. C. White and His Divining-Rod ..	945	Frederick Hansborough Dutton ..	1016
Belltrees Homestead ..	947, 948	A Medal of 1832 ..	1017
Manager's Residence—Bachelors' Quarters ..	949	Anlabv House in 1850—The Kennels ..	1018
Typical Belltrees Stud Merino Ram ..	950	The late Henry Dutton—H. H. Dutton ..	1019
Private Suspension Bridge over the Hunter River ..	951	Anlabv House ..	1020
Henry L. White ..	952	The Gardens of Anlabv House ..	1021
"Palmerston," Armidale ..	953	St. Matthew's, Hamilton—Dutton Memorial Church ..	1022
Part of the Rose Garden, Palmerston ..	954	"Eringa," Kapunda ..	1023
The late A. A. Dangar ..	954	Sidney Kidman Drafting Horses, Oakland Downs Station ..	1024
View from Palmerston House ..	955	Six Hundred Horses "rounded up" at Bulloo Downs ..	1025
Devon-Merino Cross-bred Ewes and Lambs ..	956	Shorthorn Cattle at Nundorah Station ..	1025
Devon Merino Cross-bred and Hereford Bullocks ..	956	Sidney Kidman Starting Drivers for Cattle, Queensland ..	1026
The Woolshed, Noorindoo ..	957	Sidney Kidman ..	1027
Sinking No. 3 Artesian Bore, Noorindoo ..	958	Salt-Bush—Wool-Waggon Camels, Yantara ..	1028
No. 2. Artesian Bore, Noorindoo ..	958	Merino Sheep at Yancanna Station ..	1028
A Herd of Shorthorns at Yetman ..	959	A Waterhole on Allandale Station ..	1029
G. W. Dight, Senr. ..	960	A Camel Team carrying Cases, Oodnadatta ..	1030
Shannon Vale Homestead ..	961	The Homestead, Fulham Park ..	1031
The late Edward White ..	962	Blood Stallion, "Passing-By" ..	1031
Shannon Vale Country ..	963	Sidney Kidman's Daughters ..	1031
Major Jas. F. White ..	964	Allandale Homestead, Central Australia ..	1032
The Mann River, Shannon Vale ..	965	Artesian Bore, Allandale ..	1033
Old Shannon Vale ..	966	An Artesian Bore, Central Australia ..	1034
At Ramornie, on the Clarence River ..	967	Joseph Keynes—R. R. Keynes ..	1035
Charles Grant Tindal ..	968	The Homestead, Keyneton ..	1036
The Homestead, Ramornie ..	969	Keyneton Country ..	1037
"Bona Vista," Armidale ..	969	Typical Keyneton Ram—Typical Ewe ..	1038
Mr. and Mrs. C. F. Tindal and Family ..	970	Gunner Joseph Keynes—R. N. Keynes ..	1038
Typical Ramornie Bulls ..	971	Koonoona Country ..	1039
Australian Meat Company's Works, Ramornie ..	972	Hon. W. Duffield—W. S. Hawkes ..	1040
Donald Campbell, of Glengower ..	973	Special Stud Rams: Lord Kitchener—Lloyd George—Admiral Beatty ..	1041-2
Manager's House and Barracks ..	974	Bungaree ..	1043-50
The Homestead, Dungalear ..	975	North Bungaree ..	1051-56
J. A. Campbell ..	976	Anama ..	1057-62
The Homestead, Gracemere ..	977	Lucernedale ..	1063-1071
Hereford and Shorthorn Herd Bulls, Mount Scoria ..	978	The Downies, of Glenelg ..	1072-1075
The Garden, Gracemere Homestead ..	979	Queensland Gems: Opal-fields ..	1078-9
Hereford Cattle, Gracemere ..	980	N.S.W. Government Savings Banks ..	1080-1084
The Homestead, Hidden Vale ..	981		



INTRODUCTION



MY work on *Australia Unlimited* began definitely with the year 1912. Prior to that I flattered myself that I knew the Australian Continent better than most people.

I had spent many years in the bush, where I was cradled and reared. I had driven a covered waggonette from Parramatta to Townsville, and taken a motor boat down the Murray from Albury to Lake Alexandrina, establishing a world's record for an internal-combustion engine over river distance—in a country which is credited with having no rivers.

I had ridden, driven, motored and booted thousands of miles in New South Wales, Queensland, Victoria, South Australia, and Tasmania.

I had worked as a surveyor's assistant, draughtsman, timekeeper, clerk, accountant, salesman, settler, vigneron, orchardist, journalist, editor, photographer, canvasser and proprietor.

I had personally fenced, cleared, ploughed, harrowed, builded, and planted on my own small Australian acreages.

I had a technical education, supplemented by scientific reading, a general business experience, and the width of knowledge which is imparted by the eclectic school of the newspaper press.

I flattered myself also that I was familiar with Australian conditions: I had organized Labour and organized Capital, and was in a position thereby to know the needs and claims of Australian producers and investors.

But I did not consider that this knowledge, such as it was, entitled me to undertake the compilation of the book I wanted *Australia Unlimited* to be, without a more exhaustive travel and a closer investigation of my subject.

So I set out for South Australia early in 1912, and, with a note-book and kodak, began to collect special material for this volume.

I travelled over the Central State from Adelaide to Hergott and from Pinnaroo to Port Lincoln. I examined for myself the wheat-growing possibilities of the Mallee, the problems of development in the Far North, the settlement of the Murray Valley—all the big and little

things that go to make the prosperous and slowly progressive life of that small community.

I travelled across the great Australian Bight, and established my literary headquarters in the fair city of Perth for a period.

Thence I radiated to the goldfields, the wheat lands, the timber areas, the agricultural districts, and finally along the great tropical North-West as far as Derby, in Kimberley.

From there I went over to the Malay States and Java, to study the agriculture and production of contiguous tropics and learn, as far as I might, how the Dutch and English had met the problems of European life in tropical climates.

I returned to Australia from Sourabaya in Java, and secured first-hand information and impressions regarding our great Northern Territory.

From Port Darwin I came home to Melbourne, and, setting out a few days later in a light motor car, travelled the glorious little State of Victoria from end to end.

Then I went back to New South Wales, the State of my birth, and saw the western wheat belt, the rich red lands beyond the Darling River, and those parts of coast and mountain which had not found a place in previous itineraries.

From Sydney I went north into Queensland as far as Cairns, and worked down the map until I had been over practically the whole of that magnificent northern State.

In the summer of 1914, I did the southern coast of New South Wales and the happy little island of Tasmania.

This is merely a rough summary of the journeys which have been made in search of literary material, but it shows that the compilation of this book has not been undertaken in a casual manner.

The author feels called upon to express by a general acknowledgment his lasting obligations for the assistance which he has everywhere received from Australian Governments and Government officials, from the pastoral community, the public, and the press.

To the administrative staffs of the various State and Federal Governments I am especially indebted. Sources of information have been freely opened to me, valuable data placed at my disposal, Premiers, Ministers, secretaries, heads of departments, sub-officers, district officials have aided my efforts to obtain correct information and facilitated my progress through the continent.

Under an arrangement made common to all the States, *Australia Unlimited* contains sections, specially prepared, on behalf of New South Wales, Victoria, Queensland and the Northern Territory, and also a proportion of matter compiled from data furnished by the Governments of South Australia, Western Australia and Tasmania.

Such national statistics as are quoted have mainly been taken from Mr. G. H. Knibbs' *Official Year Book of the Commonwealth*, to which the author is greatly indebted.

Mr. Edward A. Vidler has prepared this volume for publication, exercising a valuable editorial supervision over the whole production. He has brought to the onerous task great organisation, good judgment, and rare patience.

As *Australia Unlimited* evolved, the most perplexing consideration became, not what it should contain, but what would have to be left out in order to keep it within the limits of one volume.

Much interesting material had to be jettisoned, and the claims of many places which called for descriptive attention reluctantly denied.

One would like to have dealt in detail with the educational and agricultural systems of each State, and made an exhaustive survey of subjects like industrial legislation, State-owned railways, and various civic and Government enterprises on which casual attention is bestowed here and there throughout the book.

Anything like a complete survey of Australian mining proved out of the question. It was felt that the pastoral industry, being the oldest, most permanent and important feature of our material development, merited the fullest possible extension of space.

Readers may find the author's Australia to be unlike the Australia of pre-conception. They may conclude that his outlook is over-optimistic. But this optimism is no more than a reflection of facts. I have travelled the country and studied it to the best of my ability, hoping to forecast the future from the efforts and achievements of the present, drawing conclusions from comparisons, endeavouring to bring to the task judicial methods, in order to reach sound judgments.

Everywhere—prejudiced I believe by no over-sanguine temperament—I found Wonder, Beauty, unequalled Resource. Under the arid seeming

of the plains I saw the possibilities of marvellous tilth. Barren hills poured out a golden recompense in minerals. The whole continent has proved to be a vast storehouse of mainly undeveloped Wealth.

Nor is the message of Australian Nature uttered in tones of predominant melancholy, as many alien souls have affected to believe. Accidental conditions, personal, social and material, have been and still are depressing to certain individuals, but Australia, in itself, is nowhere depressing. To the foreigner, at first, it is a different, unusual country. To the sane, healthy native-born it is a mother of everlasting youth and beauty, and the freest, richest, happiest land on earth. As a crude expression of the main features of this glorious land, I launch this book, hoping that its literary shortcomings may in part be atoned for by its patriotic intentions.

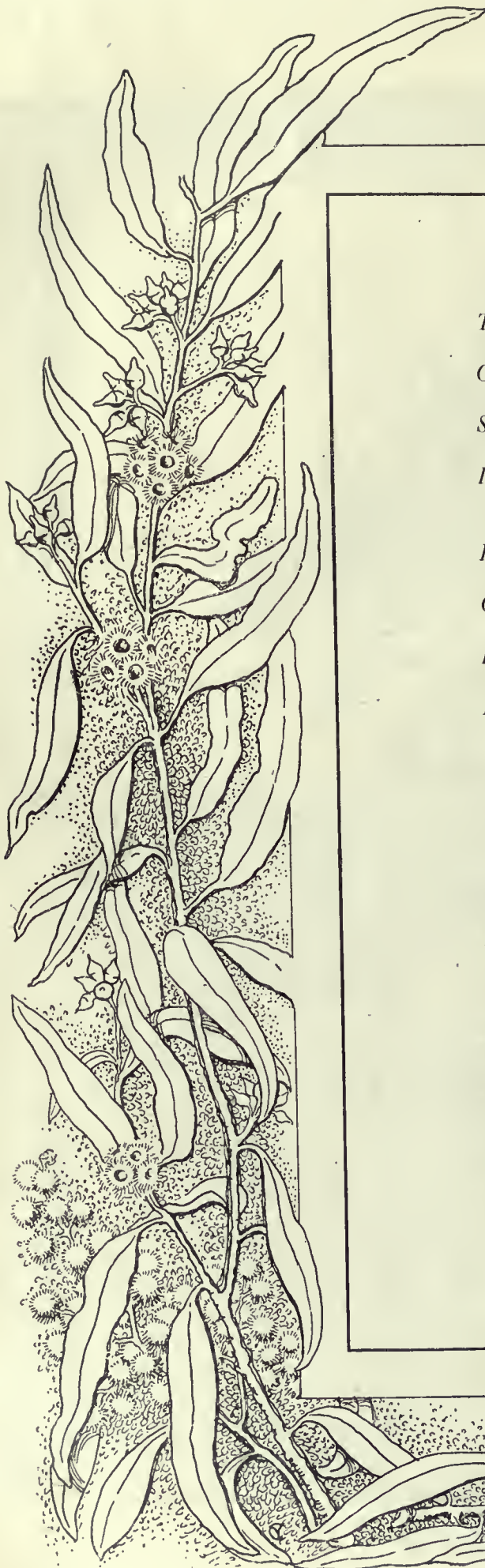
If it helps to give the outside world an impression of the real Australia, and assists Australians to a greater faith in their own country, its mission will be at least partially fulfilled.



Edw. A. Brady



A Victorian Country Road



MY COUNTRY.

*The love of field and coppice,
Of green and shaded laues,
Of ordered woods and gardens,
Is running in your veins.
Strong love of grey-blue distance,
Brown streams, and soft, dim skies—
I know but cannot share it,
My love is otherwise.*

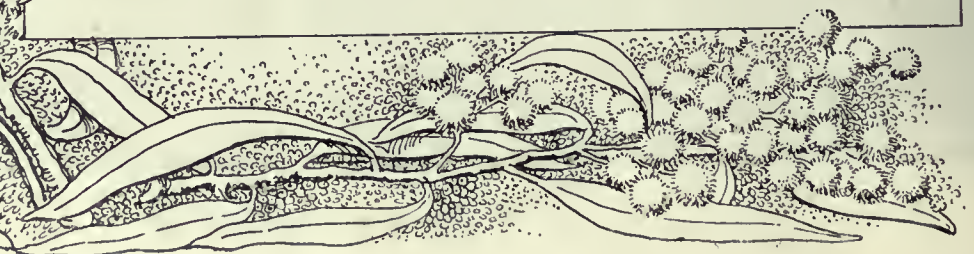
*I love a sunburnt country,
A land of sweeping plains,
Of ragged mountain ranges,
Of droughts and flooding rains.
I love her far horizons,
I love her jewel-sea,
Her beauty and her terror—
The wide brown land for me!*

*The stark white ring-barked forests,
All tragic to the moon,
The sapphire-misted mountains,
The hot gold hush of noon.
Green tangle of the brushes,
Where lithe lianas coil,
And orchids deck the tree-tops
And ferns the warm dark soil.*

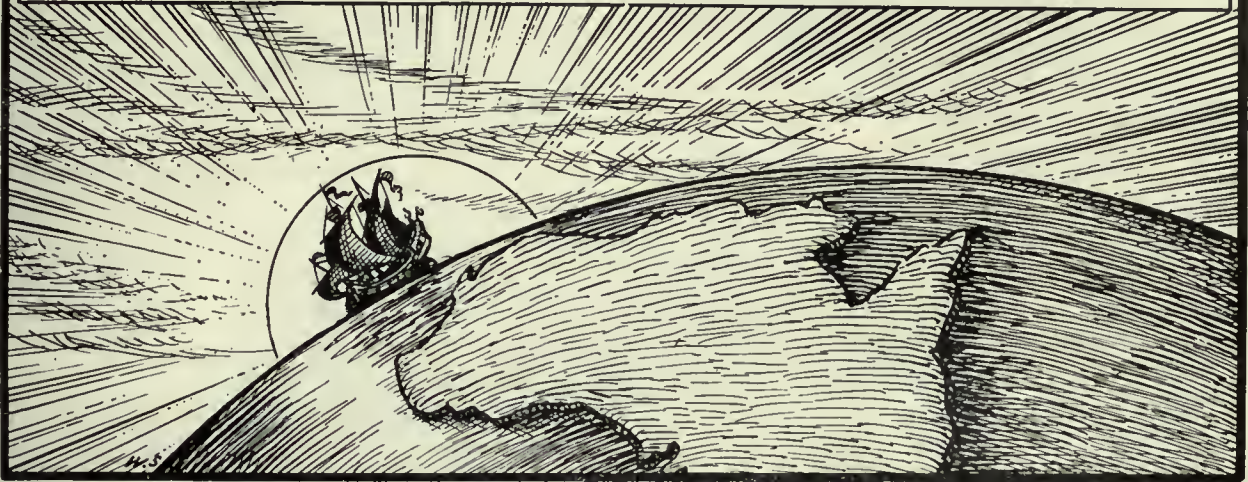
* * * *

*An opal-hearted country,
A wilful, lavish land—
All you who have not loved her,
You will not understand—
Though earth holds many splendours,
Wherever I may die,
I know to what brown country
My homing thoughts will fly.*

DOROTHEA MACKELLAR.



THE DAWN OF HISTORY



BOOKS on Australian history have too often begun with a dirge and ended with an apology. *Australia Unlimited*, to be in keeping with its subject, should open with an anthem and close with a march of triumph.

If twenty years' close personal study of a country be time enough to form correct conclusions, then the writer of this volume should be competent to offer a compilation of some value.

The body of the material for *Australia Unlimited* has not been gathered from printed pages, but collected carefully, State by State, district by district, mile by mile, year after year, from the wide circle of a continent—a continent of potentialities still unrealized, for Australia is yet like a flower in the seed, or a song written—but unsung.

* * * *

For unrecorded years Australia remained a Cinderella among the countries of the world. Centuries of written history had practically passed her by. The ancients had some hazy knowledge of the existence of a great country to the south of India. The learned of Chaldea, Greece and Rome doubtless possessed indefinite information on the subject. From the 4th century, B.C., to the 15th of the Christian Era, this information remained like most ancient geography—open to much question.

Then, as the story of maritime discovery began, an occasional line, with long spaces between, fell to her share in the earlier volume of events.

It is difficult for the twentieth century mind to realize how wide the world was in the year 1511, when the first blunt Portuguese keel is said, on questioned authority, to have accidentally drifted towards the Australian shore line.

Asian canoes, junks, and praus had doubtless visited our northern coasts at intervals for centuries before, driven out of their courses by storm or lured by the ancient sirens of Trade and Adventure.

The Malays, who were ever hardy sailormen, came down regularly in their lean ships for tre-pang, mayhap for pearls and gold. The Arabs, it is believed, preceded the Portuguese. The Continent at least appears on Saracenic maps of the 13th century. As far back as 1489 the undoubted shore of Australia is shown on a European map. The oldest globe extant (1492) also shows part of the Austral Coast.

While European colonization was pushing westward to the Americas and southward to the Indies, the Spanish and Dutch in turn interested themselves in a Great Southern Continent, then—and for centuries to come—a disputed problem of geographers.

In 1567 Alvaro de Mandana sailed out of Callao in search of this Continent. He discovered the Solomon Islands.



Sunset: Torres Straits

It is contended that authentic evidence exists of Spanish ships having visited and remained for some time at Port Curtis and Port Jackson on the eastern coast of Australia.

But the first *recorded* discovery—unless future geographical research alters present conclusions—lies to the credit of the Dutch, who are still our nearest colonial friends.

Gold, which played an important part in our subsequent history, was the attraction. In 1605 Frederick de Houtman, Governor of Amboyna, in the Moluccas, outfitted a local expedition under the auspices of the Dutch East India Company, for purposes of exploration on the coast of New Guinea, where gold was rumored to exist.

So the yacht *Duyfken* (Willem Jansz, commander) sailed out of Bantam on the 18th of November, three centuries ago.

In March of 1606 this *Little Dove* was timidly touching the shores of York Peninsula, her stout commander believing all the while that he beheld the west coast of New Guinea.

At Cape Keer Weer ("Turn Back"), something more than three degrees below the extreme northern point of the Continent, Jansz put his tiny ship about. He had written an important paragraph in the history of exploration without being aware of the significance of his discovery.

The journal of good Captain Jansz has eluded the search of the archivists, but his memory deserves a tablet on Cape Keer Weer.

In December of 1605, Mandana's pilot, Pedro Fernando de Quiros—accompanied by Luis Vaz de Torres—had come out of Callao with three Spanish ships to find, if they might, this elusive *Tierra Austral*. They sighted instead one of the New Hebrides, and named it *Austrailia del Espiritu Santo*. Hereabout Torres, on the 11th June, 1606, went wide of de Quiros. Finding that their joint discovery was no more than an island, he bore westward and passed through the straits that now bear his name, sighting, un-

awares, the Continent that New Spain was seeking.

In the earlier years of the 17th century the Dutch East India Company made at least one abortive attempt to determine and take possession of the "Lands to the Southward of Java."

In the third year of the present century, an interesting "find" was made in the State Museum at Amsterdam.

It proved to be the original tin plate nailed to a post by Captain Dirck Hartogs at Shark Bay, Western Australia, in the year 1616.

The inscription on the plate, translated from the Dutch, reads:—

ANNO 1616, THE 25TH OF OCTOBER.—
ARRIVED HERE THE SHIP *Eendracht* (*Concord*), OF AMSTERDAM; THE FIRST MERCHANT GILLIS MIEBAS OF LIEGE. DIRCK HARTOGS, OF AMSTERDAM, CAPTAIN. 27TH DO. SAILED FOR BANTAM.

On the lower part, cut with a knife, probably by the ambitious Jan himself, is added:—

The Under Merchant Jan Stius, Upper Steersman, Pieter Dockes, of Bil. Ao., 1616.

This plate stood for 81 years at the north end of Dirck Hartogs' Island. It was removed by another Dutch navigator—Captain Willem de Vlaming—in 1697, and forwarded to Holland by the then Governor of Batavia in due course. From the board room of the Seventeen Directors of the Dutch East India Company it had presumably been conveyed at some subsequent period to the Rijks-Museum, where it lay unnoticed while two hundred years were setting Australia's feet firmly in the path of progress.

Vlaming substituted for Dirck Hartogs' plate another bearing a similar inscription, which was removed by De Freycinet in the early part of the nineteenth century, transferred to the Museum of the French Institute, and lost.



Native Dances, Hamond Island

The alleged post, of cypress pine, on which Vlaming nailed his duplicate is preserved in the Perth (W.A.) Museum. As the first European memorial erected on our territory, Dirck Hartogs' plate remains of particular interest to Australians.

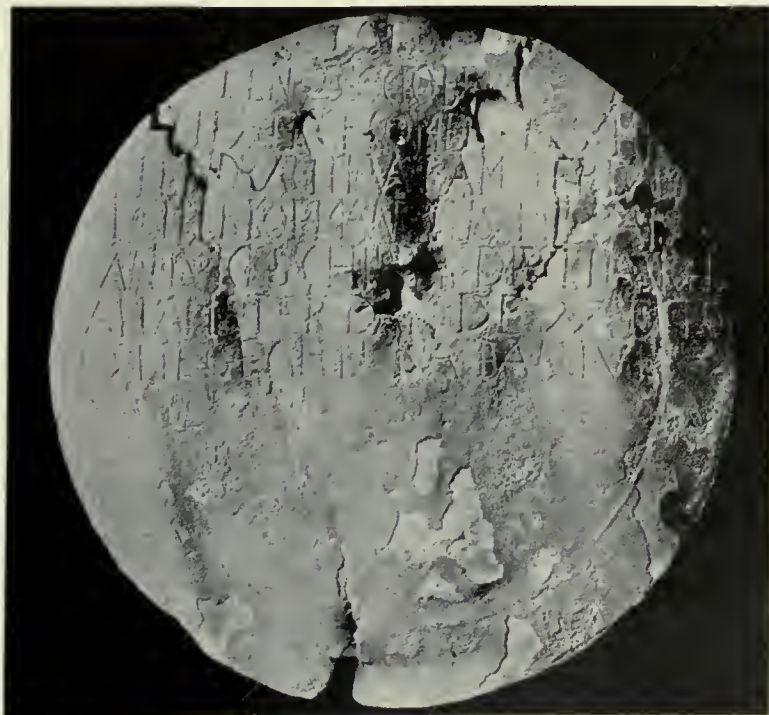
Dirck Hartogs' Island, low and flat, is now an Australian sheep station. Steep Point, at its southern end, marks the extreme western reach of the Australian mainland. The Island runs north and south, fifty miles in length, by four to six miles wide. It is separated from the coast by a narrow passage. On its northernmost sandy headland, Cape Inscription Lighthouse guides the modern shipmaster on his ocean way.

that portion of the Continent nearest to their East Indian possessions.

The mainland was sighted by the *Zee-wolf*, in May, 1618. Later, in the same year, another Dutch ship, the *Mauritius*, touched the north-west coast and found the Ashburton River. In 1619 Houtman's fleet discovered the Abrolhos Islands, 45 miles west of the present town of Geraldton. These islands nine years later were destined to be the scene of a vivid tragedy.

In 1622 the Dutch ship *Leeuwin* rounded the Cape now bearing her name and explored the coast as far as the present site of Albany (W.A.).

The year 1623 found the Dutch busy further



Dirck Hartogs' Plate

Just inside the lighthouse is a little bay, where Hartogs, "bound outward from Holland to the Indies," landed in 1616, in the fullness of a West Australian spring. Hartogs sailed along and examined the coast between the latitudes of 26 deg. 30 min. and 23 deg., and named it "Eendracht's Land." At that time of the year the country would be ablaze with wildflowers. The days would rise bright and sunny, the nights fall starry and cool; but the Dutchman and his ship's company recorded no favorable impressions. Still the homely tin plate which has turned up, after nearly three hundred years of oblivion, at the State Museum of Amsterdam is an eloquent expression of high achievement.

Between the time of Dirck Hartogs' accidental visit and the year 1627, the Dutch seem to have carried on a fairly systematic investigation of

north. An expedition from Amboyna, headed by one Jan Carstenz, with the vessels *Pera* and *Arnhem*, had an adventurous time along the shores of the present Northern Territory. The skipper of the *Arnhem* was killed by the natives, and the explorers' report of the country was not favorable.

In 1627 came Peter Nuyts, afterwards ambassador to Japan and subsequently Governor of Formosa, in the *Golden Sea Horse*, round the Leeuwin and across the Bight as far as Nuyt's Archipelago. The *Golden Sea Horse* put about somewhere near the present margin of the wheat-growing belt of South Australia.

On the 4th June, 1629, the *Batavia*, Pelsart's ship, having been driven out of her reckoning, struck on one of the islands of Houtman's Abrolhos and became a total wreck.

Pelsart's ship was part of a Dutch East Indian expedition. It was intended originally that the fleet should consist of eleven vessels. But the *Batavia* and two others, being earlier equipped, sailed out of Texel under the command of Commodore Francis Pelsart on the 28th October, 1628. After leaving the Cape of Good Hope the *Batavia* separated from the other two during a storm, and so met her fate alone. Among Pelsart's company were a number of youths and men who, even in an age of piracy, might be classed among the most godless ruffians afloat.

These scourings of the Low Countries had already found a suitable ringleader in one Jerome Cornelis, the supercargo, a sometime chemist of Harlem City, with, as it proved, an overweening vanity, a plausible tongue, and neither conscience nor humanity. Some attempt has been made to elevate this soulless scoundrel into a figure of adventure, but from first to last he seems to have been a blundering assassin at best.

On board the *Batavia* were a number of Dutch emigrants and their families, bound for Java. Among them the handsome Frau Lucretia Jansz, whom Cornelis coveted.

From subsequent evidence it was made clear that after leaving the Cape a mutinous plot had been hatched under the auspices of the atrocious Cornelis to seize the ship, slay commodore, soldiers, and passengers, and go pirating upon the high seas.

The skipper of the *Batavia*, Adrian Jacobs, and fifty or more of the ship's company, were in the conspiracy, which, for one reason or another, did not come to a head until after the vessel was wrecked.

Panic and drunkenness followed the wreck. After grinding heavily on the coral the ship burst. But Pelsart, who forms a fine historic figure, despite torrential rain and rapidly rising seas, succeeded in safely landing 180 of his people and a supply of provisions on two of the neighboring islands.

The weather forced him to leave Cornelis and seventy others aboard.

As the *Batavia* had settled quickly, submerging her casks, a very inadequate supply of fresh water was got away with the ship's boats.

The Abrolhos apparently contained none, so, after consultation, Pelsart and the captain sailed in two of the ship's boats towards the mainland. Bad weather drove them north, and the skipper's boat parted company and was heard of no more.

It was eighteen days before Pelsart discovered water. They were then a hundred miles from the Abrolhos, with the wind behind them. Nine days later their boat made the coast of Java, where they were picked up and carried into *Batavia*.



The Lighthouse at Cape Leeuwin

After remaining for ten days on the wreck, Cornelis and his group succeeded in getting ashore on the Abrolhos. Here, in a short time the conspiracy was fully hatched, and on an appointed day the work of extermination began.

It had been resolved and sworn to that all but forty of the survivors were to be killed, the yacht which Pelsart had promised to return in seized, and a career of piracy begun under "Captain General" Jerome Cornelis.

So these bloodthirsty ruffians stole upon the weak and unsuspecting victims, awaiting wearily and anxiously the return of the Commodore, and the cruellest and ugliest chapter in the history of Australia was written in blood upon the lonely Abrolhos.

The callous band of putative pirates succeeded in exterminating most of the men upon the islands. It chanced that Webbe Hayes, corporal in the Dutch East Indian Service, who had taken charge in Pelsart's absence, was that day away in one of the ship's boats seeking water. He returned with glad news of successful quest, only to be met by chance survivors with a hastily-told account of piteous tragedy.

With 47 stout men behind him, Hayes rapidly improvised his defences, and being attacked in force by the rebels eight days later, beat them

off. A second sortie from Cornelis left the gallant corporal again the victor.

Cornelis and his gang meanwhile apportioned the women, the leader taking the coveted Frau Lucretia to himself, after seeing to it that her husband was foully murdered.

Having helped themselves to the ship's stores, the blood-drenched company went about their island domain arrayed in much gold lace and scarlet cloth, awaiting the return of Pelsart, whose ship they had determined to secure.

Failing to suborn the men who stood with Hayes, they made repeated attacks upon them. In one of these sorties the "Captain General" was captured and remained the Corporal's prisoner.

While these stirring events were disturbing the quietude of the Abrolhos, Pelsart, comforted with a stout ship by the Governor General at Batavia, was bravely hurrying back to the rescue of his shipwrecked company, little dreaming of the tragedies that had been enacted in his absence.

He came down in the *Saerdam*, upon the Abrolhos, on September the 13th.

Putting out a boat laden with bread and wine, he had barely landed when Hayes came rowing to him with evil news. Pelsart hurriedly re-embarked his company and gained the *Saerdam*, hotly followed by a boatful of armed ruffians.

From the commanding position of his quarter-deck, with trained guns to emphasize his order, the Commodore promptly called on the conspirators to throw their weapons into the sea, or be blown to the inferno they had earned.

Whereupon, without further show of resistance, the boat's company surrendered and were clapped into irons.

Having transferred Cornelis to the *Saerdam*, Pelsart went methodically to work. The grim commander, as God-fearing and righteous as men may be in any age, first surrounded the remaining mutineers on the island which had proved the Batavia's graveyard, and forced them also to lay down arms.

Then he set to the recovering of his Company's plundered property and the trial of the offenders.

Jerome Cornelis, being duly sentenced and condemned by the "noble court," was hanged with several of his companions.

Justice accomplished, Pelsart weighed anchor on the 28th October, 1629, and, after marooning two of the mutineers on the coast near Champion Bay, sailed for Batavia.

What became of those two unworthy first settlers is a matter of conjecture. They may have died of thirst or been speared by the blacks. Many relics of castaways have been found along

the Westralian coast, dating back no doubt to the seventeenth and eighteenth centuries.

Pelsart bore to Europe in time some definite information about the mainland, upon which he reported very unfavorably. It had been an unlucky discovery for him.

In the Public Library at Perth (W.A.) there is a valuable volume accidentally picked up in a secondhand bookstall in London a few years ago by one Broadhurst, the then lessee of the Abrolhos Islands. The only copy extant, it is printed on beautiful old linen paper, in bold black type, and sets out to be the

ONGELUCKIGE VOYAGIE

DANT

SCHIP "BATAVIA"

The "*Unlucky Voyage of the Ship Batavia*" bears the imprint of *Jan Jansz, Amsterdam, Anno 1647*. It tells in detail the story of the mutiny of the shipwrecked men of the *Batavia* and contains several gruesome woodcuts of the methods of justice dealt out by Pelsart to the mutineers on the Abrolhos, all in keeping with the manners of the period and the enormity of the crime. The severing of hands, the racking of the offenders, and their executions on stout gibbets erected from the *Batavia's* timbers, show that the Commodore carried out his stern punishments to the letter.

There is some evidence, worthy of investigation,—that the Dutch at one time attempted a settlement in the Kimberley districts of North-Western Australia. Pearl-ers who went into Yampi Sound for the first time some years ago report having found European fruits growing wild in the gullies and other signs of civilization where no white man had been known to penetrate since Australian colonization began.

It is quite possible that the climate, seasons, and physical conditions of the Kimberley having a certain affinity to those with which the Dutch were familiar in their adjacent East Indian possessions—Java being even then only a few days' sail, Timor much less—a permanent station may, during the course of two centuries, have been established somewhere in the region of Yampi Sound. There were many reasons for keeping secret any such Dutch activities in New Holland.

From 1628 to 1644 Dutch ships touched frequently on the West Australian coast. In 1642, Abel Janszoon Tasman, in command of the two vessels *Heemskirk* and *Zeehaen*, set out definitely to ascertain the trend and extent of what was now known to be a great Southern Continent.

Touching the island of Tasmania, he mistook it for part of Australia proper, naming it Van

Diemen's Land, which name it retained until 1853. Shaping then a north-easterly course, Tasman discovered and named New Zealand.

In the year 1644 Tasman, on a second voyage, made a closer examination of the shore line from Arnhem Land to Exmouth Gulf. This includes the seaward boundary of the present Northern Territory, the Kimberleys, and north-western West Australia. Tasman landed at various points. It was he who gave the name of *New Holland* to the western half of the Australian Continent. The Island State of the Commonwealth perpetuates his own name. Among the earliest Australian explorers of all nationalities there is no name more deserving of honor.

merchandise and treasure to the amount of 78,600 guilders (£6,550). Leaving 68 of the survivors on the mainland to protect these, one of the *Dragon's* boats made for Batavia, which it reached in due course. Some of the achievements of open boats along this coast, for practical heroism and stolid endurance, parallel anything in maritime history. The Dutch at Batavia promptly despatched two ships south to rescue the castaways and salvage the lost *Dragon*, which was supposed to be still fast on a reef, not more than 80 miles north from the present Port of Fremantle.

Castaways and cargo were never seen again. The quest of the two ships *White Falcon* and



Mouth of the Blackwood River

Henceforward, to the Dutch, *New Holland* comprised all that part of the Continent to the westward of a meridian line passing from Arnhem's Land in Northern Australia to the islands of St. Peter and St. Francis in Nuyt's Archipelago south. Their navigators and explorers had during forty years considerably increased the knowledge of the Netherland's government as regards the great Southern Continent. But all the lands to the eastward classed as the *Terra Australis*, remained, then and long afterwards, comparatively unknown even in secretive Holland.

In 1648 the Dutch ship *Lark*, Jan Janszoon Zeeuw, master, made another voyage of exploration to the West Coast.

Eight years later *De Vergulde Draeck* (The Golden Dragon) was wrecked at night on a reef in latitude 30 deg. 40—as given by her master—and 118 lives were lost. There is much romance and mystery about the subsequent history of the *Golden Dragon*, Pieter Albertsz, master. She had on board a valuable cargo of

Good Hope proved quite fruitless. The following year, 1657, the *Finch*, on a voyage from the Cape to Batavia, made another resultless search. In 1658 a third expedition of two ships set out from Batavia on the same mission, and after an exhaustive search and survey returned without tidings of the *Golden Dragon* or the 68 people left ashore.

It is probable that the actual reef on which the vessel was wrecked lay much south of the latitude given by the master. The natives of the Blackwood River, which enters the Southern Ocean a few miles eastward of Cape Leeuwin, are said to have possessed definite traditions of white men, which were still current among them when the first English colonists entered that district. Some of the survivors of the *Dragon* may have either landed at the Blackwood or worked their way to the southern corner of the Continent and remained long enough to pass into the oral history of the tribes. On the other hand, the presence of the 78,000 odd guilders and

a valuable cargo may have led to another such tragedy as that enacted twenty years previously on the low-lying Abrolhos Islands.

In the middle of the 17th century the world was still very wide, piracy and buccaneering in their heyday, and the average ship's crew were always of uncertain character. It was the incidence of a buccaneering cruise that brought the first Englishman, William Dampier, to the coast of Western Australia in 1688.

The *Cygnets*, in which Dampier was serving enforced probation as a pirate, was beached in a suitable haven now known as Cygnets Bay in the north-western corner of King Sound not far from the lighthouse on Cape Leveque. She remained here for over two months, during which time Dampier took some notes of the surrounding country. The lighthouse stands on a red sandy point with white beaches running north and south from it. A ten-knot tide surges in and out of the Sound, where one gets some of the most wonderful atmospheric effects in the world. A sunset in King Sound such as Dampier must have often witnessed, with the camp fires of his rowdy buccaneers reddening the white beaches of Cygnets Bay, would be a scene to remember.

Low, wooded shores, mangrove swamps, and distant jungles the deft genii of the Tropics drape at sunset time with purple, rose, and gold.

Even the barren islets, standing sentinel-wise at the gates of Kimberley, become like the lighted bastions of ancient cities.

The skies are an opaline splendor, a gigantic palette on which unheard-of combinations of color are set up by celestial artistry. The visitor of to-day stands before these portals of the gods somewhat in awe, but Dampier seems to have had a peculiarly prejudiced mind. On his escape from the buccaneers and subsequent return to England, he published an account of his adventures and "discoveries" in New Holland.

Having thus become an authority on his subject, he was sent in 1699 by William III., in the *Roebuck*, under an Admiralty Commission, to make further explorations and determine if possible whether or not New Holland was a continent; or, as some believed, merely "a succession of islands."

He entered and named Shark Bay, W.A. on the 1st August, 1699. Here he spent eight days searching for water without success.

One of the finest crops of irrigated lucerne the writer has seen, he found growing near Carnarvon on the eastern shore of Shark Bay in the year 1912. But Dampier missed the Gascoigne River and all other sources of supply, and so, proceeded slowly northward.

At last, basing his conclusions on the merest superficial information, this writer of adventurous books decided to abandon his mission and proceeded straight to New Guinea!

His *Voyage to New Holland in the Year 1699* was published in 1703. It was the first of a long series of literary libels on Australia, and passed through many editions. Like the drunken Vlaming, who three years before had landed at the Swan River and discovered "neither good country nor saw anything of note," time has proved that Dampier, although an interesting writer, was a very casual and unreliable observer.



Goonabooka Pool, near Roeburne

It has taken over two hundred years to correct the erroneous impressions of Australia which his books created in the mind of Europe. The dismal pictures which he painted of a land barren and sandy, "destitute of water except you make wells," became part of the world's mental equipment as far as Australian physical geography was concerned. It has been Australia's misfortune that other writers of repute have confidently compiled books about the country, based on casual visits or misinformation supplied by untrained observers. Even in these days a flying trip from one Australian city to another on a lecturing tour entitles an author to express opinions on all matters Australian.



The Harding River in Flood

Yet there are quiet, strong men in this country who have spent 40 or 50 years of their lives studying perhaps one aspect of agriculture or stock raising, and they hesitate to pose as authorities, knowing well that the country is young, vast, and largely unproven.

Dampier described the North-west as a land "destitute of water."

Accompanying this letterpress is a photograph of "*The Harding River in Flood.*"

The Harding is an insignificant stream near Roeburne, which place, according to official returns, receives the smallest annual rainfall of any part of that coast along which Dampier cruised.

"Goonabooka Pool, near Roeburne," shows another phase of the western water question which Dampier missed.

The impression created in England by Dampier's *Voyages* was so unfavorable to the South-Land, that it practically prevented further investigations. Not till 1770, when Cook landed and took possession of Eastern Australia, did England resume her work of exploration in the south.

* * * * *

In the early years of the eighteenth century a Dutch expedition out of Timor explored and

mapped the north-western coasts of New Holland, traversing more systematically the course pursued by Abel Tasman.

In the Perth Museum is an interesting collection of relics from the wreck of the Dutch ship *Zeewyck*, which went ashore off Gun Island in the Abrolhos, in 1727.

The crew of the *Zeewyck*, 82 in all, spent nearly nine months on the Abrolhos, where, from portions of the wreck, they constructed a small vessel, which they called the *Sloepye*. In the *Sloepye* they finally reached Batavia.

Among these relics may be seen a patched clay pipe, much worn where the thumb of the long-dead mariner clutched it, and an old tobacco box, bearing the motto—

*"Eerst't gelt verbruijt
En Dan 't zeegat Uijt."*

"First the money spent,
And then to sea again."

These, with crusted and oxidised cannon balls, fishing sinkers, bullets, square bottles and jars, copper vessels, spoons, fishhooks, stems of wine glasses, and broken blue delft of the old willow-pattern, have a homely interest to those who are concerned with pre-colonial history.

With a pewter flagon, some Dutch bottles and broken churchwardens, collected from the wreck of the *Batavia*, they will long remain as eloquent mementoes of stirring days, when the spirit of great adventure pervaded the high seas, and the Southern Continent still lay unexplored, unmapped, unknown.

The *Zeeuyck* had on board ten treasure chests, containing no less than 315,836 florins, which were taken safely to Batavia. The Abrolhos—once of evil fame to shipmen—have yielded many thousands of pounds' worth of guano, during latter years. In 1897 the deposits were esti-

mated at 101,500 tons. Fallowfield & Co., of Geraldton (W.A.), the present lessees of these low-lying, historic islands, still actively engage in this industry. None of the group attain a greater altitude than fifty feet, but they are the home and breeding-place of countless thousands of noddy terns and other sea-birds. In the harbor at Geraldton may be seen a rakish little schooner, a one-time blackbirder with a history—she can sail like the wind—equipped with a sixty-horse power auxiliary engine. Her humble but useful mission nowadays is to freight the precious brown guano in bags from the islets to Geraldton pier.



Gathering Guano at the Abrolhos



Cook's Monument at Kurnell, Botany Bay.

THE GENESIS OF AUSTRALIAN SETTLEMENT.

ALTHOUGH Dutch ships visited the West Coast of Australia at intervals during the 18th century, the march of European events, and the decreasing activities of the Dutch East India Company threw the hardy Hollanders more into the background.

Meanwhile Britain extended the radius of her sea power, and found fresh soil for the roots of her Imperial ambitions. And, what makes for the enduring greatness of nations, she had not allowed her progress to become entirely materialistic.

When the Royal Society, in February, 1768, addressed a memorial to King George the Third petitioning for an expedition to the South Seas to enable accurate observations of the Transit of Venus to be made "for the improvement of astronomy on which navigation so much depends," the Government of the day saw fit to grant the request. It was the expansive period of Chatham and Burke, a meaty time in English history.

Being also the period of Commodore Byron, Wallis and Cartaret, British authority decided that the expedition should have a geographical mission as well. Having finished their observations of the Transit of Venus, they should proceed with further exploration of the unmapped Southern Continent.

The Commission issued to Lieutenant James

Cook with his command gave that intrepid, if not flawless, navigator his passport to Fame.

He was fortunate in having as scientific associate on the *Endeavour* a man of wealth, influence and imagination in Joseph Banks, to whose memory Australia pays grateful tribute.

Although sixteenth-century charts have been discovered since this great navigator's time, which indicate that the eastern coastline had been visited by forgotten shipmen, it is not likely that Cook knew of their existence.

The work he carried out was original and invaluable. It was the genius of Britain that established the existence of a Southern Continent other than Antarctic, and the blundering but irresistible genius of Britain that later on turned the knowledge to practical account.

Cook belonged to the age of great captains.

Prefixed to the log of the *Resolution*, in which his second voyage of discovery to the South Seas was made, is a personal statement, signed James Cook, in which he admits:—

"I have neither natural or acquired abilities for writing. I have been, I may say, constantly at sea from my youth, and have dragged myself (with the assistance of a few good friends) through all the stations belonging to a seaman from a prentice boy to a commander."

The success of his first voyage was due greatly to sanitary organization. The health and efficiency of his crew were kept constantly in mind. Cook seems to have been a man of precision and resource—a trained man fitted by special services in the wonderful English maritime school of the period to accomplish what proved practically the last great work of planetary discovery.

After carrying out their astronomical observations successfully at Tahiti, Cook's expedition

tentous line in history than that inscribed in Cook's private log on Thursday, 19th April, 1770, 6 a.m.:—

"Saw the land extending from N.E. to West."

The land was that part of the eastern coastline on which Cape Everard lighthouse now stands. It is still the only place of human habitation in a hundred miles. It was named by Cook "Point Hicks," after Lieutenant Zachary Hicks,



Captain Cook

bore away for New Zealand. Having circumnavigated and geographically proved these Islands, discovered by Tasman 128 years previously and generally believed until then to be part of a Continent, it was decided "to stand immediately to the westward, fall in with the coast of New Holland as soon as possible, and after following that to the northward as far as seemed proper, to attempt to fall in with the lands seen by de Quiros in 1606." Leaving Cape Farewell, the *Endeavour* made for Van Diemen's Land; but being driven somewhat to the northward by heavy weather, encountered instead the coast of Eastern Gippsland.

To Australians there can be no more por-

of the *Endeavour*, who was on watch that historic morning. To Lieutenant Hicks fell the honor of sighting the first point of Eastern Australia beheld by English eyes. Point Hicks was renamed Cape Everard, out of compliment to a Victorian politician of the 'Sixties. It forms the one inglorious instance of a name given by Cook being blotted from the map of Australia.

Had Cook been able to land between Cape Everard and Cape Howe he would have found a country well stocked with fish and game, and amply provided with fresh water. At the Wingen River his crew might have refreshed themselves with the finest white oysters on the coast.



Mallacoota Inlet

At Red River, where subsequently some great European ship unknown left her timbers to rot among the sedge, the *Endeavour's* botanist might have spent delighted days among a world of new species. Further north, under the heel of Gabo Island, in romantic Mallacoota, the fairest spot along the Australian coasts, his ship's company could have "cast the seine" and been rewarded by hauls of good black bream, red schnapper, and other succulent fishes which spawn and feed in these cool waters in great abundance, and form part of the vast unexploited wealth of our ever-teeming Australian Seas.

The shores, between Point Hicks and Two-fold Bay, where the *Endeavour's* people "saw the smook of fire in sever'l places," are yet as unknown to the majority of Australians as the shores between Cook-town and Cape York, where the smoke of native fires are still seen daily from the decks of passing steamers.

Yet the first is good temperate, and the second excellent tropical country; each capable of supporting white population.

Sailing slowly past all this romantic coastland, Cook kept a careful northern course for ten clear days and nights, marking and naming the new coast line as he went.

On the afternoon of Sunday, 29th April, 1770, the hawse-holes of the *Endeavour* purred to the caress of outrunning cables, and the anchor of His Britannic Majesty's bark took the ground in seven fathoms at Stingray Harbour—known later as Botany Bay. Cook's actual landing-place is marked by an obelisk at Kurnell, on the south side of the bay.

The *Endeavour* remained at Botany for six days. Here, on May 1st, died Forby Sutherland, seaman, and was duly interred at the ship's watering place. The Illawarra suburb of Sutherland perpetuates the memory of this first recorded European burial in eastern Australia.

Here, too, for the first time the European Age of Iron came in conflict with the Australian Age of Stone.

For never-to-be-known centuries man in a primitive stage of evolution had, without molestation, been the sole occupant of a continent. Of art and agriculture he had remained entirely ignorant. He was, from north to south, over all its many thousand miles purely a tribesman, living according to his tribal laws and traditions. A nomad, hunter, and fisherman, he possessed such crude weapons and implements as enabled him to supply his needs. He had not risen to the use of metals. His axes and spear-heads were of stone, such as the European neolith chipped from primal flints. On the writer's desk lie two stone spear-heads from Northern Australia. One example, chipped newly from a piece of quartz by Myall blacks, is still made in Central or Northern Australia; the other was found by a prospector in the Northern Territory under twenty feet of drift. To the inexpert eye there is scarcely any difference between them. But one must have been shaped thousands of years before the other. Aborigines of the North, when the older flint was shown to them simply said they do not make their spear-heads that way now.



Male Australian Aborigine

During the enormous interval which elapsed between the chipping of those two primitive weapons—perhaps a hundred thousand years—the aboriginal inhabitants of Australia had been free from outside interference. But the hour was approaching when the Hunter would be called upon to make room for the Artificer; when, despite a probable common ancestry, the Man of Iron, by virtue of his superior knowledge and attainments, was to dispossess the Man of Stone.

The aborigines became extinct in Tasmania in 1876. One hundred years of contact with Europeanism had completely exterminated a race which thousands of years of tribal wars and uneven battling against the forces of nature had failed to affect.

The neolithic races of Australia, since the elaboration of the theory of Evolution, have become of peculiar interest. During later years scientists of various nationalities have collected valuable information concerning our aboriginals, now only to be met with in an absolutely primitive state in certain parts of Northern and Central Australia.

Cook's log of 29th April, 1770, tells how, having come to anchor in Stingray Harbor, "I soon

after landed with a party of men, accompanied by Mr. Banks, Dr. Solander and Tupia (a native of Otaheite). As we approached the shore the natives all made off, except two men, who at first seemed resolved to oppose our landing. We endeavoured to gain their consent to land by throwing them some nails, beads, etc., ashore, but this had not the desired effect, for as we put in to shore, one of them threw a large stone at us, and as soon as we landed they threw two darts at us, but on the firing of two or three musquets loaded with small shot they took to the woods and we saw them no more."

This was the beginning of the inevitable conflict between Stone and Steel, which could only have the one ending. It was under very similar circumstances that Cook lost his life at the Sandwich Islands nine years later.

Leaving Botany Bay on May 6th, 1770, the *Endeavour* resumed her voyage to the northward, her captain again charting new seas and naming new shores as he sailed.



Female Australian Aborigine

On the 22nd August, 1770, after many vicissitudes, having rounded Cape York and being "in great hopes he had found a passage into the India Sea," Cook landed with a party of men on Possession Island, and a little before sunset took possession of the country (*i.e.*, the whole of the eastern coast and adjacent islands) in the King's name, and "fired three volleys of small arms on the occasion, which was answered from the ship."

Conjure up this picture, on which depends maybe the whole future of the Pacific. The bark

He is a man 42 years of age, bewigged, clean-shaven, and wearing the uniform of a naval lieutenant in the service of His Majesty King George III. The oars fall together and reappear, scattering pearls of saltwater as, with rhythmic strokes, the pinnace makes for a landing place.

Finding on examination from the higher points of the Island that he has rounded the Continent at last, and knowing by the Dutch charts and his own its magnitude and extent, the



Sir Joseph Banks

Endeavour, 370 tons burthen, with her complement of mariners, marines, officers and scientific attachés clothed in the uniforms and costumes of the latter half of the eighteenth century, rides at anchor.

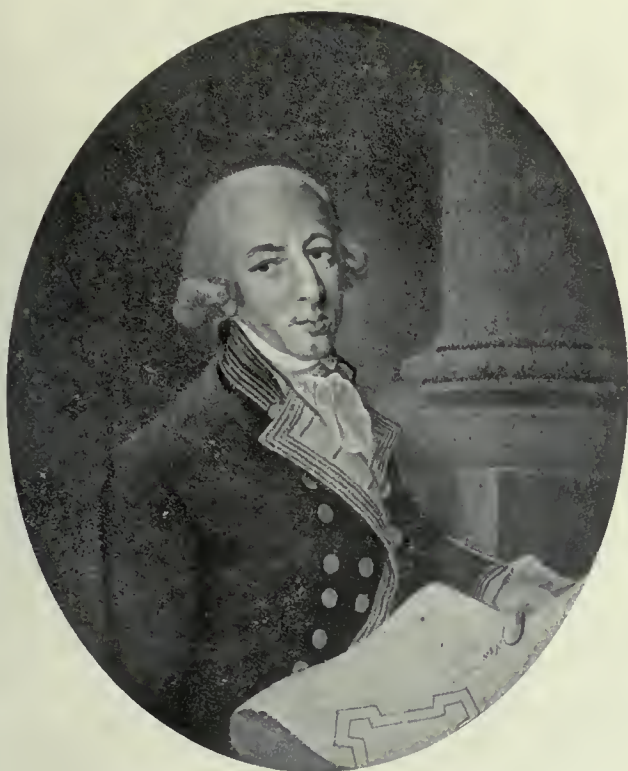
The blue waters of Endeavour Straits flow 6 $\frac{3}{4}$ fathoms deep under her keel.

It is a tropic afternoon, warm and clear—the sunlight lending its usual glamor to this Sea of Islands where the Indian and Pacific Oceans unite in sucking tides. The ship's bell strikes the hour. It is half-past 4 p.m. and slack tide. Loudly the command of an English naval officer is heard; quickly the boats (pinnace and yawl) are lowered. Quickly the red-coated marines take their places with muskets loaded and primed. Without undue delay the commander follows.

uniformed lieutenant re-assembles his boats' company on the shore and formally proclaims British sovereignty over the eastern coasts of Australia.

After the words have been slowly and solemnly uttered, an officer gives a sharp order. The barrels of the long "Brown Besses" drop to the level and—crash! the echoes of a British volley for the first time roll down the gullies of eastern Australia.

As the smoke of the third volley is drifting over the pandanus trees, the flag of England is broken from the peak, and crash! come answering volleys from the ship, followed by the sound of her whole remaining company cheering lustily. For many long years the Briton had been at war upon the high seas, and he had learned to carry



Captain Arthur Phillip

out these functions with a proper formality. But it is a fine incident; for as the Union Jack burst from its folds at the *Endeavour's* peak, there broke with it from the folds of the Past, the Future of a Nation which, if it proves worthy of its opportunities, may yet become the greatest that the world has known.

* * * *

The actual annexation of the country did not take place until eighteen years later, when on the 26th January, 1788, Captain Phillip read to the people of the First Fleet, assembled at Sydney Cove, the words of his commission.

Meanwhile much water had passed under the bridges of European and trans-Atlantic history. The American War of Independence had been fought, and the Republic of the United States established. Bunker's Hill, Brandywine, Saratoga, Charlestown and Yorktown had become names of historic importance. "Broken with age and disease," the Earl of Chatham had been carried into the House of Lords to utter his last eloquent indictment of the policy which had driven loyalty to rebellion, and reddened American soil with the blood of fratricide. Spain, France and Holland had banded in futile alliance for the overthrow of Britain, who saw her possessions in America slip from her grasp, while the sun of her ascendancy in India rose triumphantly, and that of her sea power burst

forth with renewed splendor from the gunpowder clouds of Cape St. Vincent.

Four years after the Government of the British nation had passed into the hands of the youthful Pitt, then only 25 years of age, the history of Australia began. Twenty-three years previously, in 1765, had come the invention of Watt's steam engine, which may be accepted as the genesis of modern industrial civilization; as the French Revolution, beginning two years after the establishment of settlement at Port Jackson, is accepted by most writers as the genesis of a new political age.

Much opprobrium has been cast upon the system of transportation which led to the founding of the first settlement, but without transportation it is doubtful if the occupation of eastern Australia by the British would have ever taken place.

Slightly more than 83,000 convicted persons were deported during the whole period in which transportation prevailed in New South Wales. A large number of these were political prisoners; a larger number victims of laws which have long been obsolete, and a still greater number were petty offenders, whose transgressions in these days would be considered amply punished by a five-shillings fine. Taking these facts into consideration, it will be seen that the early convict system was no more than an inverted line in the chapter of Australian beginnings, having little or no effect upon the future Australian race, which had its real foundation in the unimpeachable pioneer strain of vigorous and enterprising early colonists.

* * * *

The loss of the American Colonies led England to seek not only an outlet for her large prison population—chiefly induced by the brutal laws and conditions of the period—but a new field for her colonizing activities. By a splendid naval organization—the result of generations of sea fighting—she greatly controlled the ocean highway and might, in comparative safety, plant her flag upon the most distant shores.

As an opportune result of her maritime exploration, there had already come the first authentic contradiction of Dampier's adverse judgment on Australia. The scientific eye of Joseph Banks, trained to correct vision, had beheld possible fertility where another Dampier would only have seen a land destitute of all good qualities. Cook, although he was no agriculturist, had pronounced some of the country he saw near Botany as "fit for the production of grain of any kind."

There is no country more paradoxical than Australia; no country which can be judged less

by surface indications; no country so full of unexpected surprises. After a hundred and twenty-five years of occupation, Australians themselves have begun to realize that the whole volume of previous conclusions will have to be re-written; that parts of Australia which were regarded in early days as waste lands are destined to prove among the richest sections of the Commonwealth. In place of a continent containing edges of fertility and large areas of sterility, it is found that the whole Commonwealth can be put to account, leaving ultimately only a few arid strips in the remote interior, and these not actual desert. Of alleged Australian "deserts" the writer will have more to say in future chapters of this book.

When in 1779 Banks was examined before a Committee of the House of Commons as to the suitability of Eastern Australia for settlement, he strongly commended Botany Bay, the climate of which he considered approximated to that of the South of France; also "he did not doubt but our sheep and oxen, if carried there, would thrive and increase."

The Australia which Banks had seen was "*well supplied with water*, and had an abundance of timber and fuel."

Being asked how a colony of the nature suggested could be subsisted in the beginning of their establishment, he tendered the Committee some sound commonsense advice which indicated that during the nine years since which he had visited the site of the suggested settlement, he had given the subject considerable attention. Sir Joseph Banks, from the time he first set foot in Australia to the time of his death in 1820, never ceased to look upon the new land with an eye of faith and confidence. His counsel, his money and his influence were alike at the service of the infant settlement.

Banks was perhaps the first European with mind and imagination to dimly realize its possibilities.

To his influence, exerted over fifty years, more than to any other cause, can be credited the fact that the biased conclusions of lesser minds did not find official acceptance in England; that the false counsels of malcontents did not prevail, and that a flower which will yet blaze brightest in the wreath of England's glory was not cankered in the bud. Through all the failures and vicissitudes of the original settlement, Banks remained a practical optimist. It was in the light of this spirit that the Australian Colonies grew to success. In the light of this spirit the

Australian Commonwealth is destined to become, without doubt, a rampart of Imperial strength.

* * * *

The first definite proposal for a settlement in Eastern Australia came from an Englishman with a foreign name, James Maria Matra.

In 1783—Pitt's first year of office—Matra submitted his scheme. Primarily it was intended to offer relief and compensation to those American colonists who had remained loyal to Britain during the War of Independence, and had suffered in consequence. Many of these people had already migrated to British North America, that is, Canada.

The Home Office, at that time, administered all colonial matters, and unluckily Lord Sydney administered the Home Office.

Banks favored Matra's scheme; so, later, did Sir George Young; but Sydney treated it flipantly. He was not disposed to view, or capable of viewing, the proposed colony in any other light than that of a convict settlement.

Having duly pigeon-holed Matra's proposal,—containing many wise, humane, and excellent suggestions, which might even to-day be perused with profit by some Englishmen and Australians—the British Government devised a plan of its own, and passed an Act (1784) in accordance with statutes of previous reigns relating to transportation.

By an Order-in-Council, made on 6th December, 1786, the eastern coast of New South Wales was declared and appointed to be the place whereto the provisions of the statute should apply.

By an Act (27 George III. c. 2) passed in the year 1787 the Colony of New South Wales was established.

And on April 2nd, in the same year, was issued—"To our trusty and well-beloved Arthur Phillip, Esquire," his commission as first Governor of New South Wales. Three weeks later came his instructions; under which he was to embark and proceed in the *Sirius*, and convey certain tenders and transports to the port on the coast of New South Wales, called by the name of Botany Bay.

Phillip's fleet of eleven vessels, total tonnage 3,000 tons, with two years' provisions for all on board, sailed out of Portsmouth on the 13th May, 1787. Five months later they left the Cape of Good Hope, having taken on board there a small supply of live stock and fruit trees for the infant colony. On the 20th January, 1788, they were all safely at anchor in the harbor of Botany Bay.



Statue to Governor Phillip, Sydney

OLD COLONIAL DAYS.

FROM many causes, writers on Australian subjects have adopted a subdued tone.

As the mists of this literary timidity are dispelled by warmer rays of faith, based on knowledge, our native writers will find in early colonial history something more than their predecessors ever imagined.

Behind the purely functional records of officialdom, there lies a splendid volume of human effort and accomplishment.

Epics of endurance as heroic as any that marked the conquest of the Americas, thrilling tales of exploration, romantic stories of adventure, and gentler incidents of pioneer settlement will furnish gallant and graceful themes for the future.

In that sparse, hardy, little first Governor, Arthur Phillip himself, there was a quality that silhouettes his personality clearly against the twilight of Time; as sometimes stands out, upon an Australian hillside, a rugged gum tree in the gloaming.

His father was a German master of languages from Frankfurt; his mother an English lady of

some family. His school was a naval college; his apprenticeship the Seven Years' War. When there was a temporary lull in English fighting—growing tired of farming in the New Forest—he volunteered, and fought for Portugal against Spain. His activities found scope when English guns began to bark again in the Narrow Seas, and when, in one of the lulls that enabled the giants of Europe to draw breath, England looked about her for a blood and iron man to plant her flag across the furthest seas, she chose this little Commodore, with shrivelled face and thin aquiline nose, who had learned courage behind the carronades and acquired discipline on the tarry decks of British men-o'-war, probably the finest seminaries ever instituted, in all the world's history, for the propagation of these rigid virtues.

So, in his brown camlet coat, lined with green baize, we see the first Governor standing resolutely to his charge. A fine figure he makes in the foreground of a New World. Nor did he permit discontent or malcontent to prevail against him. He found that Botany Bay was unsuited

for his purpose. Promptly he had three boats' crews piped, and set northward in person looking for a better landing.

Presently he rounded a precipitous headland, and found himself in Port Jackson. In due course he makes a plain statement to Lord Sydney of the fact:—

"I have had the satisfaction of finding the finest harbor in the world, in which a thousand sail of the line may ride in most perfect security."

London in the latter part of the year 1788, said:—

"If the Minister has a true and just description given to him of it (the country) he will not surely think of sending any more people here . . . for there is not one article that can ever be necessary for the use of man, but which must be imported into the country."

Against opposition of this character—almost general among the people who surrounded him—against conspiracy, famine, and the blunders of



Old Colonial Home

For five strenuous years Phillip stood by the flag on the shores of Sydney Cove. There were among his officers men like Ross and Johnson, who were eager to have it lowered. In order to effect their purpose—the abandonment of the colony—these men and others did not hesitate to paint the blackest pictures of the country to the Home authorities. The mantle of these false prophets in the course of time fell upon others. Entirely erroneous impressions of Australia have in consequence been sustained abroad, and half accepted as facts at home. Major Ross, who, mentally, fathered three generations of Anti-Australians, writing to the Under-Secretary in

distant authority, Phillip, of the lean face and aquiline nose, presented a fine unyielding determination; to which, as much as to his inspired faith in the future of the country, we can largely attribute the fact that Australia is to-day a part of the British Empire.

Upheld by the cleanly figure of Captain Arthur Phillip, the stage on which is presented the first group of actors in Australian history, lacks neither interest nor dignity.

He brought a band of most unsuitable colonists safely across the seas, to a country which had only been visited by one previous ship, and, in the face of difficulties that seemed at times insur-

mountable, he bedded the roots of European Colonization so firmly in Australian soil that they can nevermore be torn from it.

The miseries and inconveniences of early settlement were occasioned largely by these facts:—

(1) The population, instead of being husbandmen and artificers, were by a large majority untrained convicts or soldiers and marines.

(2) Absolute ignorance of all concerned as to the nature and capabilities of a country entirely new to European experiences.

(3) Mismanagement and incredible lack of foresight of the home authorities; who were responsible for the preservation and sustentation of a body of first colonists far removed from all sources of established supply.

(4) The natural discontent of people exiled from their native country to an unknown territory at the extremes of the earth, then from six to twelve months' voyage distant, inhabited only by savages, and subject as they were to probable attack from foreign nations, who might, without their knowledge, become at war with the Mother Country.

It was only to be expected that evil reports of Australia would be circulated abroad by those whose only apparent relief lay in the withdrawal by the English Government of its suffering and struggling subjects at Port Jackson.

Time has proved that the early impressions of Australia were entirely wrong.

The first recorders spoke of it as a land either devoid of timber, or "covered with trees of an immense size, but scarce worth cutting down."

The fact is that Australia possesses the largest areas of valuable timbers in the world. She has hundreds of species of useful and ornamental commercial woods; and the essential oils and by-products of her fever-preventing eucalypts are of incalculable value.

She was described as a country where there was "neither ore nor mineral except iron and a small portion of copper."

Every useful earth and valuable gem, every known mineral, not excluding helium and radium, have been discovered in Australia. Her output of precious metals has exceeded that of any other country. She possesses supplies of coal already proved sufficient for thousands of years, and illimitable deposits of ore, containing the highest known percentages of non-phosphatic iron.

It was said that Australia is a land almost destitute of animals and birds.

The scientist knows now that it is the most interesting of all countries to him; a country which contains not only "living fossils," such as the platypus, the echidna, and the lung-fish, but in ornithology (apart from those birds which are *sui-generis*), has representatives of all the world's feathered families, excepting vultures and wood-peckers.

It was most freely asserted that the soil of the country at large was one of extreme poverty, on which European fruits and grains could never thrive. This assertion has been repeated with variations of almost every new district opened for settlement throughout the Commonwealth during the last hundred and twenty-five years.

One of the objects of this book is to finally refute the many libels to which Australia has been so undeservedly subjected.

It may be stated in advance, that *there is practically no botanical product of either Europe, Asia, Africa, the Americas, Polynesia or Malaysia for which suitable soils and climates can not be found within the boundaries of the Australian Commonwealth!*

Oranges from the irrigated areas of Renmark (S.A.) were last year proclaimed to be the finest ever exposed for sale in Covent Garden Markets, London, where they would find competitors from the citrus orchards of the world. It will be more fully shown in subsequent pages what the agricultural lands of Australia are really capable of producing.

The despair of the early colonists was pitiable. Hear the disgruntled voice of one of Phillip's officers complaining from the Past:—

*"The country, my lord, is past all dispute
"a wretched one—a very wretched one—
"and totally incapable of yielding to Great
"Britain a return for colonizing it. There
"is no wood fit for naval purposes; no fibrous
"grass or plant from which cordage can be
"made; no substance which can aid or
"improve the labours of the manufacturer;
"no mineral productions, no esculent
"vegetable worth the care of collecting and
"transporting to other climes; and, lastly,
"which is of the most serious consideration,
"no likelihood that the country will be able
"to support itself in grain or animal food
"for many years to come" (Major Ross said
for a hundred years) "so that a regular
"annual expense is entailed on the mother
"country as long as it shall be kept."*

Only last year the author heard in Port Darwin, Northern Territory, homesick officials utter-



The Heads, Sydney



In the Heart of Central Australia

ing the same complaints. The enforced exile has rarely been known to praise the place of his imprisonment. Contrast the accusations of the disaffected with Phillip's plain statement:—

"The climate is equal to the finest in Europe. . . . All the plants and fruit trees brought from Brazil and the Cape thrive exceedingly well, and we do not want for vegetables. . . . The colony is the most valuable acquisition Great Britain ever made."

But Phillip stood practically alone in his faith among the "First Fleet" men. He was the one true believer among the six or seven hundred who landed with him. Australia is at all times a difficult country to understand. To the eyes of the first pioneers, without precedents or experiences to reassure them, the newness of their surroundings added to the natural nervousness of an outpost. This fear of the Unknown has always been a poignant sentiment in human affairs.

Very early in the country's history there grew up a stereotyped conception of the interior as a dry and waterless desert, composed for the most part of shifting sands, scorched by everlasting suns and swept by constant hot winds.

Book after book has been written perpetuating this fallacy, which has become so firmly rooted in peoples' minds that it will probably be another two or three generations before it is finally con-

signed to the limbo of ancient fallacies. It is doubtful if there are a hundred square miles of true desert within the whole area of the Australian Continent, and it is now an established fact that millions of acres, once regarded as useless for agricultural purposes, are among the most fertile and productive lands in the world.

Ignorance and prejudice, at home and abroad, have militated very greatly against settlement.

Until quite recently Australian children were taught a local geography quite as absurd as that evolved by a series of foolish writers, from Dampier to quite recent times. The geography of Australia imbibed by scholars in foreign schools is still full of mischievous statements. Until the Commonwealth takes the matter systematically in hand, and proclaims the truth about itself far and wide, the great mass of outsiders will continue to believe that "five-sixths of the whole block of land is desert," as one of the early Governors declared.

The writer of this book learned at an Australian bush school, thirty years ago, to regard large widths of his native land as sterile wastes, which he has since found covered with crops and sweet with rain.

The work of exploration, which commenced with Governor Phillip, has gone on down to the present day. But neither Phillip nor his imme-

diate successors seemed to realize that the knowledge they won, at the price of much effort and hardship, was purely local. They were prone to judge the whole Continent by the necessarily restricted areas of their own observations. It is yet only partially realized that there is more than one Australia, that the range of our climate and conditions are continental, that for nutmegs and gooseberries an equally suitable habitat can be found.

Nor is the national consciousness yet fully alive to the fact that climates, varying as much as those of Berlin and Naples, must ultimately lead to pronounced variations even in human types.

The accounts of first Australian discovery make curious reading nowadays. Journeys to districts which are now reached readily by electric tram or suburban train service called for armed expeditions. Where the red-coats of King George the Third marched wearily, laden with coarse provision and heavy accoutrements, the motor car bears a prosperous generation to business or pleasure; the naked upland has become an orchard slope, the crude camps of stunted aborigines are busy townships, and the pulse of industry throbs day and night where the silence of primal solitudes was broken only by the voices of wind and wave.

Twenty-five energetic years had converted the children of the First Fleet into men and women before hardy explorers surmounted the Blue Mountains which, on sunny days, were plainly visible from the heights of the Settlement.

Phillip's pessimists did not know, or did not care to know, that beyond these great Dividing Ranges and their spurs lay countries of perennial richness, and mineral fields of incalculable wealth.

Still less could they have foreseen that the site of their rough barracks and struggling gardens would in the future be a city of half a million prosperous inhabitants; or that rutted roads, where lumbering ox-waggons crawled through tedious dust or were bogged in the deep unmetalled mud, would give place to the modern streets and handsome buildings which make that city's pride.

At the end of Phillip's five years of office—when he begged to be removed owing to bad health—Botany Bay, Port Jackson, Broken Bay, and the country about the Hawkesbury and Nepean Rivers, were fairly well surveyed and known. The settlement had survived threatened extinction by famine, and the discovery of the fertile Hawkesbury lands promised to provide against a recurrence of that danger.



On the Hawkesbury River

INLAND EXPLORATION.

VERY early in its history, the new colony began to attract men of the adventurous type. Among these was Gregory Blaxland, a Kentish stockbreeder, who migrated to Australia in 1806. He was then a vigorous man of 35. Lured by the hope of better pasturages inland, he set out with Lawson and Wentworth in May, 1813, to find a passage across the Blue Mountains.

The easy success of this, the first properly organised attempt to surmount an ordinary natural difficulty, paved the way for a hundred years of rapid exploration and settlement.

Before Blaxland died in 1835 he had seen the first page of achievement, at the head of which he had put an honorable signature, covered with illustrious names.

His track was quickly followed by Surveyor George W. Evans, whose astonished eyes in the same year (1813) were the first to behold an enchanting country of well watered valleys, abounding in fish and game, and beyond that again fertile expanses of still better lands.

Evans discovered and named both the Macquarie and Lachlan Rivers.

As a result, Macquarie, the most industrious of early Governors, journeyed with his wife and a military equipage, by a good road, to the new settlement of Bathurst, 100 miles inland, on the 26th April, 1815. The Conquest of the Interior had now definitely commenced, and was destined to go on steadily down to the present day.

Australia had already proved to be a land entirely different from that depicted by the first geographers and earliest settlers. Cattle and sheep were thriving in the new country as well as or even better than European stock had ever thrived in the old world. Enterprise, untrammelled by sentiment, perceived opportunities for success in many directions. There was no longer any serious talk of abandoning the work of colonization, but the complete realization of its boundless possibilities has not come in a hundred years. Even now groundless fears haunt many minds that those large unoccupied tracts of the interior of Australia, which are yet imperfectly known, will not prove fit for future settlement. Errors, like weeds, are hard to eradicate. Truth is a sensitive plant of slower growth.

The early explorers, although their work was good, were too often guilty of serious errors of judgment. Among this honorable band no names stand higher than John Oxley and his successor, Charles Sturt, both of whom made pronouncements about country they crossed which we now know to have been foolishly wrong.

Oxley condemned the flats of the Lachlan River, as "certainly not adapted for cattle," and stigmatised as "desert" some of the best grazing country in Australia; the "desert plains" which he doubted on crossing "would ever again be visited by civilized man" are now covered by woolly sheep or waving grain.

Poor Oxley. He was a good-looking young ex-lieutenant of the King's Navy, who had come to Australia in 1812, and received the appointment of Surveyor-General. Baffled by difficulties incidental to the exploration of new country, he



Gregory Blaxland



Valley of the Grose River, Blue Mountains

sat down by the Lachlan River and desolately wrote in his journal:—

“For all the practical purposes of civilized man, the interior of this country westward of a certain meridian is uninhabitable.”

Oxley’s “habitable meridian” lay somewhere about the mid-Macquarie region, and the “uninhabitable country” is now crossed by profitable railways, which have lately proved inadequate to carry away the enormous quantities of wheat which it is producing.

His final conclusion that “the interior of this vast country is a marsh and uninhabitable” was as far wide of the mark as some classical speculations regarding the size and shape of the Earth.

But for many years, like Dampier’s “Discoveries,” Oxley’s baseless and utterly erroneous conclusions colored impressions which the world at large held of all our wonderful interior.

Despite his chronic despondency, Oxley in his explorations found compensations like the Liverpool Plains, Port Macquarie, the Tweed and the Brisbane Rivers.

Of another temperament was Hamilton Hume, a native Australian. Born at Parramatta in 1797, Hume was by nature a bushman, between whom and the man of the cities there is ever a marked difference.

Every Australian schoolboy knows how, in 1824, Hume, after discovering Lakes Bathurst and George, and the Yass and Goulburn Plains, led his party of eight from Lake George to the Southern Ocean; beholding for the first time the white caps of the Australian Alps, and cross-

ing and naming *en route* the Murray, the finest river in Australia which, rising beneath their snows, pours its waters into the Indian Ocean, 1,700 miles away.

Hume, fortified with colonial experience, cheerful, resourceful, patient, and, above all, correct in his judgments, is a pleasant antidote to the depressing Oxley.

Four years later, as a member of the ambitious Sturt’s exploring party, he did good and useful work.

Captain Charles Sturt, an Anglo-Indian by birth, who had been Governor Darling’s private secretary, had neither Hume’s knowledge of, nor his sympathy with Australia. Like Oxley, he erred grievously in his estimate of districts which have long since been profitably occupied.

Where Oxley thought he had found a vast inland marsh, Sturt imagined that he was discovering a drought-stricken desert. Both were the sport of seasons; both were wrong.

Sturt’s pictures of the Australian back-country have some literary interest, but like other word paintings which have followed them, they are much more imaginative than real.

In point of fact, the Australia that Sturt and some of his literary successors describe is no more to be accepted as typical than that of Dampier or the French navigator, La Perouse, who fortunately thought the country so poor that “it was not worth his while to examine it.”

Hume and Sturt discovered the Darling River, which is probably destined to form the future base for an inland population that will number many more millions than the whole of Australia is carrying at present.



The River Tweed



In Sturt's "Worst Country in the World"—Hospital Sunday Procession, Broken Hill

In spite of his errors of judgment, Captain Sturt's second great journey in a whaleboat down the Murrumbidgee River to its junction with the Murray, and thence past the junction of the Darling to the mouth of the Murray at Lake Alexandrina, is one of the most heroic and picturesque chapters in the splendid story of southern exploration.

With three soldiers (Harris, Fraser and Hopkinson), and three prisoners (MacManee, Mulholland and Clayton), Captain Charles Sturt put to his credit one of the most courageous feats ever accomplished on any frontier.

Whether facing, as they did, an armed and hostile band of five hundred sable warriors at the junction of the Murray and the Darling, or toiling manfully at the oars of their heavy whaleboat; or enduring the pangs of hunger on their woefully reduced return ration, this little company, working its way alone to the Murray mouth and back again in the teeth of a thousand difficulties, dangers and privations, stands forth forever famous on the foreground of our Early Days.

But, with all praise to the courage and personal character of Sturt, it has to be admitted that he was greatly lacking in judgment.

His last great expedition proves this.

Returning from England to the newly-formed province of South Australia, where he was in turn Surveyor-General and Commissioner of Lands, he set out on his last arduous journey to the interior in 1844.

At the time of this outset it must be remembered that Sturt was a partially-blind and disappointed man. He had received instructions from the Home Office to reach, if possible, the heart of the Continent, and determine whether or not the supposed inland sea existed there. He decided to follow up the Darling River, and struck out in a north-westerly direction from a point near the present township of Menindie. He was accompanied by Poole, Dr. Browne, and McDouall Stuart—a name destined to become famous in the annals of Australian discovery. He crossed and condemned the Barrier Range, since become one of the richest silver-lead fields in the world, and ultimately reached the 28th parallel; but the story of the expedition is one of tragedy and failure. Poole died of scurvy. After putting up a fine record of courage and honorable effort, the exhausted leader and his party came back with what appeared to be negative results. Country crossed by Sturt (in an exceptionally bad season), and which he classed as "hopeless

desert" has since yielded fortunes to stockowners.

Broken Hill, on the site of which Sturt had written a despairing entry in his journal, is to-day a city of 30,000 inhabitants—another proof of the erroneous deductions which were drawn from local conditions by men of the finest personal quality but unfamiliar with the true nature of a remarkable, new country.

The journeys of Sturt's celebrated rival, Major Sir Thomas Mitchell, proved more resultful to our young colonization. Late in the year 1831 Mitchell, then Surveyor-General of New South Wales, set out from Liverpool Plains; located the

whose bones now rest under the obelisk erected to his memory in Sydney Botanic Gardens. Mitchell set out again in 1836, under instructions from the Government of the parent Colony to take up his exploration of the Darling at the point where he had left off on the previous expedition; follow the river to the Murray, and return to Yass Plains *via* its southern bank.

This programme, Mitchell, a soldier of the Peninsula, greatly extended.

Having finally determined that the Murray received the waters of the Darling and its vast network of feeders—which constitute, from their



A Landing on the River Murray

Nandewar Ranges, touched the Namoi and Gwydir Rivers, and discovered that these two watercourses junctioned with the Darling.

In 1833 he left Parramatta with a well-equipped expedition, struck westward to the head of the Bogan River, and followed it down to the Darling; where he established and re-named Fort Bourke. Leaving this temporary stockade, he followed the downward course of the river for three hundred miles, and decided that it really joined the Murray; a fact which had been contested, despite the earlier reports of Sturt.

Mitchell was always unfortunate in his dealings with the natives, who frequently attacked his party. They practically drove him back to Fort Bourke, whence in time he made his way to Bathurst, having lost his botanist, Richard Cunningham—brother of Allan Cunningham, capable scientist and intrepid explorer and discoverer, in 1827, of the fertile Darling Downs country,

source in south-western Queensland to Murray mouth, the longest river system in the world—Mitchell transferred his expedition to the unexplored southern side of the great river, and entered what is now the State of Victoria. So rich and beautiful was the country he traversed after leaving Swan Hill (locating the Loddon, Avoca, and Wimmera Rivers *en route*) that he called it "Australia Felix." Across this glorious land went slowly but securely the brave soldier of Badajoz, until he found the picturesque Glenelg, and so reached the southern coast. Here the expedition turned homeward *via* Portland Bay. Striking across country, he ascended Mount Macedon and from its summit, greatly exultant, beheld Port Phillip. Mitchell's triumphant news gave an immediate impetus to settlement in the south. The "Great Desert" theory had received its first immersion in the acid of fact, but much time must yet elapse before it reached its final reduction.

Mitchell's work did not pass unrecognised. It was not until 1845 that he set out again; this time to examine the unknown lands in the north-west. Grazing was now being rapidly extended into new districts, and settlement followed closely on the heels of exploration, if it did not even precede it.

Crossing the Darling above Fort Bourke, the third Mitchell expedition passed through what is now south-western Queensland, a well-watered and fertile country, suitable for immediate pastoral occupation. Leaving Mount Abundance, near the present site of Roma, he touched the Maranoa River, and, keeping on, discovered the Warrego and Belyando. Turning west again from the head of the Nogoia (where he had established a base) he crossed the red soil plains covered with Mitchell grass, that brought him to the Barcoo, which stockmen claim to be the best country in Australia. The Barcoo crosses the 25th parallel 560 miles from the eastern coast. The existence of pastoral and agricultural country plentifully supplied with surface waters in good seasons, and perennially blessed with an abundant artesian supply—although Mitchell did not know this—gave the Central Desert delusion further refutation.

Mitchell's work throughout was well done. He possessed all the courage of his compeers, and was gifted with the organization they too often lacked. Six years after his triumphant return from the North, he had the distinction of taking to England the first gold specimen and the first diamond found in Australia. Besides being the most successful of our explorers, this soldier of Badajoz was both author and inventor.

The glory Mitchell achieved by organization and forethought Leichhardt, on his first journey, secured by mere good fortune. In these days Ludwig Leichhardt would probably be regarded as a "crank." But with a continent of mystery spreading away from a narrow fringe of knowledge, in the vigorous "forties," a man like Leichhardt, with no hushcraft, no tact, but possessing inordinate self-confidence and vanity plus audacity, might, like the gambler at the roulette table, break the bank at his first sitting.

Despite his one accidental success, Leichhardt, the hero of a hundred Australian stories, cannot be accepted seriously as an explorer.

Arriving in Australia as a botanist in 1842—eager to gain glory in the fields of geographical discovery, we find him at the head of a party leaving Jimbour Station, Darling Downs, on the 1st of October, 1844.

Luckily the northern route which he had selected took him nearly all the way through country where it would be difficult for the veriest new-chum to come to grief.

Leaving the Condamine, he met and named the Dawson; passed on to the splendid Peak Downs districts, crossed the Mackenzie, Isaacs and Burdekin, struck across to the Gulf of Carpentaria, on the eastern shore of which he was attacked by natives, and had three men speared—including the botanist, Gilbert, who was killed outright.

From this point to Port Essington, which he reached on the 17th December, 1845, the story



Sir Thomas Mitchell

of Leichhardt's expedition is less cheerful reading; but the long journey he accomplished through a well-grassed, well-watered Northern Australia, reduced still further the area of supposed desert, and paved a way for the establishment of many fine colonial fortunes.

The glory which fell to Leichhardt was his undoing. He now became seized with a vaulting ambition to cross the Australian continent from east to west in a direct line. His first attempt ended in rank failure. The second expedition, hastily organized, was composed of six white men and two natives, with twelve horses, 13 mules, 50 bullocks, 270 goats, and a supply of provisions and ammunition.

This expedition started from McPherson's Station, Muckadilla Creek, on the south-west of

the present State of Queensland—early in April, 1848, and was never more heard of.

The Gregory Search Expedition—sent out in 1858 to determine, if possible, what had become of Leichhardt, discovered only such traces of him as a marked tree and an old camp on the Barcoo.

In 1856 Gregory had found traces of the lost explorer on Eley Creek upper waters. The Eley is a tributary of the Roper, and the general theory is that Leichhardt, being forced to retreat from the dry country west of the Thomson River, struck back to the Roper, and then travelled west or south-west until he got into hopeless difficulties and perished. If this were so, it is a remarkable thing that not as much as a shoe buckle of the lost expedition has ever been recovered.

from Streaky Bay he made the head of Spencer's Gulf, and located Lake Torrens.

On the 18th June, 1840, Eyre left Adelaide to discover, if possible, a stock route from South Australia to the Swan River settlement in West Australia. He worked northward from Mount Arden, at the head of Spencer's Gulf, along the Flinders Ranges, which he named.

Being unable to find a way round Lake Torrens, which was a mere salt mud bed of enormous area, at that period, he returned to Mount Arden, and struck westward, intending to get around to King George's Sound, if possible, by keeping closer to the coastline of the Great Australian Bight.



Overlanding Cattle

There is another theory among bushmen that quarrels among the party led to a tragedy, that the survivors of this tragedy, if any, found it expedient to destroy all traces of the expedition, and either spent the rest of their days with the natives, or quietly departed to another country. It may be that Leichhardt's temper, which was known to be violent and provocative, has lent color to this belief.

While new lines were being written on the map of Australia, north and west, the quiet excursions of one Angas McMillan, from Currawang Station, had made known the existence of the fertile Gippsland districts in the south. In 1838 Bonney and Hawdon had overlanded the first cattle from the settled districts of the South-East to the infant city of Adelaide (S.A.) They were followed by Edward John Eyre, who left Port Lincoln on the western shore of Spencer's Gulf (S.A.) in August, 1839, and crossed the Peninsula now bearing his name. He found no surface water in a journey of 300 miles. Eyre, accompanied by a black boy, pushed on to within 50 miles of the then S.A. border. On his return

Between Fowler's Bay and the Sound lie eight hundred miles of difficult country. Eyre, with one white companion, Baxter, and three natives, set out on the 31st January, 1841, to cross it. Two of these natives treacherously shot Baxter one night during Eyre's absence. He returned to his camp to find the greater part of his provisions and his two shot guns and ammunition gone, and his companion in his death agony.

With the remaining native Eyre pushed on to Thistle Cove, where he had the good luck to find a French whaling vessel at anchor. After ten days rest the indomitable Eyre resumed his heroic journey and arrived at King George's Sound in July, 1841.

Eyre, who was afterwards Governor-General of Jamaica—where he added to his celebrity—despite his early hardships, lived to the age of ninety-one years, dying so recently as 1906.

His was another of the heroic yet profitless journeys which brought brave but unsuitable explorers celebrity, and helped to perpetuate pessimistic impressions of Australia.

The lands where Eyre suffered and despaired, the supposed-to-be-waterless peninsula that bears his name, are being rapidly converted into wheat-growing areas. The Mallee scrubs wherein he thirsted and struggled are known to be invariably fertile wheat soils, and below the surface Nature has conserved, under immense areas, the water which her wisdom thus protects against surface evaporation or too-rapid drainage.

different from those he had met in the western plains along the Warrego and Cooper's Creek.

Here were savages of a different type to the Southern natives; warriors who would "step over their dead and fight," and here also were matted growths and tangled vines and a climate not so conducive to European activity as the hot but stimulating temperatures of the interior.



Distant View of the MacDonnell Range

As this book is being written, gangs of men, with all the appliances of engineering to hand, are rapidly levelling a track for the great railway, which, running to the northward of Eyre's route, will put the wharves of Port Augusta in direct touch with the wharves of Fremantle, and join in solid links of transcontinental steel, Australia—East and West.

The tragic effort of E. B. Kennedy was made in 1848, the year of Leichhardt's disappearance. In the endeavour to open up a northern route, Kennedy and nine men of his expedition perished.

After some preliminary experience, gained with Major Mitchell, he landed at Rockingham Bay, at the base of York Peninsula, at the end of May with twelve men.

But the jungled mountains of Tropical Australia presented a series of difficulties altogether

Kennedy's party succeeded in crossing the mountains, which formed part of the fertile Atherton Tableland, by cutting their way through the dense scrubs, and, falling a little to the westward, made better progress in more open country, where the Gulf rivers begin their courses. But the object of the exploration being the eastern slope, they recrossed into the jungles, and painfully struggled northward to Weymouth Bay. Here Kennedy left seven of his men in camp, woefully short of provisions, and with three white men and an aboriginal, endeavoured to push on to Port Albany. From there he promised to send back the schooner he expected with relief to the party left behind. Of Kennedy's party, only Jacky Jacky, the aboriginal, hotly pursued by the wild blacks, reached Albany Pass alive.



Newcastle Waters, Central Australia

He brought the story of Kennedy's death at the hands of hostile natives, and news that the other three men had been left at Shelbourne Bay.

The schooner, the "Ariel," made all sail down the coast to this point, only to find evidence that the men had been killed by the fierce tribesmen of York Peninsula.

Of the party left at Weymouth Bay, only two were found alive—the rest had perished of starvation one by one. Kennedy's expedition is one of the tragedies of Australian exploration; but the country through which he struggled to his doom is classed nowadays among the fat lands of the Far North.

In 1863, the two Jardine brothers, young native-born Queenslanders, carried an expedition with cattle through hostile country *via* the Gulf, and established themselves near Cape York.

These lads literally cut and fought their way to Somerset, where their father, John Jardine, was awaiting them. The Jardine family still remains in occupation of the most northern pastoral holding on the Continent.

In 1872 William Hann, accompanied by Dr. Tate, the botanist, and Taylor, geologist, took

another expedition through the difficult York Peninsula country, and located the Palmer goldfield.

From South Australia, during the fifties, much exploration northward was carried on, by Babbage, Goyder, Freeling, Hack, Warburton, and Swinden.

But to John MacDouall Stuart belongs the honour of first crossing the Australian Continent from south to north. Prior to his first attempt in 1860 he had had many years' experience as an explorer, first with Captain Sturt, and later in charge of minor expeditions. Leaving Chambers's Creek (S.A.) in that year, he penetrated to the MacDonnell Range, which he named after the South Australian Governor of the period. On the 22nd of April, 1860, Stuart camped on the centre of Australia, naming a high hill, about two and a half miles distant, Central Mount Sturt, after his former leader. Posterity altered it to Central Mount Stuart, a deserving if accidental honor to his own achievement.

Being met to the northward of this point by water difficulties, and unprovoked attacks by natives, Stuart, in view of the weakness of his

expedition, retired on the 27th June. He arrived, much worn, at Hamilton Springs on the 26th August.

Seeing that his work was good, the South Australian Government, which has never been slow to recognise the services of its explorers, promptly voted £2,500 to equip a better organized party, and placed Stuart again in command.

Once more this intrepid hero of the Great Central Unknown set forth, and following closely upon his previous route, took up the northern trail where he had left off the year before.

This time he got as far as Newcastle Waters before he cried retreat.

The authorities in Adelaide, with creditable confidence in the man who stands forth in the records of Australian history as a Man indeed, promptly placed him at the head of a third expedition. On the 14th of April, 1862, he was again at Newcastle Waters. From there, patiently overcoming his difficulties as they presented themselves, he followed a persistent route to Daly Waters, and deviating eastward, went onward to the Roper River.

Following up a tributary which he named the Chambers, he struck out in a northerly and westerly course, over the Katherine to the head waters of a splendid river which he called the Adelaide. Down the tropical black-soil country of the Adelaide went MacDouall Stuart and his band, and on the 24th of July, 1862, after turning a little to the north-east from the river's mouth, he had the sublime satisfaction, like Balbao from his peak in Darien, of beholding the sea. Dipping his feet and hands in the salt water, 2,000 miles from Adelaide, he knew that after years of effort his splendid task had been at last accomplished.

Clearing a space in the scrub and stripping a tall sapling for his flagstaff, Stuart with his own hands hoisted the British flag that he had carried with him for so long.

The Overland Telegraph line now flashes hourly along Stuart's track the little and greater happenings of the world.

The journey back was one of tremendous difficulty. Stuart reached the outposts of civilization, a mere skeleton, with impaired eyesight, his right hand powerless, and his body grievously afflicted by scurvy. The Colony of South Australia gave him honor and reward and he was decorated with the gold medal of the Royal Geographical Society, but he never recovered his health, and died in England in 1869, leaving a heritage of achievement to immortalize his name.

While Stuart was battling bravely on his trans-continental journey, an expedition was outfitted in the Colony of Victoria, at great public and

private expense, which added another to the list of human tragedies. Its defeat arose—as did most of the early failures—from the inexperience of brave, ambitious men.

Burke and Wills can no more be accepted as explorers than Leichhardt. Between men of this type and Hume or Stuart, there was as wide a difference as that between the most intelligent saloon passengers of a ship and the experienced navigators who command it.

It was predicted, by men who knew, that under the leadership of their impetuous and spectacular leader, Robert O'Hara Burke, the expedition was certain to meet with disaster.

The Burke and Wills expedition left Melbourne amid music and cheers. With camels and a more complete outfit than has ever been carried by an exploring party before or since, it arrived at Menindie, on the Darling River. A small party under Burke left this place on the 19th October, 1860. It was a good season, grass and water were plentiful, and the journey, by a known route to Cooper's Creek, was accomplished safely.

Here Burke suddenly determined to take three men with him and attempt to cross the belt of then-unknown country which lay between Cooper's Creek and the Gulf of Carpentaria.

Of the four men who attempted this journey of 500 miles—Burke, Wills, Gray and King—not one had the slightest knowledge of bushcraft. They set out, a quartette of picturesque adventurers, eager to cover themselves with glory. By good fortune they struck the Diamantina, down which, and by a northern tributary, they worked through excellent pastoral country over the ranges and out to the head of the Cloncurry. From this they got on to the Flinders, and in due course came to the mangrove swamps at its mouth in the Gulf.

As the subsequent fate of the Burke and Wills expedition has frequently been instanced as a proof of the harshness and sterility of inland Australia, it must be stated here that, from first to last, the route followed by this party lay through districts which are producing nowadays the finest sheep and wool that Australia exports or consumes.

Having touched salt water, Burke hurried his companions homeward on short rations, and by long marches.

Gray died on the way back to Cooper's Creek, under highly suspicious circumstances; the first life needlessly sacrificed. The three survivors found, on reaching Cooper's Creek, that the party at the Depot had started back to the Darling that very morning—having cached a store of provisions and left a letter informing Burke of their movements.



Eria Fitzalani



Pterostylis longifolia



Diuris alba

SOME AUSTRALIAN ORCHIDS.

After a few days' rest, Burke insisted that, instead of making for Menindie by their old route, they should follow the creek down to South Australia.

The rest is a pitiful record of blundering, starvation and death. They failed to reach their destination in this direction, and endeavoured to return to the depot. Wills, being the strongest of the trio, left his two exhausted companions and journeyed wearily up the creek and placed a note, appealing for help, in the cache (where Burke

After Wills rejoined his companions, the party were reduced to still worse straits. Wills and Burke perished in turn. King fell in with friendly natives, and lived with them until found by E. J. Welch, of Howitt's relief party, in September, 1861.

The bodies of Burke and Wills were removed to Melbourne, and accorded a public funeral. In keeping with the hysterical foolishness of the whole expedition, a hideous piece of statuary was erected to their memory in Melbourne.



A Native Burial-Place (Weeping-Caps in Foreground)

had previously left a letter announcing his return from the Gulf and his departure by the South Australian route).

Such amateur bushmen were they that, on either occasion, after carefully removing all traces of the cache having been disturbed—a precaution against natives—they did not think to mark a tree, or leave some indication of their visits to attract the attention of a relief party if it did arrive. As was subsequently known, Brahe and Wright, of the depot party, *had* returned to Cooper's Creek and, finding the cache apparently untouched, rode away again, thinking that Burke had not yet made his way back from the north. How Burke's camel tracks and fires were not recognised is one of the many mysteries of this deplorable expedition.

The latter part of the nineteenth century brought, into the narrowed field of exploration, men better equipped by character and experience for the work.

John McKinlay added to the knowledge of Central and Eastern Australia, and Wm. Landsborough also filled in gaps on the map in the latter direction.

Gosse and Warburton, in 1873, extended the radius of exploration to the westward of Stuart's route, Warburton owing much to J. W. Lewis, his second in command. His small expedition travelled from Alice Springs (S.A.) to the Over River (W.A.).

In the early seventies Ernest Giles did useful work in the middle North-West. He succeeded finally in crossing to the settlements of Western

Australia, his starting point being Beltana in South Australia.

His return journey from east to west brought him from the Murchison to Peake Station, on the overland telegraph line.

In the year 1875 the last exploring expedition sent out by the Queensland government, established the fact that the whole of the northern colony was known. This, with New South Wales and Victoria well-mapped from border to border, left little to be done on the eastern side of the continent.

By this time also the telegraph line had cut through the centre of the continent, establishing a series of bases from north to south.

In 1878 Ernest Favenc crossed from the Diamantina through what is now the Northern Territory to Powell's Creek telegraph station, discovering some fine new country.

In the same year H. V. Barclay worked eastward from Alice Springs towards the Queensland border, discovering several new tributaries of Lake Eyre.

By the beginning of the twentieth century, the whole of Central Australia was known, and a great part of it occupied by the flocks and herds of enterprising pastoralists.

* * * *

Meanwhile Western Australia had been writing a somewhat independent story of exploration and advancement.

The area within its boundaries comprising nearly a third of the continent, there was ample field for the activities of westerners.

From the establishment of the first settlement at Swan River in 1829, the work of discovery

was carried on. Beginning with Captain Jno. S. Roe, in 1830, the long list of Westralian explorers comes down to the present day.

To the late Sir George Grey, the Gregorys, and the Forrests, the greater share of credit has fallen.

During 1837-1839 George Grey explored sections of the North-West Coast, and traversed the country from Shark Bay to Perth. He discovered and named the Glenelg and Gascoyne Rivers.

But it was in fields other than exploration that the name of George Grey afterwards became one of the most famous in the Southern Hemisphere.

In 1829 a certain Lieutenant J. Gregory, of the 78th Highlanders, being wounded and invalided from the Egyptian war, came to take up a grant of land near Perth given him by the Imperial Government as compensation.

Here his sons learned to be bushmen. Three of them were destined to write their names as explorers very large upon the map of Australia.

In 1846 the brothers Gregory made their notable journey westward from Perth.

At the head of the Irwin River they located the first seam of coal discovered in the West.

In 1855-6 A. C. Gregory was put in charge of an expedition organized and financed by the Imperial Government.

The object of the expedition was to explore the centre of Australia, and also to discover, if possible, traces of Leichhardt.

H. C. Gregory served as lieutenant under his brother. The famous botanist, Ferdinand Von Mueller, J. S. Wilson, geologist, J. R. Elsey, surgeon and naturalist, and T. Baines, artist, were



Myall Blacks beside a Central Australian Watercourse.

members of the party, which numbered eighteen in all and was well equipped with horses, provisions, and stores.

The expedition was taken by sea to the Victoria River, in the present Northern Territory. After some useful preliminary exploration, the Gregorys, Von Mueller and Baines, with six men and thirty-six horses, left their base (January 4th, 1856) to cross the interior. Gregory ran the Victoria down to its sources. Here he established a temporary camp, and then, being a sound bushman, picked up the first river system with a southern flow. This, in the shape of Sturt's Creek, named by him after the explorer, carried him safely a good 300 miles, accompanied only by his brother, Von Mueller, and a member of the expedition named Dean. He returned to his temporary camp on the 28th March, to find everything in order and security. The 9th May found them all safely back at the Victoria. From here he despatched his schooner to the mouth of the Albert River in the Gulf, and with most of his party started overland to Brisbane, which they reached in due course. Supposed traces of Leichhardt were discovered at the Elsey Creek.

Two years later A. C. Gregory was put in command of a light search expedition to follow up these traces of Leichhardt. The party crossed from the Dawson (Q.) to the Barcoo, and subsequently reached Adelaide. Although it failed to solve the mystery of Leichhardt, it added largely to the geographical knowledge of the period.

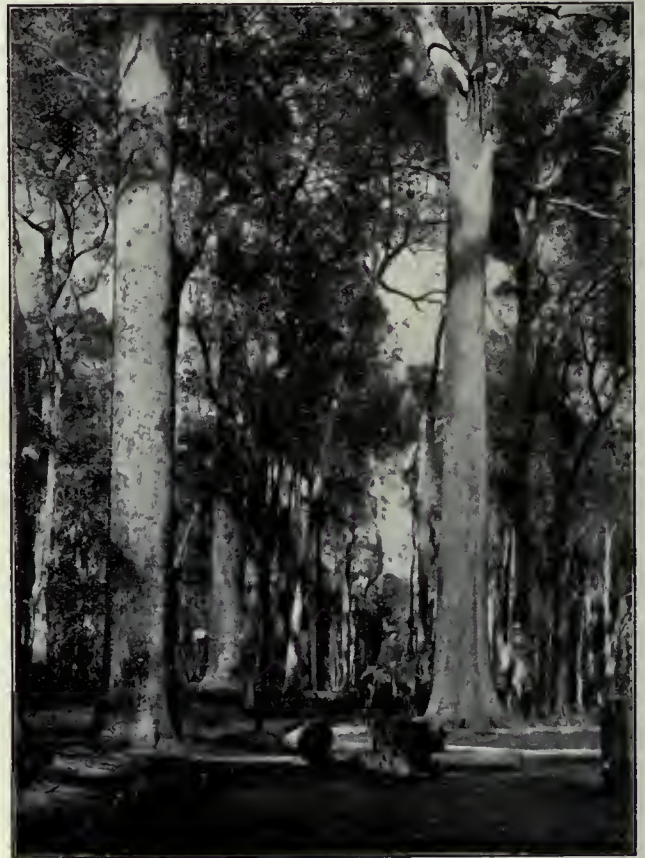
From 1857, F. T. Gregory, another of this famous family, is prominent in the annals of West Australian discovery. In that year, as leader of a lightly equipped party of horsemen, he traversed a wide range of country to the northward of the Swan River Settlement, and established its useful character. In 1861 F. T. Gregory, conducting an English expedition from Nickol Bay, on the N.W. Coast, discovered the Fortescue, and followed it through to the Hammersley Range. From here he turned southward, and discovered the Ashburton: subsequently the De Grey and the Oakover rewarded the persistent efforts of this indomitable explorer, who established the fact that large areas of the West, previously supposed to be waterless and barren, were in reality excellent country.

Among the heroes of West Australian exploration stands Robert Austin, who, in 1854, took out a Government exploring party in search of pastoral and mineral possibilities. Although Austin's expedition was practically profitless, it is remarkable for the conduct of its leader, who, beset by more than usual difficulties, showed in a marked degree the determination and endur-

ance which have been a feature of all our gallant attacks on the wilderness.

In the year 1870, John and Alexander Forrest made their celebrated journey from Perth to Adelaide, *via* Eucla.

John Forrest was the first to take the bitter edge off Eyre's conclusions. He discovered that, although the lands at the head of the Bight were not plentifully supplied with surface water, they were profitably grassed, and, moreover, underground water could be obtained almost anywhere at a shallow depth.



In a Jarrah Forest, W.A.

Forrest classed the tableland as the finest pastoral district of Western Australia, if water supply could be established. This pronouncement from a practical man will doubtless be verified to the fullest degree within a few years—after the Transcontinental Railway is completed.

In 1874 the Forrests again set out on an extended expedition, seeking to discover a practical stock route to South Australia, and also to determine more fully the nature of the Great Inland of Western Australia. From Geraldton to Weld Springs, and then to Peake Telegraph Station this remarkable expedition was successfully carried.

Alexander Forrest, in 1879, crossed from the De Grey River to the telegraph line, and, returning to Beagle Bay, followed the Fitzroy River to the Leopold Range, which he named. Skirting the southern edges of these difficult mountains, he struck across country to the Victoria River, discovering the Ord en route. From the Victoria, Forrest made his way with great difficulty towards Daly Waters, on the Overland Telegraph, near where, almost at the point of starvation, he had the good fortune to strike a line-repairing party.

Since the days of the Forrests, gaps in Western Australian maps have been filled by the good exploratory work of W. J. O'Donnell, Carr Boyd, Harry Stockdale, L. A. Wells, David Lindsay, Carnegie, Tietkins, W. P. Rudall, Hann, Brockman, and Conigrave.

Little now remains for the geographical explorer to do; but for the scientific investigator there is still an almost limitless field in Australia. For practical and original minds there await both fame and profit in the acquisition of knowledge, which will turn the Far Interior to better account.

On courage and enterprise, backed by faith and energy, the foundations of Australian fortunes were laid in the past. But the wealth of to-day is but a beggar's moiety of the unlimited wealth of the future which will be won by the application of modern knowledge to local conditions. The explorers, despite their failures and their faults, have proved that the whole continent is good.



John Forrest (1874)

SOME NATIVE FLOWERS

Acacia dealbata



Callistemon rigidus

Grevillea



Banksia ornata



Boronia pinnata



Callistemon rigidus



Eucalyptus calophylla

OF AUSTRALIA

AUSTRALIA'S POLITICAL EVOLUTION.

THE political evolution of the Australian Colonies has been along advanced democratic lines. The Commonwealth of to-day presents as great an interest to the economist as the colonies of yesterday offer to the historian who wishes to study the rise and progress of self-governing communities.

The 112 years which passed between the landing of Phillip's first contingent at Sydney Cove, and the 17th of September, 1900, which made the Federation of the Six Australian Colonies a date in national history, were strenuous and active for the generations which came and went, steadily growing in numbers, experience and quality at each decade.

It will be remembered that in 1770 England formally annexed the eastern side of the continent only. It was not until the year 1829 that the British flag floated over Western Australia.

The Colony of New South Wales was created in 1786, Tasmania 1825, Western Australia 1829, South Australia 1834, Victoria 1851, Queensland 1859. Since the foundation of the Commonwealth the Federal Government has taken over by consent Papua or British New Guinea from Queensland (1906), and the Northern Territory from South Australia (1907).

With the final definition of its geographical boundaries and the establishment of autonomous government, each colony set itself to its work of



An Australian Jungle

internal development and government on lines which have received little alteration since Federation. The construction and maintenance of roads, railways, telegraph lines, ports and various utilities have always made the Minister for Public Works in each State Government a highly responsible functionary.

Transport—railways, and in some instances tramways and ferries—being entirely State-owned and controlled, has added to the responsibilities of administration. Many of the functions which in other countries are still left to private enterprise are carried out by Government in Australia.

As all his institutions show, the Australian is a great lover of liberty and justice. Philanthropy, for example, is nowhere relegated to the caprice of individuals, but is overlooked or carried out by the State. Extreme pauperism, so lamentably common elsewhere, is unknown in Australia. The idea of human want or suffering continuing unrelieved is absolutely abhorrent to the Australian mind. That one man, woman, or child throughout the whole circle of our bounteous Commonwealth, should be without food, clothing or covering would be taken as a reflection not only upon our humanity, but upon our generous country—the freest and most prosperous of all.

So to-day, from ocean to ocean, in Australia it may be said that there is not one single individual in utter want, not one cripple without a refuge, not one unfortunate within reach of assistance for whom assistance is not somehow provided; no orphan without a home, no aged or infirm citizen for whom provision has not been attempted.

Moreover, it has come to be tacitly accepted by our Governments that employment must be found for every man who is genuinely seeking work. Unemployment, under normal conditions, is a thing almost unknown in Australia; indeed, the whole country is suffering from a scarcity of labor.

Australia can support two hundred millions in the same standard of comfort and security as readily as she is carrying five millions. Intending immigrants to the Commonwealth need have no fear that if accident or ill-fortune meet them they or their families will be permitted to starve. Nowhere else are public benevolences more all-embracing; nowhere do such opportunities for personal advancement exist.

Although our legislation is being constantly amended and improved, although the Party System naturally lends some acidity at times to political utterances, it must be admitted that the collective political brain of Australia has been just, sound, and progressive. Critics who have not been long enough in the country to catch its true national consciousness, have accused us of

habituating our people to depend too much on the State. If this were so, it would only be because Australian legislatures have always been composed of men from the people, whose sympathies remain democratic when they have risen to the highest administrative positions in the land.

Our governments continue to be popular and paternal, inclined to err rather on the side of



Pioneers in the Bush

leniency than harshness. The spirit of the whole community is evolutionary. We want to establish for ourselves and our children the best laws and the best conditions that human judgment and experience can suggest. Each political party is honestly actuated by these motives. To a student of political economy from abroad the difference between the declared policies of parties would be regarded on analysis as very slight. On the questions of a White Australia and national defence, they are both in accord. They only differ as to method of application in regard to some important questions of legislation. There are obviously few laws on the statute books of the State or Federal Parliaments that either political party is burning to repeal, and it is mainly around greater problems of reform legislation or of expenditure that the wordy battles of legislators are waged.

Despite the larger measure of freedom enjoyed by all citizens of the Federation, despite social mixture and geographical remoteness and a wide divergence of outlook—particularly on social and industrial questions—between the people of Britain and Australia, there prevails throughout the Commonwealth a genuine loyalty for that British motherland which the vast majority of Australians have never visited. Back of all the platitude and formula, it is recognised that solidarity of Empire means something more than a mere expression; that the spirit, if not the letter, of Occidental civilisation has found its

destined to become something more than a place of exile and punishment for offenders against laws which were already beginning to come under the more humane criticism of the progressive Nineteenth Century.

By that time, Eastern Australia had been proved a profitable field for both pastoralist and agriculturist. Thousands of broad acres under cultivation and a vast increase in cattle and sheep foreshadowed the boundless developments of the future.

From Macquarie's period onward, Australia began to attract settlers and emigrants from



Pioneering: Making his Bed for the Night

highest expression in British laws and institutions, and these must be preserved.

* * * *

The edifice of Australian nationalism is yet incomplete, but its foundations have been well and truly laid. Some phases of our nation-building are worth at least a passing reference.

From the establishment of the first penal settlement, under Governor Phillip, the earlier years, down to the time of Governor Macquarie, were largely occupied in finding firm rootage for a white community in alien soil. The creation of a local food supply was naturally a first consideration. Until a safe base had been established there would be no expansion.

When Governor Macquarie left Sydney in 1821 the success of Australian Settlement was assured. He seems to have been the first of the early Governors to realize that the Colony was

abroad, of whom a very small proportion found occasion to return to their native land.

This migration of Europeans southward to a country conforming to the climate and physical conditions of Europe would have been more rapid but for the great distance between the Old and New Worlds. The wonderful possibilities of Australia have not yet been fully realized, and quick transport and a faith in the country, based upon fuller knowledge, are still necessary to keep the tide of European migration directed southwards. For the white races, Australia offers a field of equal opportunity such as exists nowhere else.

Laws and conditions prevailing in the Commonwealth are still but the dreams of reformers in some other countries.

This is the ripened fruit of much strenuous political cultivation. The growth of Australian legislation has been comparatively rapid, but not



Young Selectors

altogether unattended by agitation and public excitement.

As far back as 1823, the Voice of the People was beginning to be heard. First the Emancipists and those who believed that purgation of an offence and continued good conduct should entitle the convict to the full rights of citizenship, began their remote battle for an instalment of that freedom and justice so large a measure of which all Australians enjoy nowadays. A more enlightened and humane sentiment was growing in regard to the treatment of offenders. Into the old order of soldier-master and convict-slave the thin end of disruption was inserted by the Free Settler.

Gradually the interests of Emancipists and Free Settlers converged. Then the "exclusives," the official class, found themselves facing a united democracy determined to secure such privileges as full trial by jury and taxation by an elected Legislature; with this early agitation William Charles Wentworth came into prominence as a reformer.

At the back of it all there lay the clashing of interests and the prejudice of caste to gall and irritate the contending forces.

Wentworth seems to have been a highly acquisitive colonist, with education and a considerable genius for newspaper fighting—two qualities that have laid the foundation of more than one colonial reputation and fortune.

Whatever Wentworth's minor motives may have been, whatever his cupidity, his was the first big personality in the political arena. As the great Australian constitutionalist of his period, his name is reverently preserved. The

Governorship of Sir Richard Bourke (1831-37) marked the ending of the old assignment system in New South Wales. Bourke apparently saw that the original use for which eastern Australia was intended by the British Government had become a mere appendix affecting the health of a Colony already approaching robust growth. The country had conclusively proved itself to be too good for such an expedient—it was pre-ordained, not as a depot for British convicts but as a maternal matrix for the moulding of nationality and the breeding of freemen.

The Governor who preceded him, Darling, had vainly struggled against a growing tide of popular interest. Bourke was as popular as Darling had been disliked. He favored the system of assisted immigration, and advocated the cessation of transportation. What Bourke sowed in theory, his successor, Sir George Gipps (1838-46), reaped in fact. New Zealand had ceased in 1840 to be a dependency of New South Wales. Her career of expansion had already begun and was destined to continue on individual lines, broadly similar to those pursued by the other colonies of British Australasia.

By the time Gipps held the reins of Government in New South Wales, the agitation for self-government had taken a definite form. The method of Government had been altered, with Brisbane in 1823, from a military satrapy to a limited Governorship with a partly autonomous legal system presided over by a Chief Justice and enlarged by a modified form of trial by jury. The Governor's power was also checked by an advisory Council of seven, holding office under his own nomination, but permitted to appeal to the English Colonial Office if they saw fit. The Governor could introduce no new law for the consideration of his Council until the Chief Justice had approved it as conforming to British law applied to the Colony.



A Slab Hut in the Bush



A Log Hut in the Clearing

The number of Councillors was increased in 1828 to fourteen, with additional powers.

Fourteen years of further progress advanced the Colony to an importance befitting some less paternal form of administration. England recognised that the young brood in the South were beginning to stretch their wings and, wise in the experience of her American Colonies, prepared to give them a fuller measure of liberty. In 1840, transportation, at the urgent request of the people of New South Wales, ceased.

In 1842 the nominated Council became to some degree a *selected* body of representatives.

In the re-organised Council, twelve members were nominees, the other 24 were elected by the freeholders of the colony owning property valued at £200, and householders worth £20.

Full legislative powers under the British Constitution were given to this body, with control of all colonial revenues, except the revenue from the sales of land, and a fixed civil list.

The Governor still appointed and directed the Colonial Ministry, but the inauguration of this reform practically placed in the hands of the people the moulding of their own political destinies. They had had some strong men for Governors, and some of no particular distinction or capacity, but henceforward the young Colonies were not to be absolutely dependent for their

peace and happiness on the accident of a Downing Street appointment.

Five years previously (1837) the ten-acre block which now constitutes the heart of Melbourne was sold for £500; but destinies were shaping which would convert the constitution of 1842 into a full measure of responsible Government and in a little time make Melbourne the capital city of a new southern colony.

Already a Land and Emigration Commission appointed in London had recommended the splitting of eastern Australia into three divisions. Whatever might happen to the western part of the continent, the east had now become a factor of Empire. It would never be abandoned, and it must not be lost either by outside aggression or internal disruption. The eastern colonists were loyal, but evidently determined to enjoy a full measure of freedom and home rule. The province of South Australia had recently been founded as an experimental Whig Utopia. Tasmania was still regarded as a convict depot, and Western Australia as a delicate infant in leading strings.

The colony of New South Wales, which extended from Cape York to Mount Gambier, had developed from stock of earlier planting, and its growth had been accelerated by favorable natural causes. It was ripening for change.

The next great question of colonial importance which rose and demanded an answer was—to whom do the waste or spare or new lands of the great eastern colony belong? Are they to remain the property of the British Government for its right and revenue; or are they to become the heritage of the colonists? The new Assembly, under Wentworth, entered a vigorous claim for the rights of the Colonial Government to hold and control the public lands within the boundaries of the colony. Governor Gipps introduced a system of grazing licenses under which the squatting or pastoralist class were called upon to pay a fee of £10 a year for their stock runs. This offered a bone of contention until a ukase from the home Government decreed the licensees a fixed tenure of their holdings for a number of years, with pre-emptive rights at the end of the term.

An attempt on the part of the British authorities to revive transportation in 1848-9 brought into existence the first "People's Party" in Australia. Wentworth and his followers in the New South Wales Council, being chiefly representatives of the squatting class, were in favor of the re-introduction of cheap convict labor, but the smaller landowners, free settlers, and a majority of the population were determined that the bad old system should not be resurrected from its dishonored grave.

So when Earl Grey and the Colonial Office in 1849 put a tentative hand upon the collar of Young Australia, they were suddenly faced by a clenched fist.

Grey, as if to try the temper of the colonists, despatched the *Hashemy* with a contingent of 212 convicts to Sydney, and nearly succeeded in bringing about a rebellion. The whole town surged down to the water front and threatened to repeat at Circular Quay the history of Boston Harbour.

Governor Fitzroy ordered the *Hashemy* and following ships north to Moreton Bay.

So great was the subsequent pressure brought to bear in England by the People's Party, led by Charles Cowper, that Earl Grey had to give in, and presently we find the Imperial Government pledged to discontinue transportation to eastern Australia for evermore.

On the very eve of the great gold discoveries—which threw a vivid beam of limelight over that part of the world-screen occupied by Australia—the Imperial Parliament passed its memorable Australian Colonies Government Act of 1850.

Under this Act, and under the amended New South Wales Constitution Act of 1855 and similar measures, the eastern Australian colonies began a development which has gone on steadily to the present time.

The two main objects of the 1850 Act were the establishment of an improved and practically uniform system of government in the Australian colonies, and to permit of the Port Phillip District becoming a separate colony under the name of Victoria.

On the issue of writs for the first election in Victoria, Separation was to be accepted as an accomplished fact.

The Act provided that the existing Legislature in New South Wales should decide the number of members of which a new Council was to consist in that colony, and should perform the



A Selector's Home

same task for Victoria. One-third of the number of members of the Council in each colony was to be nominated by the Crown. The existing Legislatures in Van Diemen's Land and South Australia were to decide as to the number of members in the new Council in each, but they were not to exceed twenty-four. Power was given to the Governor and Legislative Council in each colony to alter the qualifications of electors and members as fixed by the Act, or to establish, instead of the Legislative Council, a Council and a House of Representatives, or other separate Legislative Houses, to be appointed or elected by such persons and in such manner as should be determined, and to vest in such Houses the powers and functions of the old Council.

Under this and subsequent Acts and amendments the Colonies of New South Wales, Victoria, Tasmania and South Australia took up the burdens of local government with full powers to make laws, impose taxation (including customs duties) and appropriate to the public service the whole of the public revenue arising from taxes,

duties, rates and imposts. The Act of 1855 conferred a fuller measure of responsible Government on the colonies with the entire management and control of Crown lands and additional powers to pass laws amending the Constitution.

The colony of Queensland was created under similar conditions in 1859. Western Australia did not receive full legislative responsibility until 1890.

Governor may see fit to grant a dissolution of Parliament.

The Executive Council, composed of governing Ministers, is in each case presided over by the Governor of the State, always a nominee of the British Government.

The Royal assent is only necessary for Bills altering the constitution of a Legislature or affecting a State Governor's salary or for some



An Australian Farmer's Home

Briefly, the legislature in each State is composed of two Houses, a Lower House or Assembly, invariably elected by the people voting nowadays on the one person one vote principle, and an Upper House or Legislative Council—either nominees as in New South Wales and Queensland, or elected, as in the other States, on a slightly restricted franchise.

Majority government is universal, the administrative offices being filled by the party having the voting strength in the Lower House. All public appointments, distribution of revenue, and the government of the country generally, remain entirely in their hands as long as their majority prevails on the floor of Parliament. State and Federal general elections for the Lower Houses are held every three years, or at such times as the

measure that is required to be reserved under the Australian States Constitution Act of 1907.

Outside of these reservations the power of the British Government over Australian State Legislatures may be regarded as *nil*. The Governors are still appointed from Westminster, but nowadays their influences are social rather than political, and their energies run in non-contentious grooves.

Although the governments of the States were modelled largely on the English system, the legislation which has emanated from Australian Parliaments during the last half-century has naturally been much more radical in character than that of the Home Parliament during the same period, particularly in regard to industrial matters.



Bridge Street, Sydney

The Upper Houses, elective in all the States except New South Wales and Queensland, are supposed to fill a function of check and revision, similar to that accredited to the House of Lords. In the two States which have held to the nominee system, a protracted struggle between the two Houses can be terminated by the party with a majority in the Lower House swamping the Council with its nominees, unless the Governor should veto an undue exercise of the nominating power.

South Australia, the Constitution of which has been subject to more amendments than any of the others—has a device for preventing deadlocks by a double dissolution. Victoria, Tasmania, and Western Australia are satisfied to leave the trouble, if it occurs, to find its own remedy.

The Executive Councils are an imitation of the British Cabinet. The Governor of each State stands for the Sovereign, and exercises his powers on the "advice" of his Executive. He is at the same time an official of the British Colonial Office, to which he is supposed to report on matters of Imperial import. He is called upon to reserve for the Sovereign's assent such Bills as may affect his State's relations with the Home Government or with foreign nations.

The number of Ministers and their functions are constitutionally determined. During the last ten to fifteen years the fluctuations of political parties have been considerable. The advent of Federation naturally brought about a disturbance in political conditions which has re-acted on the State legislatures. The extension of the franchise to women must also have had its effect.

The detailed history of Colonial politics over fifty years would require a volume to itself.

In each of the Australian colonies the land problem has called for frequent legislation. This is to be expected in a young country where questions of occupation and settlement are continually demanding consideration.

For many years prior to Federation the subject of tariffs caused contention in the State legislatures.

The Federation of the colonies brought about interstate free trade with excise and bounties, and a protective tariff against certain imports. Seventy-three per cent. of the excise revenues collected have been from beer, spirits and tobacco, which with starch, sugar (and licenses for the manufacture of stimulants and narcotics) make up the customs charges under this head. The Interstate Tariff Commission, recently appointed, should greatly facilitate the adjustment of customs duties, and open the way for the building up of a rapidly-increasing Australian manufacture.

During the last two decades industrial legislation has received considerable attention all over Australia. The best efforts of all sides are being exerted to devise just and peaceable solutions of those economic problems which have become a poignant feature of modern civilization.

With majority rule and universal franchise these matters can safely be left to the contending parties, who are lacking neither exponents nor organization.

The broader issues of effective occupation, defence, and development of natural resources will give Australian legislators constant occupation for generations to come.



A Station Homestead



FEDERATION OF THE AUSTRALIAN STATES.

FOR nearly half a century the five eastern Colonies had flourished and grown under their five separate but similar Constitutions.

The fifty years, from the granting of responsible government to the end of the century, were full of achievement. Australia had proved a golconda of mineral wealth; the virtues of her lands were widely established, her production had expanded to a degree which the pessimists of a preceding generation would not have dreamt possible in five hundred years.

A new type of colonist had come into being, evolved by over a century of new conditions. It represented the best of the Anglo-Saxon, the Scot and the Celt, with a dash of the best of Europe and America to give it tone. Behind it there stood the character and stamina of a selected stock: it was not the weaklings or the cowards who had turned their faces southward, but the strong.

Under clear cold stars their camp fires had been lighted. On the edge of odorous eucalyptus forests, their broad axes had flashed in the sunlight. Mountain fastnesses had echoed the report of their rifles. Over great plains their

horses had galloped—north, south, east and west they had been staking out a continent for the White Race.

The land was no longer filled with exiles longing for home, but with freemen, mostly native born, to whom Australia was a gracious and generous motherland. State boundaries to them were doors to different rooms in the one family house. Constant and unrestricted migration took place across their borders; everywhere the same language was spoken; everywhere the people were of the same kindly, resourceful character. There might be a little good-tempered rivalry between cities, but the Bush was big-hearted, democratic, close-knit by a common experience and interest.

From the beginning of self-government, wise men foresaw that a closer union of the Australian Colonies was ultimately certain to result. Such an alliance would naturally have to come before any small intercolonial angles of difference had become wide arcs of disunion. As the widest differentiation in nature may date from an apparently casual deviation, so, in time, some chance divergence might have developed into a cause of serious disunion.



Rt. Hon. Sir Edmund Barton



Rt. Hon. Andrew Fisher



Hon. J.C. Watson



Rt. Hon. Alfred Deakin



Rt. Hon. W.M. Hughes



Rt. Hon. Sir George Reid



Rt. Hon. J. Cook

PRIME MINISTERS

COMMONWEALTH

OF THE

Nor was it wise that six separate provinces should continue on the lines of growing into six separate nations as the years added to their population and wealth.

Behind first cautious steps towards Federation stood an instinct of mutual danger.

Theoretically, the collective mind of Australia—educated and humanitarian—was, and is, against war. But the commonsense mind of Australia saw that as long as war exists, even non-aggressive people may have trouble thrust upon them. In which case it is necessary to meet attack with resource and organization. Without a complete Australian Federation no effective defence system could possibly be evolved. The weaker and more vulnerable colonies would be helpless, unaided by their stronger neighbours. To protect them in case of war it was obvious that some general defence system under a central control must be established.

The constant problem of revenue tariffs, moreover, could only be settled by a common agreement among States; an agreement which was impossible to ensure without a Federal Union.

Great national requirements generally find individuals into whom a necessary element of greatness has entered to strengthen them for the task.

By character and experience the late Sir Henry Parkes was well fitted to lead the way to unity.

This he undertook as the crowning effort of a vigorous political career. Sir Henry Parkes was one striking example among thousands of that success which is certain to young men of energy and ambition in Australia.

B. R. Wise, once a political associate, in his *Making of the Australian Commonwealth*, gives a comparison which Sir Henry Parkes made to a friend between the life of Mr. W. E. Gladstone—a contemporary Prime Minister—and his own:

“When he was at Eton preparing himself for Oxford, enjoying the advantages of a good education, with plenty of money, and being trained in every way for his future position as a statesman, I was working at a rope walk (in England) at fourpence a day, and suffered such cruel treatment that I was knocked down with a crowbar, and did not recover my senses for half an hour. From the rope walk I went to labor in a brickyard, where I was again brutally used; and when Mr. Gladstone was at Oxford I was breaking stones on the Queen’s highway with hardly enough clothing to protect me from the cold.”

He landed in Australia a penniless youth, to become in due course the most prominent political figure of that half century of responsible Colonial Government which led up to Federation.

In the year 1889, being then Premier of New South Wales, he formally initiated a campaign which, after assuming many phases and passing through stage after stage, ended with the Federation of the Colonies, five years after the veteran’s death.

The movement was greatly strengthened by the eloquent enthusiasms of a fervent band of Federalists in the different colonies, among whom Edmund Barton and Alfred Deakin—each in turn subsequently Prime Minister of the Commonwealth—were most prominent.

In the galaxy of famous Federationists the names should be recorded of Sir John Forrest, Mr. Kingston, Sir John Downer, Mr. B. R. Wise, Sir Samuel Griffith, Sir George Turner, Sir Graham Berry, Mr. James Service, Mr. Isaacs, Mr. R. E. O’Connor, Mr. P. Glynn, Mr. Henry, Sir Frederick Holder, Sir Josiah Symon, Sir Joseph Carruthers, and ultimately Sir George Reid.

Some of these were late converts to the Federal idea, but they all played their parts at various stages of the movement.

The first National Australasian Convention, presided over by Sir Henry Parkes, was assembled on 2nd March, 1881. A bill was drafted and considered by the Parliaments of New South Wales, Victoria, South Australia and Tasmania, but did not reach the House in either Western Australia, New Zealand (which had also been represented at this Convention) or Queensland.

A Conference of Australian Premiers, held in Hobart in 1895, declared that “Federation was the great and pressing question of Australian politics and the framing of a Federal Constitution an urgent duty.”

Enabling Acts were afterwards passed by each of the States except Queensland. A People’s Federal Convention was held at Bathurst, New South Wales, in November, 1896, and the 4th of March was fixed as a date for the election of Federal representatives for each State.

On the 22nd of March these representatives met at Adelaide.

Constitutional, Finance, and Judiciary Committees were appointed, and a Bill drafted. This, reported to the Convention on the 22nd April, was adopted on the following day, and the Convention adjourned till September. The Parliaments of New South Wales, Victoria, South Australia, Tasmania, and Western Australia discussed the question before the Sydney session of the Convention, which opened on the 2nd September, 1897. The business of this Convention involved the general reconsideration of the whole Bill, and the consideration of no less than 286 suggested amendments. The Melbourne session of 1898, extending over three months, reached finality.



Federal Parliament House, Melbourne

Eleven weeks after this last Convention the first popular vote was taken on Federation in New South Wales, Victoria, South Australia, and Tasmania. Though the decision was overwhelmingly in favour of Federation in three of the States, and a smaller affirmation in New South Wales, the majority was legally insufficient to bring about the desired result.

A Conference of the six Colonial Premiers followed in 1899, and seven amendments were effected in the Bill.

A second referendum in which Queensland joined—but Western Australia stood out—was held, and the majority for Federation more than doubled.

A delegation of representatives from the Federating Colonies visited England on the occasion of the submission of the Commonwealth Bill to the Imperial Parliament. The Bill was promptly passed through all its stages by the House of Commons and received the Royal assent on 9th July, 1900.

A referendum on the question of Federation was taken in Western Australia on the 31st of the same month, and resulted in a large "Yes" majority. The Western Houses put forward a petition for inclusion as an original State in the Union, and on the 17th September, 1900, Her Majesty Queen Victoria signed a Proclamation declaring that on and after 1st January, 1901, the people of New South Wales, Victoria, South Aus-

tralia, Queensland, Tasmania, and Western Australia, should be united in a Federal Commonwealth under the name of

THE COMMONWEALTH OF AUSTRALIA.

Although New Zealand had been represented at some of the deliberations, the possibilities of her entering the Federation were at all times regarded as very remote.

Having reached an important milestone on the road to nationalism, Australia celebrated the event with befitting festivities. The First Parliament of the Commonwealth was convened by proclamation dated 29th April, 1901, by the Earl of Hopetoun, first Governor-General, and opened on 9th May by the present King of England, George V., then Duke of Cornwall and York.

Of the legislation effected by nine Ministries which have at various intervals during thirteen years past controlled Federal affairs, those Acts relating to Colored or Alien Immigration, Tariffs, Land Tax, and Defence, are probably the most important.

The establishment of a High Court and a Commonwealth Bank, the taking over of Papua and the Northern Territory, the appointment of a High Commissioner in London, the fixing of a Federal Capital site, and the commencement of an Australian Navy and the trans-Australian railway are among the greater events of the Federation.



General View of Canberra, the Federal Capital Site,

CANBERRA, THE FEDERAL CAPITAL.

IN entering the Federation New South Wales imposed a condition that the Federal capital should be within territory of the Mother State.

Under the Constitution the seat of Commonwealth Government was to be determined by Parliament. The capital and the surrounding area—not less than 100 square miles—should remain vested in and belong to the Commonwealth.

An exhaustive examination of suggested sites took place during following years, and the question was hotly debated in Parliament on several occasions.

In 1908 the Houses agreed that the Commonwealth Seat of Government should be at Yass-Canberra; that the territory to be Federally acquired should not be less than nine hundred square miles, and have access to the sea.

The then Minister for Home Affairs, Hon. Hugh Mahon, in his instructions to the District Surveyor, admonished him that the Federal Capital “should be a beautiful city, occupying a commanding position, with extensive views, and embracing distinctive features which will lend themselves to the evolution of a design worthy of the object, not only for the present, but for all time.”

The necessity for adequate water supply and sanitation was also emphasised. The site chosen was to be “easy of access from Sydney and Melbourne, and through them to the other capital cities, also from a suitable harbor on the coast.”

The surveyor, Mr. C. R. Scrivener, reported in due course. An advisory board was then appointed, consisting of Mr. Scrivener, Col. David Miller, Lieut.-Col. Percy T. Owen, Col.



showing, in the centre, the Military College, Duntroon

W. L. Vernon—all gentlemen of expert knowledge and wide experience in public works.

In 1909 New South Wales surrendered an area of about 900 square miles at Yass-Canberra for the Federal capital, two square miles at Jervis Bay for a Commonwealth port, and areas aggregating 2302 acres for its defence.

The Mother State also conceded "the right to construct, maintain and work a railway from the territory to Jervis Bay. The right to use the waters of the Snowy River, or such other rivers as may be agreed upon, for the generation of electricity for the purposes of the Territory, and paramount water right over the catchment areas of the Queanbeyan and Molongolo Rivers and their tributaries."

During the regime of Hon. King O'Malley as Minister for Home Affairs the capital received enthusiastic attention. A complete system of Federal administration for the Territory was

evolved, and premiums offered for the best plan for the laying out of a city. Designs were sent in from all over the world.

Three prizes were allotted. The first, £1750, fell to Mr. Walter Burley Griffin, of Chicago, Illinois, U.S.A. The second, £750, was awarded to M. Eliel Saaringen, architect, Helsingfors, Finland. The third went to Professor D. Alf. Agache, Paris.

Four hundred pounds was afterwards paid for a design jointly prepared by Messrs. W. Scott Griffiths, R. C. G. Coulter, and H. Caswell, of Sydney, N.S.W.

Subsequently the Departmental Board incorporated a design from the plans purchased, to which new features were added.

This design was approved by the Federal Cabinet, and the first surveys began in 1913.

Since that date systematized public works have been undertaken in Canberra and at Jervis Bay.

The first consideration was the storage of water for use of the Federal City. The main reservoir on the Cotter was originally laid out to impound 650 million gallons. This has been increased since.

A brick-making plant and power plant were installed, roads made and mended, and necessary buildings erected.

Earlier schemes provided for the building without intermission of Administrative Offices, Courts of Justice, Police Buildings and Gaol, Military Depot and Offices, Schools, Observatory, Medical and Hospital Buildings, Railway Station, Post Office, Government Printing Office, Town Hall, and other public edifices.

A Royal Military College was established at Duntroon in 1910. This provided for the training of 120 cadets, many of whom later on distinguished themselves on active service.

It was proposed to establish railway communication from the Federal City with Queanbeyan, Yass, and Jervis Bay. These three lines are necessary to give ready access to Sydney, Melbourne, and the seaboard.

The average rainfall for the Territory is 25.5 inches—about that of Melbourne or London.

The climate is dry, healthy, and bracing in winter.

On the 12th March, 1913, a date which will be historical in Australia, the foundation stone of the Federal City was formally laid by the Governor-General, Lord Denman, before an assemblage of politicians, officials and public personages, but Australian science, literature and the arts were not deemed worthy of representation. Owing to the crudities of our callow political systems, no doubt, the position which science and art occupy in our national evolution has not yet been determined. They cannot, however, be neglected if the Commonwealth is to be more than a grossly materialistic democracy.

The function of naming the capital was performed by Lady Denman. The official choice of "Canberra" had up to that moment been kept secret.

The war and Australia's urgent services in the cause of Empire have led to a temporary curtailment of work at Canberra. The building of the city will no doubt be hastened in the coming years of peace.

On the 30th of June, 1914, the total expenditure within the Territory was just on half a million pounds.



The Cotter River, Canberra



TRANSCONTINENTAL RAILWAYS: EAST-WEST.

WITH Federation came the Bigger Australian, who asked for Continental conceptions. Transcontinental railway schemes evolved as a matter of course. The States had been losers under old social associations; betrothed through political interest, they must now be indissolubly wedded by links of commercial steel.

Obviously, it was the function of the Commonwealth Government to complete those expensive railway systems, which would join the country East and West, and North and South.

The East and West system connects the port of Fremantle and the West Australian capital, Perth, through Kalgoorlie, with Port Augusta in South Australia. On this system one will ultimately be able to travel by rail from Croydon, in the Gulf of Carpentaria, to Meekatharra in Western Australia. There will be many changing stations—Brisbane, Wallangarra, Sydney, Albury, Melbourne, Adelaide, Terowie, Port Augusta, Kalgoorlie, Perth; but the traveller will reach his destination in due course.

Before his departure for London to take up the duties of High Commissioner, the Right Hon. Andrew Fisher, accompanied by his secretary, Mr. Box, and a small party of officials, went over the East-West route from Port Augusta to Kalgoorlie.

Gaps between railheads were bridged by camels and motor cars. The party experienced no great difficulties or hardships in crossing another of Australia's mythical "deserts." Before leaving Melbourne Mr. Box good-naturedly promised to take notes and snapshots of the country traversed for *Australia Unlimited*.

The party returned to Melbourne greatly pleased with the prospects, as far as future settlement along the East-West railway is concerned.

The distance between Port Augusta and Kalgoorlie is 1060 miles. At the time Mr. Fisher went over the route in December, 1915, the rails were laid for 332 miles directly west from Port Augusta, and 390 miles east from Kalgoorlie.

For 268 miles west of Port Augusta the line passes through good stock country, taken up in pastoral runs for many years past.

Tarcoola, 258 miles from Port Augusta, is located in an auriferous belt which has already produced much gold.

After leaving the South Australian railhead the expedition—proceeding by camel buggy—entered into slowly rising country, with sandy soil and well covered with mulga, salt-bush, mallee, patches of bull oak, and some pine. There were slight traces of limestone formation. The weather was cool and bright.

The following day, Tuesday, was also cool. Lignum and scattered spinifex began to make their appearance. The country gradually became steeper and the timber heavier.

A feature of the country seen on Monday and Tuesday, as well as on the three succeeding days, was the numerous evidences of bird and animal life. The small birds were very tame, and approached to within a few feet of the travellers. A bell bird was seen on Tuesday, and a kingfisher was disturbed on a nest in which one egg was found.

On Friday night the party, having journeyed at an average rate of eighteen miles a day, through mallee and mulga and spinifex, made their camp



At Ooldea Soak

in an exceedingly picturesque valley. Travelling on early next morning to Ooldea Soak they found there an excellent supply of water. Tracks of kangaroos and emus were observed, while bustards, hawks, crows, and smaller birds became numerous.

At one o'clock the journey across the Nullarbor Plain began.

"This," says the High Commissioner, in his description of the trip, "is one of the largest, if not the largest plain in the world. It runs for 430 miles east and west, and its width averages about 250 miles. *The plain is bigger than the whole of the State of Victoria.* Limestone outcrops are frequent. The percentage of lime in the rock is

extremely high, at one place attaining 98 per cent. The chief characteristic of the plain is an almost total absence of trees. There are isolated patches of myall and gidyea, and the plain is abundantly clothed with blue bush and salt bush. At the head of the line sheep fatten whilst waiting for the butcher, and I am perfectly satisfied that if water were made available the Nullarbor Plain would support at least a couple of million head of sheep.

"The plain ought to carry about one sheep to twelve acres.

"It has been demonstrated that over a considerable extent of the plain splendid supplies of fresh water and good stock water can be got by boring.



Freshwater Bore, West End of Railway



On the Nullarbor Plain

There are also many depressions in the plain, in which dams can be made, with good catchments. The Commonwealth railway authorities have constructed many dams of immense capacity adjacent to the line. Along part of the track travelled several four-hundred gallon tanks were sunk, in order to provide water for surveying and boring parties and for the safety of wayfarers."

Wild turkeys and other game were frequent on this wonderful plain, which five years ago most Australians believed to be a hopeless desert.

Where Mr. Fisher's party crossed the West Australian border there was nothing but plain and sky, salt bush and blue bush, without a tree or even a suggestion of a rise in sight. A surveyor's post about two feet high had, nailed to it, a small and much decayed board pointing directly north

and south towards the border line between the two States. This is the only mark to indicate the boundary. There were still 56 miles to go to the head of the western section of the railway.

Thirty-six miles from the border is No. 4 Bore, where a supply has been obtained of 30,000 gallons of stock water in twenty-four hours.

They had gone a distance of some 340 miles from the head of the South Australian railway section, and during the whole journey did not pass a single traveller on the road, nor see any permanent habitation. "Yet," says Mr. Fisher, "*I am convinced that the time will come when all that country will support a population that will be adding to the wealth of the Commonwealth. We saw no country that could by even the wildest stretch of imagination be called desert. We saw arid land, but none that was desert.*"



The High Commissioner and Party



On the Border of the Northern Territory

THE NORTH-SOUTH RAILWAY.

THE North-South Railway is already being pushed on from Pine Creek towards Oodnadatta.

There are still people who doubt the future of Central Australia. The following reports from Mr. T. J. Waldron, of the Department of External Affairs, should give them hope. Mr. Waldron is a young, intrepid officer, well and scientifically trained, who has accompanied small parties of specialists into the heart of Australia on two occasions, with a view to determining as far as possible the lands through which the great North-South railway will cross; its character, conditions, and future uses and possibilities.

The first report is a description of the country which would be traversed by a railway from Oodnadatta to Anthony's Lagoon, adopting as far as possible a due north-and-south line.

We give the text almost as it has been presented by Mr. Waldron to the Engineer for Construction and Maintenance of Commonwealth Railways:—

“The south-western side of the Finke River, on the division between the Northern Territory and South Australia, marks the boundary of a stony tableland, extending for some hundreds of miles through northern South Australia. The country from Oodnadatta to the border of the Territory is similar to that seen on the railway line from William Creek to Oodnadatta; there are the same tabletop hills, gidyea creeks, and occasional larger box creeks. The nature of the surface rocks is also similar. *It is splendid stock country, and grows edible mulga in addition to several varieties of annual and perennial salt-bush.*

“Before leaving the section of the line within South Australian territory, however, mention may be made of the Dalhousie district (80 m.) which contains numerous hot and warm mineral springs. The larger springs shelter flocks of waterfowl, while the medicinal properties of the springs, as a whole, are worthy of consideration.

“After crossing the Finke at the border of the Territory, the country changes completely. A vast stretch of sandhills (not drift sand) running a little west of north (say 30°), is the dominating feature, but it is varied by patches of stony tableland, and towards the north and west the surface gradually changes to slightly undulating sandy plains.

“110 M. to 156 M. (*Moderate Construction*). —From 110 M. to 156 M. sandhills predominate. The surface of the ridges is covered with a fair growth of cane grass and herbage, which serves to bind the loose soil, and for the present eliminates any possibility of drift sand. The flats between the ridges are hard loam, and the ridges themselves show solid ground at a depth of 12 to 18 inches. The flats are covered with mulga and other smaller shrubs.

“Anaconda Bore, which has a flow of 700,000 gallons per day of practically fresh water, is in this section. Although it is said to be on the extreme northern border of the great cretaceous artesian basin, there is no indication of any geological formation to justify the fixing of the boundary. There is no change in the character of the surface rocks until the foothills of the MacDonnell range mountain system are met with at 230 M.

As the boundary of the basin was fixed without an inspection of the country, and extended only to include Anaconda Bore, *there is every reason to believe that the country from 110 M. to about 200 M. can be considered as within the artesian area.* In the section 110 M. to 156 M. there are occasional outcrops of stony tableland, which may provide some of the ballast required.

River the country improves, there is no surface water, but there are indications of shallow well-water in some swamps between Poulia Poulia Creek and the Hale, 225 M. to 235 M.

"230 M. to 280 M. (Moderate Construction).—230 M. may be taken as the northern boundary of the great sand area lying south-east of the Macdonnell Ranges.



A Survey Expedition Camp

"156 M. to 190 M. (Easy Construction).—In this section there is a greater proportion of tableland, more scrub on the sand areas, and also the debouchure of the Todd River, which is here lost in the sandhills, and is only traceable by occasional lines of gum trees. As a consideration in railway construction, it is doubtful whether these lines of gum trees are worthy of mention. My opinion is that they are only fed from an underground percolation, especially since the surface shows no signs of inundation. *From a pastoral point of view, this section contains very good country, while the previous section (110 to 156) can only be described as fair.*

"190 M. to 230 M. (Easy Construction).—The sand ridges gradually merge into undulating sandy plains, well grassed, and growing a fair scrub of whitewood, mulga and other smaller shrubs. As the line here approaches the Hale

At this point the foothills of the ranges are met with, and at 245 M. the line crosses the Hale River as it flows in a well-defined stream from these hills. Poulia Poulia Creek also flows across the line towards the Hale, some 10 miles south of the possible crossing of the latter. It forms a swamp before entering the larger river, and may make advisable a slight deviation to the east, and a crossing lower down the Hale.

"280 M. to 305 M. (Easy Construction).—For about thirty miles the line skirts the broken country forming the eastern end of the ranges, and crosses the heads of the Innumbra and another, unnamed, creek, which flows south-easterly towards the Marshall. This country is composed of small hills and ranges of schists and granite; it affords no water, and on account of the preponderance of spinifex-covered ridges it is of little value for pastoral purposes. North-east of the line—between

it and the Marshall—the country improves; it is watered by several soakages and water-holes in the latter river, and it has good pastoral prospects.

“305 M. to 340 M. (*Easy Construction*).—The next section (of 35 miles) comprises the well-grassed plains of the Plenty River, which is crossed at 325 M. This creek is here about 30 chains wide, and when in flood carries a large body of water. The channel is well defined, but is very shallow, the surrounding sandy plains being only about 20 feet above the creek bed. The creek runs about once in two years. At 340 M., on a continuation of the due north line, the mass of quartzite ranges known as Dulcie Ranges, forms a barrier which I consider will make an easterly deviation of some 10 miles imperative. *This deviation would bring the line through the best watered area in Central Australia*, including the districts of Ooratippra, Oorabbra, and Picton, and would cross the divide between the northern and southern river system through a gap between the Dulcie and Jervois Ranges. Another point in favour of the deviation is that it would bring the line clear of the Devonport Ranges at Frew River. As it seems probable that this deviation will be justified by a considerable saving in the cost of construction, and on account of the better quality of the country passed through, the line is being considered as adopting the deviation.

“340 M. to 400 M. (*Moderate to Difficult Construction*).—The districts of Oorotippra, Oorabbra, and Picton mentioned above are included in this section and consist of loamy plains, well-grassed, carrying a scattered scrub of edible rushes, and intersected with low quartzite ranges and many small creeks. These creeks, together with the rock holes and springs of the hills, form the sources of a good water supply.

“400 M. to 450 M. (*Easy Construction*).—At 420 M. the Sandover River, a sandy creek as large as the Peake, on the Oodnadatta line, is crossed; but it floods only about once in 25 years. It has not run for the last seven years. The country in this section on each side of the Sandover River is undulating sandy country covered with spinifex, low mallee, acacias, and occasional bloodwoods. It is of little value for pastoral purposes.

“450 M. to 530 M. (*Moderate Construction*).—This section includes the outlying hills of the Devonport Ranges and portion of the country watered by the Frew River system. It is well-watered, and in these ranges is the new Wolfram field, which was producing ore to the value of £1300 per month in October last.

“530 M. to 570 M. (*Easy Construction*).—Undulating sand, patches of hard red clay, and a scrub of wattles, mallee, jasminum, and bloodwoods, with a general growth of spinifex, are the principal characteristics of this section. There

is no natural water and the country is poor pastoral country. The north-eastern portion of it is probably within the sub-artesian basin of the Barkly tablelands.

“570 M. to 675 M. (*Anthony's Lagoon*), (*Easy Construction*).—*This extensive section comprises open downs country, and is undoubtedly some of the best country in the Northern Territory.* It offers no difficulties to railway construction. Sub-artesian bores have been sunk on the route (on Alroy Downs and Brunette Downs stations), and on both sides of the line the country is at present supporting large numbers of stock.”

Mr. Waldron's second report contains invaluable data concerning regions which are still *terra incognita* to all but a favored few. These have had the good fortune to penetrate the silent Australian distances which call to the adventurous heart of youth, and stir the interest of practical minds.

They return, browned by the sun but full of mighty strength and faith. There is a new expression upon their faces, a new light in their eyes. It is like the transfiguration of faces that have known the stress of battle, but, instead of that haunted look of sadness which young men bring back from war, there is an exaltation, born mayhap of freedom and faith! Ask any of these bronzed, stalwart bushmen—normal, healthy, and sober—their views on the future of Central Australia, and see the enthusiasm which sparkles from them.

It has delighted the author to quote copiously, in another chapter, from Mr. Mason's first-hand report of his arduous explorations in that hinterland which spreads northward from the Australian Bight.

It is an equal pleasure to give here, almost in full, this valuable report from Mr. J. J. Waldron on Central Australia, dated 1916:—

“Central Australia has been described many times, by persons with various objectives. There are recorded the impressions of explorers, of scientists, of overlanders, of telegraph men, pastoralists, and miners.

“Each has described the country as it affected the purpose of his visit.

“The first explorers saw in it a region to be crossed with difficulty before they could reach their far-off goal, the shores of the Indian Ocean.

“The overlanders and early pastoralists had to learn its treatment of stock at a considerable cost to themselves.

“The prospector, though he did not for a moment doubt the mineral wealth of the country, was forced to acknowledge that this out-of-the-way place had features, peculiar to itself, which made mining more costly than usual. Side by side with commerce, science solved many of the problems of

Central Australia; like commerce, it has left many of them unsolved.

"The centre of our island continent is not far away from us. Oodnadatta is on the same parallel of latitude as Brisbane, while the MacDonnell Ranges are no further north than Rockhampton. Yet a person who has visited Alice Springs is looked upon as somewhat of an explorer, while he would be a suburban commercial traveller who

"Oodnadatta, the terminus of the great northern railway from Adelaide, is situated in very desolate-looking country. The surrounding stony tableland is quite bare of timber, and apparently devoid of herbage; the nakedness of its flats of "red gibbers" and of its tent-shaped hills, varied only by scintillating shafts from exposed pieces of gypsum, and the sense of isolation induced by an encircling sea of mirage, combine to



A Central Australian Scene

had not been beyond Rockhampton. There is one significant reason for the falsity of public opinion regarding Central Australia; it is difficult of access, and remoteness in Central Australia has almost become synonymous with aridity.

"The MacDonnell Range country is not another Ballarat as regards its alluvial gold, but it is not a Mount Maromba wild-cat. Its splendid loamy valleys and saltbush plains do not pretend to rival the Murrumbidgee flats, but they are eminently suited for sheep, horses, and cattle, while some of the more easily irrigable will certainly respond to agriculture. Central Australia has immense possibilities, but their development is attended, as experience has shown, by considerable risk; carefully and steadily directed capital and good management will make the country what, with its wealth, it should be, a prosperous inland to a highly prosperous continent.

impress one with a feeling of disappointment in a land seemingly so barren.

"The impression is honest on the part of the visitor, but most unjust to the surrounding country, particularly the northern portion of it. The requirements of the town have denuded the neighborhood of herbage and firewood, and the absence of a watercourse of any size completes the illusion of desolation. North-east and west of Oodnadatta, gidyea and gum creeks provide surface-water and shade, and while this apparently barren tableland produces the best of cattle feed in perennial saltbush, stretches of softer soil grow an edible mulga, which is an excellent fodder in time of drought.

"Previous to December, 1912, there had been a two-years' drought in the belt of country between Oodnadatta and Blood's Creek, 80 miles north. The total rainfall for that period was



Near Alice Springs

under five inches, and it fell in scattered showers of a few points each, yet the losses by stock-owners were comparatively small; and now that the drought has broken, the country has recovered so quickly that this year will probably see 40,000 fat bullocks trucked from Oodnadatta. One station alone will send 15,000. *Central Australia recovers from a drought more quickly than any other part of the Commonwealth*, and Australia as a whole is famous for rapid recoveries after bad seasons.

“Depot for supplies to the Territory as far as Newcastle Waters, Oodnadatta is the centre of a considerable carrying trade. About 400 camels are constantly employed carting supplies to the stations in the north, while places nearer to the head of the railway line convey their stores by waggon and pack-horse. The northern mail leaves for Alice Springs and Arltunga on the arrival of the fortnightly train. A coach conveys it as far as Horseshoe Bend, 210 miles away, where it is transferred to camels and taken on to Alice Springs (another 115 miles), and then 80 miles east to Arltunga.

“The road usually taken from Oodnadatta to the Territory goes north along the overland telegraph line across stony tableland for 32 miles to

the Alberga River, which, like all rivers south of the MacDonnell Ranges, flows east and south towards the Lake Eyre basin. The country to the east and west of the road is included in Macumba and Todmorden stations. *It is good stock country and has this year supplied 10,000 cattle to the Adelaide market.* Fresh water can always be obtained in the Alberga, either in waterholes or from soakages.

“After crossing the Alberga the valley of a branch creek, the Stevenson, is followed for 65 miles. The alluvial flats bordering the creek and the softer country through which the small tributary creeks flow extend for about five miles to the western tableland, and for the same distance to the eastern saddle, which sends numerous creeks into the box flat estuary of the Finke, still further to the east. *The water from an artesian bore has been diverted into the Stevenson above its junction with the Alberga. A fair-sized lake, in which fish are plentiful, has been formed near the bore outlet, and the creek is now a permanent stream for several miles.*

“The road continues northerly over harder soil and tableland across Blood’s Creek and Abminga Creek.

"One hundred and twenty miles from Oodnadatta it passes to the east of the low range in a stretch of tableland which denotes the border of the Territory. Nine miles inside the border is the telegraph station of Charlotte Waters.

"Dalhousie Station lies fifty miles south of the border on an alternative route from Oodnadatta. It is the centre of an interesting tract of country. A slight but extensive depression in the tableland contains numerous mineral springs, some cold, others warm. In one, the Big Spring, the water flows out at a temperature of 110deg. F., and forms a lake about a hundred yards wide, which narrows gradually until it is lost in reed swamps to the east. The different lakes and swamps abound in wild fowl of all kinds. Date palms grow on several of the springs. The surrounding tableland is good stock country, and Dalhousie Station recently changed hands at a considerable figure.

"The line surveyed for the railway from Oodnadatta onwards lies from five to ten miles to the west of the road to Charlotte Waters. It keeps out on the western tableland, crosses the Alberga and the Hamilton, a tributary of the Stevenson, and will thus tap the best-watered country in the far north of South Australia. Here the pastoral industry is of supreme importance; it is practically the only interest at present vested in the country. That its possibilities have been only lightly exploited on the majority of the stations can be readily understood from the improvements recently effected on one of them.

"Macumba is a typical cattle station, 35 miles north of Oodnadatta. It produces feed in abundance, but in a dry time it has few natural waters. The station was founded during a stretch of good seasons; the stock multiplied rapidly, and capital was spent on buildings and stock-yards in anticipation of continued good fortune rather than in pro-



Workers on the Transcontinental Railway

viding against bad seasons. The inevitable drought came; cattle perished, and so much money was lost that the station was deserted, and the country described as altogether useless. Now a wiser generation has taken up the land again, stocked sparingly at first, put down numerous artesian bores, and then stocked more heavily. The result is that during the last drought, one of the severest in the history of the country, Macumba was well stocked, but did not lose a single beast!

the country are eminently suited to them, but no great commercial success is likely to come of the venture until there are sufficient stock to ensure a steady supply of mohair, and, what is even more necessary, until men with a thorough knowledge of the industry have control of shearing operations.

"Geologically speaking, there is no great change in the country after crossing the Territory border at Charlotte Waters. The surface rocks still belong to the secondary and tertiary formations



Beyond the MacDonnell Ranges

"The history of Macumba is similar to all other stations in the dry belt of Central Australia, except that while this station is now secure from the ravages of drought, most of the others are still understocked and reckoned as only of moderate value. Their sole need is a permanent water supply; it can be obtained by boring, by well-sinking, or judicious conservation of the flood waters of the rivers, but until their stations secure the advantages of an adjacent railway, pastoralists are not inclined to incur the expenses of these improvements.

"On Eringa, a station west of Charlotte Waters, and at Blood's Creek station pure Angora goats have been bred from imported stock, and no difficulty has been experienced in managing the flocks. The climate and the clean nature of

noticeable from Oodnadatta to the outcrop of older silurian rocks north of Francis Well, and the area included in the great cretaceous basin extends for some miles north of the telegraph station. The landscape, however, undergoes a complete change; the vast stretches of stony tableland gradually diminish in extent, and are replaced by splendidly grassed sandy ridges and loamy plains covered with mulga and other acacias, while the rivers are more clearly defined, and form portion of the drainage system of the largest river in Central Australia, the Finke.

"The Finke rises on the north side of the MacDonnell Ranges, flows south through magnificent gorges of red sandstone in the James Range, and then south-east through more level sandy country until it is joined by the Hugh, its largest tributary,

35 miles north of the telegraph crossing at Crown Point. It then continues its south-easterly course for about 120 miles to where it spreads itself out in box flats north-east of Oodnadatta. It forms again, joins the Macumba, and its waters eventually reach northern Lake Eyre. The whole course of the Finke has never been traversed, *but it is probably over 1000 miles in length. Its banks are covered with splendid timber and marked by numerous gorges and gaps, some of which can be dammed at small cost, the flood waters thus conserved, and the irrigation of many fertile valleys made possible.* At present these

feed for stock is scarce, but there are several flourishing stations in this belt of country. It is a noteworthy fact that spots which were once badly infested with spinifex, but have been repeatedly burnt off and stocked, are now producing splendid grass!

"The proposed railway route crosses the Finke 30 miles north-west of Charlotte Waters, keeps to the east of the valley of the Hugh, and after crossing a low saddle in the Ooraminna Range, takes a direct course for Alice Springs.

"Francis Well, the head station of Hayes and Sons, is, as has been said, 80 miles from Alice



A Sheep Station in Central Australia

rich plains support only a few horses and cattle. The Finke is the main source of water supply for the southern portion of the Territory. The country bordering on it and on its several tributaries holds 75 per cent. of the stock south of Barrow Creek.

"Proceeding north from Charlotte Waters the sandy nature of the country becomes more pronounced, until an off-shoot of the vast stretch of high red sandhills lying between the telegraph line and the Queensland border is crossed, between Horseshoe Bend, on the Finke, and Francis Well, 80 miles south of Alice Springs. In places where the sand ridges are high and well defined,

Springs, and from the station to the foot of the ranges is the belt of very rich stock country included in the Emily Plain. It consists of broad loamy plains covered with mulga, saltbush, and splendid grasses. It has an annual rainfall of nine inches. It is watered from the gaps of the Ooraminna and the MacDonnell Ranges, and, even with the present unimproved system of water supply, two runs alone support 8000 cattle and 3000 sheep. The quality of saltbush country beef is proverbial, while scoured wool from these stations has commanded top prices in Adelaide; but it costs £12 per ton carriage on wool to Oodnadatta. Owing to the small number of sheep in

the country, shearing is also very expensive, so that wool-raising, the natural industry for country of this nature, is neglected.

"These difficulties of transport are, however, too general in application to admit of a discussion of their effects on a portion of a single industry; the full force of their significance will be better appreciated after a description has been given of the country principally affected by them—the MacDonnell Ranges.



On the North-South Transcontinental Route

"The MacDonnell Ranges rise perpendicularly to a height of 2000 feet above the broad Emily Plain. They stretch in a huge red wall of granite 400 miles across the Territory from east to west. Many of the ridges are razorbacks; but, in common with most Central Australian mountains, these ranges as a whole present a steep face to the south and a more gradual slope to the north. Silver-barked mountain ash dot the lower slopes and zamia palms grow in the more sheltered gullies; otherwise the principal peaks are quite bare of foliage. Porcupine, or mountain spinifex, alone flourishes on the rocky surface.

"The main lines of range have an altitude of 4000 feet above sea level, and are broken at intervals by huge fissures, which serve as openings for traffic north and south, and through which many

creeks flow. In the gorges thus formed the greater number of mountain waterholes lie. Some of these gaps, as they are called, are only twenty or thirty feet in breadth in the widest part, while the walls of rock on either side are four or five hundred feet high. The waterhole in the creek bed is thus sheltered from the sun, except for a short time in the middle of the day, and even in midsummer is delightfully cool.

"Heavitree Gap, through which the Todd River flows, lies two miles south of the township of Stuart, and four miles south of the telegraph station of Alice Springs. This gap is the broadest of the whole Range openings, and serves as a gateway for the whole of the traffic across the Territory. The telegraph line passes through it. Mr. Graham Stewart has adopted it as the most suitable crossing for the transcontinental railway survey. The Ranges here consist of three parallel chains, between which are level stretches of fertile plains covered with saltbush and native grasses. In most places there is an abundant supply of fresh water at shallow depths. The smaller hills of the ranges, though strewn with boulders of mica, schist and granite, also yield a good growth of grass and saltbush. Thousands of stock of all kinds—horses, cattle, camels, sheep, and goats—pass through Alice Springs annually. Most of them are held for at least a day or two in the vicinity. There are, in addition, the stock belonging to the telegraph station, to the township and to the police, grazing there the whole year round. Yet the flats around look the reverse of overstocked. Any traveller going the road can always turn his horses or camels loose, and feel confident of their getting good feed. As a matter of fact, travelling stock spell at Alice Springs to recover condition lost on the road.

"The road through Heavitree Gap crosses the alluvial flat of the Todd through a growth of "old man" saltbush eight feet high, and winds among the hills past the town of Stuart to the telegraph station. It then continues north through a small gorge, and reaches the vast mulga plain lying to the north of the ranges fifteen miles from the Gap.

"The MacDonnells in the neighborhood of Alice Springs are typical of the whole of the ranges, which extend about equal distances east and west of the telegraph line. To the west the mountain plains become more extensive. On one of them, the Missionary Plain, the mission station of Hermansburg is situated. These western plains and gullies support comparatively few stock, because surface water is scarce, and no effort has been made to obtain water by well-sinking, even in places where the indications are most promising. In the eastern portion of the MacDonnells the

pastoral industry is in a more flourishing condition, though sadly lacking in improvements. The small holdings there have 15,000 cattle and horses and 6000 sheep. The most important feature of the eastern MacDonnells, however, is its vast mineral wealth.

"Since the discovery of gold in the ranges the operations of the miners have been practically

for the small parties at work. No shaft on Arltunga has yet been sunk 100 feet; most of the deep ones stopped at half that distance. The other workings included in the Arltunga field lie within a radius of 10 miles north, east, and west of White Range. Nearly all of them have proved profitable for small parties of men to work at shallow depths.



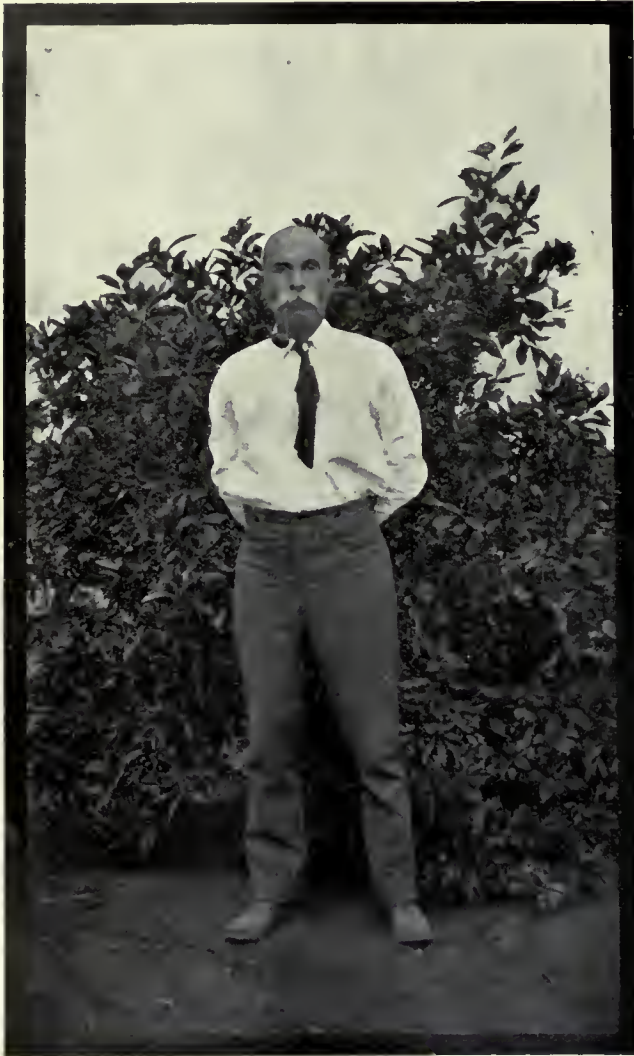
Typical Central Australian Country

confined to three or four small areas, including Winnecke's Depot, Claraville, and White Range. The last named has produced the greatest quantity of gold to date, and gives the most promising indications of future wealth. It is an immense mountain of white quartz, remarkable for the unusual number of auriferous outcrops that are spread about within a short distance of one another, and for the extraordinary width of its ore bodies. In one place the quartz formation has been proved to be 340 feet wide, and in another 200 feet wide. Even if the gold is found to be confined to these formations, the quantity that can be recovered must be considerable. It has been the experience of the small claim-holders hitherto working on them that the ore became richer the deeper the shafts were sunk. The expenses of sinking, however, increased too much

"Winnecke's Depot, 28 miles north-east of White Range, is the only other area outside of Arltunga proper on which mining operations of any note have been attempted. Many small lodes of rich ore have been exploited. The field is still producing payable gold, but, like Arltunga, the faulty nature of the country is such that the value of the intermittent quartz reefs can only be exploited by shaft-sinking and mining.

"In addition to the sheep country included in the ranges proper, the Burt Plain, an area of ideal sheep country, extends along the entire northern face of the mountain, and has a breadth of from 30 miles to 150 miles. Some portions of it consist of open plain, others are covered with a moderate scrub of edible mulga and other acacias, while the whole of it is composed of a loamy soil growing an abundance of native grasses

and herbage. At present there is scarcely a hoof on its 10,000 square miles. It would not pay to sink wells on it for cattle raising—at least, it has not justified that expenditure when cattle can be run in other places without it; but, with the means of getting wool away, wells would be sunk and the land immediately taken up for sheep farming. The average rainfall of the plain is twelve inches.



A Northern Territorian

“As the value of the MacDonnell Range country would be greatly enhanced by railway communication, so the rich pastoral districts lying to the north, east, and west of Alice Springs would relatively increase in value. At present, they are but sparsely stocked, or lying idle altogether. Oorattippra, Frew River, Elkedra and Murray Downs to the north-east, Barrow Creek and Stirling to the north, and Anna’s Reservoir and the Lander to the north-west, would then become the horse and cattle districts of Central Australia, while the

MacDonnells would be devoted to sheep, mining, and the closer settlement requisite to meet the needs of an increased population.

“The fertile plains of the ranges now grow date palms, fruit trees, and vegetables, while wheat and maize have been successfully cultivated at Alice Springs; but whether, by a careful system of irrigation or by dry farming, these valleys can be made suitable for closer settlement, will have to be determined by more extensive experiments than have hitherto been attempted. In regard to some of the river flats—the valley of the Todd, for instance—there is no doubt as to their suitability for the most intense culture, but until the water supplies of the other flats have been thoroughly tested it would be premature to suggest agriculture as a staple industry of the Ranges.

“Before summarising the benefits likely to be derived by the MacDonnell Ranges from railway extension, the climate of this portion of the Commonwealth is worthy of note. It is not too much to say that it is the healthiest climate in Australia. The general plain level of the country is 2000 feet above sea-level. Consequently, after the hottest day in summer the night is cool. The ground thermometer registers below freezing point for days in winter time, and the general winter weather is as genial as could be desired; bracing mornings, warm, sunny days, and cold nights. In summer the days are hot, but no warmer than northern Victoria or central New South Wales, while hot winds are unknown. The extreme dryness of the atmosphere in Central Australia makes the heat less trying, and adds greatly to the salubrity of the climate. No infectious diseases are known there. No more ideal climate for chest complaints could be imagined; at least two authenticated cases of consumption have been cured by residence in the district.

“Enough has been written to justify the prediction that *when a closer union to the population of the south is provided, Central Australia will be reckoned one of the greatest pastoral districts in the Commonwealth.* No one who has seen the country has ever doubted for its future. Side by side with pastoral progress, the mining industry of the country will develop as soon as facilities are afforded it; in deposits of single metals the MacDonnell Ranges have their superiors in Australia, but in the extent and variety of their mineral wealth they are not equalled. The one thing necessary, then, to develop this latent mineral wealth is an extension of the present railway from Oodnadatta to the MacDonnell Ranges, and its construction must be urgently recommended.”

Out of 20,000 miles of railways, owned and controlled by the various Australian Govern-

ments, the Federal transcontinentals will not be least important, though perhaps for a time least financially productive.

Australian railways, their detailed costs of construction, maintenance, methods of working, revenues, returns, and general utilities, are deserving of a special chapter to themselves.

Unfortunately the present edition of *Australia Unlimited* must be compressed into one volume.

If the problem of a uniform gauge throughout Australian railways is solved, local railway history will be marked by a red-letter line.

Break of gauge is one of our pre-Federal misfortunes. Despite this and minor difficulties, our State-owned railways are an asset worth at least two hundred millions to the people of the

Commonwealth. The average cost of construction to date has been about £9633 per mile, equivalent to £35.65 per head of the population.

Traffic and revenues are continually increasing in all the States. Costs of maintenance and working, together with temporary losses on new lines in some States, sometimes over-balance receipts.

For the Commonwealth as a whole, during the eight years to 1913, there was a net profit on Government railways during each year.

Civic and Government tramways show similar results.

In any analysis of our public debt the State-ownership of railways and tramways must be taken into consideration—a fact which financial critics frequently overlook.



A Waterhole in the "Desert," Central Australia



On the Murrumbidgee River, New South Wales



Excavation for the Waranga-Mallee Channel, Victoria

IRRIGATION, STORAGES AND ARTESIAN WATER.

AS settlement extends throughout Australia, as fallacies fade and prejudices are overcome, agrarian production under irrigation will increase.

In every State of the Commonwealth opportunities for the establishment of storages, national and individual, most certainly obtain.

So far, irrigation has been looked upon as a treatment for the more arid districts of the interior. In reality the eastern coast of Australia is just as amenable and will be proportionately as responsive to irrigation as the great inland.

The production of sugar-cane upon the Burdekin River in Queensland has been greatly increased by irrigation, as all tropical production between Cape York Peninsula and the Logan District might be increased by the same method.

The northern river districts of New South Wales, the Tweed, Richmond, Clarence, Bellingen, Hastings, Manning, and Hunter, fertile and productive as they are, will only reach the maximum of their possibilities by the adventitious aid of irrigation.

The Snowy River valley of Victoria, recently tapped by the opening of a railway from Bairns-

dale to Orbost, is undoubtedly an irrigation and intensive-culture proposition.

The flats of the Snowy, yielding up to £40 an acre in maize, can ultimately be made to give probably three times that per acre to families on twenty-acre blocks.

Riverina districts of New South Wales, Murray tributaries of Victoria, the Lower Murray valley of South Australia are all part of the one great system which is destined to support hundreds of irrigation settlements, little and great, beyond those already established.

In Tasmania, water for irrigation is abundant, engineering difficulties are comparatively slight; and, side by side with the scientific application of water to the soils, there can be scientific application of hydro-electric light and power.

In Western Australia the same possibilities exist. In the north-west, for purposes of tropical agriculture, they are particularly valuable. In the Northern Territory similar conditions apply.

The subject of irrigation is touched upon in various parts of this volume. The great Northern Murrumbidgee irrigation scheme is

rapidly reviewed, the future of the Darling River outlined, and the irrigation areas of Victoria briefly mentioned.

From Burdekin round to Carnarvon, the advantages of irrigation are gradually being realized. More than one ambitious scheme has been evolved in New South Wales; Victoria goes on steadily increasing her irrigable acreages every year.

Hitherto irrigation in Australia has been a matter of Government enterprise. While this

Commonwealth is to support a population necessary for national preservation—the economic aspect cannot be disregarded by even the most hopeful and enthusiastic of Ministers.

Not long before the war a Government department was established in Germany to reclaim and settle the last ten million acres of uncultivated land which that country possessed. With improved farming methods the waste lands of Europe and America are rapidly being made productive.



Inlet to Waranga Reservoir, Victoria

principle has its advantages, it cannot be denied that costs have not always been considered in relation to returns. The author holds that in reproductive public works, Governments are just as much under obligation to secure full value for every pound (and a reasonable interest on outlay) as any syndicate or private investor.

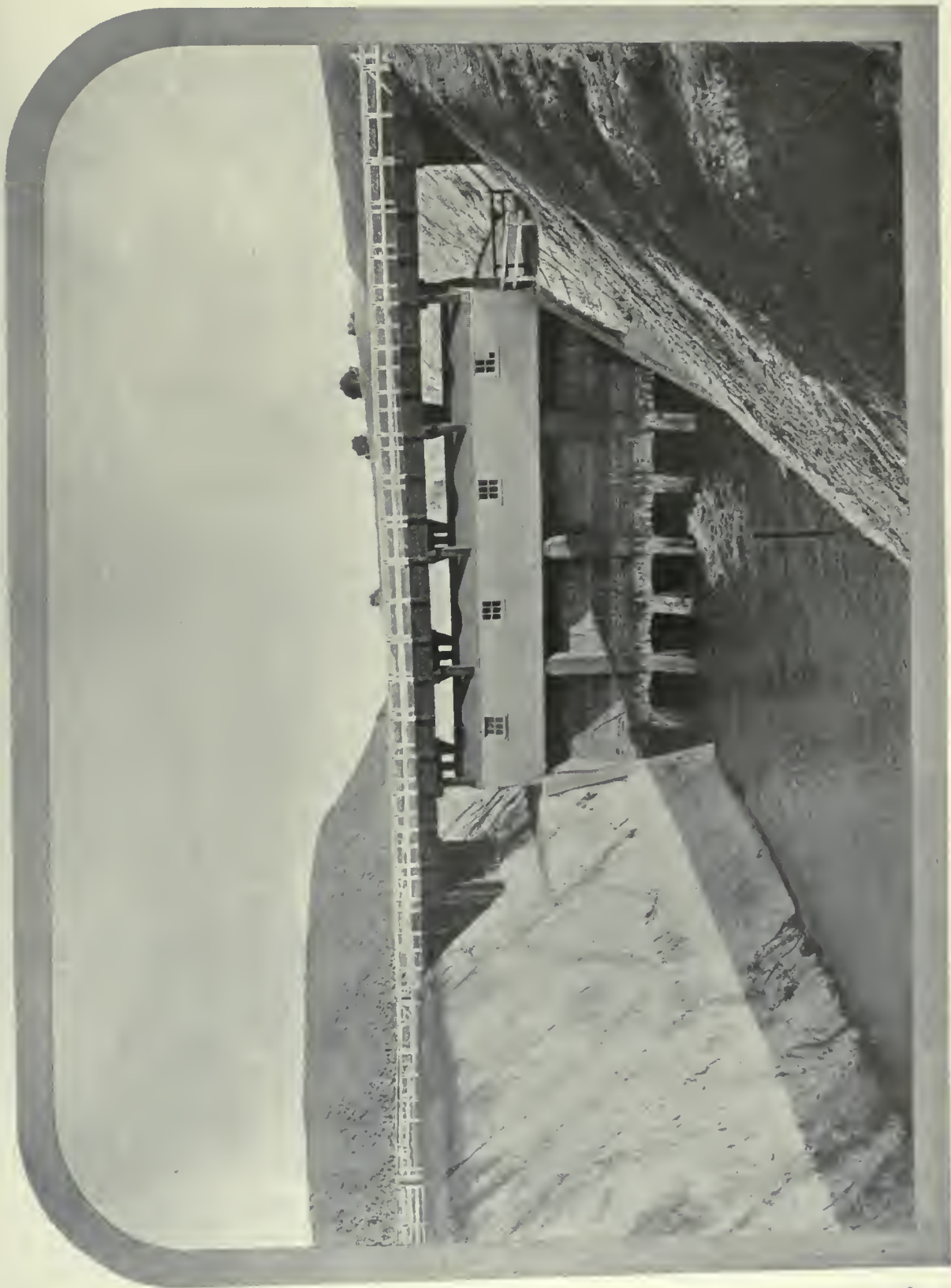
Irrigation can never be regarded as successful until the actuarial aspects of each proposition will stand the acid of ordinary commercial audit. The principle of the scientific application of necessary water to suitable soil has been proved indubitably good, but there is also an economic side to the question.

As irrigation will be a factor in our future policy of settlement—an essential factor if the

The productions of Australian lands—highly fertile and unlimited in area—can be vastly increased by adapting corresponding methods to local conditions. Not only will irrigation increase our agricultural output, but it will prevent losses of live stock in dry districts when the annual rainfall, as occasionally happens, falls below normal.

If 22,000 square miles of the Algerian Sahara can be reclaimed with water from artesian wells, there is no part of Australia in which cultivation may not ultimately become possible.

Country like that around Echuca, which will in a “dry” state fatten two-tooth wethers to weigh 108 lbs., and produce two-year-old sheep giving



Outlet to Waranga Reservoir, Victoria

45 lbs. of wool at a shearing, will do still better under irrigation.

An irrigation block should be established on every Australian estate where water can be conserved. The crops raised thereon in good seasons can be converted by ensilage into reserves for lean years.

In the general application of this principle of the conservation of fodder and water, the main problem of the settlement of the Australian interior will be solved!

When this book has filled its mission, when its author is dust, he asks his sons and grandsons to remember this simple prophecy—written in the year 1916. Its significance, if this nation endures, will be then more fully apparent.

What I have said elsewhere of the settlement of the northern part of South Australia—districts with the lowest annual rainfall in the Commonwealth—applies here. Even without irrigation the siloing of native pasturage as the irregular rains produce it (in extraordinary quantity and nutritive quality), with adequate conservation of water for stock, or tapping of artesian supplies where such exist, will go a long way towards answering the most difficult questions of settlement in the interior.

Along rivers such as the Murray there is no longer any problem, save that of engineering and cost. Since the establishment of Mildura, the advantages of irrigation do not need much argument. Mildura, carrying a prosperous population of six thousand on an area previously regarded as insufficient for the support of one family, is argument enough.

Three hundred and fifty-one miles from Melbourne by rail, situated in the dull-looking mallee, this green settlement has become an object-lesson to all Australia.

When the pumps are working at Mildura the weight of water lifted from the Murray equals 200 tons a minute. This, poured out in silver hydraulic streams through 180 miles of irrigation channels, comes back again to Mildura producers in streams of minted gold.

Crops of 27 tons of lemons from an acre and a quarter, and 10,000 cases of oranges from fifty acres of trees are recorded at Mildura.

This settlement has proved the mother of many others.

Renmark, further down the Murray in South Australia, may be regarded as the eldest child of Mildura's success. Lyrup, Berri, Kingston, Waikerie, Ramco, Merbein, Wentworth are all daughters of that parent settlement established by Chaffey Brothers.

South Australia is keenly interested in the Murray system. Being a recipient and not a contributor, her riparian rights have been difficult to determine. Under the Murray Waters agreement, subscribed to by three States concerned and ratified by the Federal Government, it was laid down that—

1. A system of storages be provided at Cumbaroona or some other suitable site on the Upper Murray and at Lake Victoria, and that weirs and locks be constructed in the course of the River Murray from its mouth to Echuca; in the River Murrumbidgee from its junction with the River Murray to Hay, or alternatively to works in the River Murrumbidgee, an equivalent extent of weirs and locks in the River Darling extending upstream from its junction with the River Murray.

2. That the cost of the undermentioned works required to give effect to resolution 1, and estimated as follows:—

Nine weirs and locks from Blanchetown, to Wentworth	£865,000
Seventeen weirs and locks from Wentworth to Echuca	1,700,000
Nine weirs and locks from the junction of the rivers Murray and Murrumbidgee to Hay, or alternatively an equivalent amount (£540,000) in locks and weirs from the junction of the River Darling with the River Murray upstream	540,000
Upper Murray storage	1,353,000
Lake Victoria storage	205,000
	<hr/>
Total	£4,663,000

be borne to the extent of £1,000,000 by the Commonwealth, and as to the remainder in equal shares by the States of New South Wales, Victoria and South Australia.

3. That if so desired by the State of New South Wales, there shall be substituted for the proposed weirs and locks in the River Murrumbidgee locks and weirs to the same estimated cost in the River Darling upstream from its junction with the River Murray.

4. That the flow of the River Murray at Albury, including the natural or regulated flow of the rivers Mitta and Kiewa, and as regulated by the Cumbaroona storage, be shared equally by New South Wales and Victoria, subject to any quantity hereby agreed to be sent down the river for riparian use and for supply to South Australia.



River-boats below Murray Bridge, South Australia

5. That New South Wales and Victoria each have full use of her own tributaries below Albury, and have the right to store and divert the flows thereof, or alternatively, equivalent volumes from the River Murray below their affluences, subject to provision from such tributaries, or her share of the flow at Albury, or both, of contributions towards the share hereby allotted to South Australia, and the allowance for riparian use on the main stream from the affluence of such tributary, or from Albury to Lake Victoria.

6. That the proportion of the contribution by New South Wales and Victoria to the share hereby allotted to South Australia, and for riparian use in the main stream, be that which the mean natural flow of the tributaries of each State below Albury measured at the points of affluence with the River Murray, with half the actual mean flow at Albury added in each case, bear to each other. In calculating the mean flow of the River Darling for this purpose a deduction shall be made to the extent of any water diverted by the State of Queensland.

7. That the minimum quantity to be allowed to pass to South Australia in each year be sufficient to fill Lake Victoria storage once, and, in addition, to maintain, with the aid of the water returned from Lake Victoria, a regulated supply at Lake Victoria outlet of 134,000 acre feet per month during the months of January, February, November and December; 114,000 acre feet per month for the months of March, September and October, 94,000 acre feet per month for the months of April, May and August; and 47,000 acre feet per month for the months of June and July, these being the provisions for irrigation equivalent to a regulated supply of 67,000 acre feet per month for nine months.

Under this or some similar agreement it would be possible for the three States to develop to the fullest extent the fertile valley of the Murray.

Valuable swamp lands on the lower river will also be drained and a large population subsisted on what is now a non-productive demesne. These lands will no doubt be devoted largely to the production of lucerne, whereas other Murray River settlements will vary their irrigated root-crops with raisins and currants, stone fruits and citrus, all the profitable growths of temperate climates.

At the settlement of Merbein, located on the Victorian side of the Murray, the writer found new settlers on 20-acre blocks making a good living from the start.

One family started with less than £20 in cash, and within a few months sold £150 worth of produce, mostly green peas, from partially cleared

ground. Cheap water rates and long periods for payment of purchase money, with Government experts to advise upon all difficult problems of cultivation, make a settler's life on irrigation areas much easier than that of the pioneer of the last generation.

Reclaimable swamp-lands on the Lower Murray have been approximated at 250,000 acres of rich virgin alluvial, which would support 12,000 families under irrigation. This is only a small proportion of the population which could be established between the junction of the Darling River and Lakes Alexandrina and Albert. These lakes cover an area of 200,000 acres, which, without any great engineering difficulty, could, it is said, be converted into an area capable of carrying still another 20,000 Australian homes.

There are on our inland rivers strips of fertile red soil, two hundred miles in length, still awaiting with the thirst of centuries for these fertilizing waters which will convert their arid miles into Arabian gardens of perfume and delight—the sum of Life and Joy in the world will be increased, Australia will be strengthened, and her problems of effective occupation and defence brought nearer to solution.

Irrigation in Western America has improved the value of land to £750 an acre. Our red soils are superior to those of the American West; our climate and conditions are more suitable for the growth of citrus and other valuable fruits. We have better systems of settlement, cheaper land, cheaper water rates, and State control of transport. Irrigation should prove with us a still greater success.

Nowhere on earth are more ideal sites for storages and irrigation to be found than exist on the Lower Murray. Lake Barmera, for example, provides for 15,000 acres of richest red soil, which could be converted into farms at a cost of £60,000.

The value to the Commonwealth in increased production might easily reach that amount per month, to say naught of the value of 750 new Australian families.

The total navigation length of the Murray and its tributaries is 3,213 miles, made up as follows: The Murray, Albury to mouth, 1,366 miles; Murrumbidgee, Gundagai to Murray junction, 666 miles; Darling, Walgett to Wentworth, 1,180.

The watershed of the tributaries in Queensland, New South Wales and Victoria amounts to 414,253 square miles, or 265,000,000 acres, equal to nearly one-seventh of the total area of Australia. Of this total the contributing area amounts to 158,499 square miles.

How many Australian families *can* be settled within the radius of this great river system? This



Pumping Plant at Renmark, South Australia.

is a question which every Australian may reasonably ask his governments, and the patriotism of those governments may be gauged by the enthusiasm of their replies.

When Chaffey Brothers arrived from California in 1886 such replies could not have been so hopeful as they would be to-day. Mildura was then a mere sheep run in Northern Victoria. When the Chaffeyes received their charter in 1887, few people regarded their scheme as one of a revolutionary character. Their early settlers included a number of well-to-do English people, and some Californians; but Australians were in a minority. They could not believe it possible that land which carried a sheep to ten acres was shortly to produce fruit worth £50 to £100 an acre. But they know better now!

Mildura, with all its failures and vicissitudes, was an object-lesson which Australians now realize as one of the most valuable in the economic history of our colonization. The Big Area tradition received its first great blow; it had been demonstrated that a large proportion of Inland Australia was a twenty to fifty-acre proposition!

After the advent of the Chaffeyes, station-holders with 20,000 acre requirements, growers of cereals with nothing less than 640 acres for their needs, shared the burdens and profits of settlement with fifty-acre men, who rapidly became as independent

as they. For the stock-owner a valuable possibility was established. Henceforth he might, by the introduction of an irrigation block on his holding, convert crops therefrom in good seasons into hay or ensilage and feed it to his stock in lean years.

Irrigation is now a part of every Australian government's outlook. New South Wales has under consideration the following irrigation schemes:—

Lachlan River.—The construction of a storage reservoir on this river at a place known as Wyangala, below the confluence of the Abercrombie River, for the purpose of affording water in the river channel for pastoral purposes and for the irrigation of small areas along the river banks by pumping.

Macquarie River.—The construction of a storage reservoir on this river at Burrendong, below the confluence of the Cudgegong River, for the purpose of affording water by gravitation for the irrigation of certain lands to the west of Narromine.

Murray River.—The construction of a storage reservoir across the Murray River at Camberooona, above Albury, in order to supply water by gravitation through a canal which will be taken off at Bungowannah, below Albury, for the irri-

gation of high-class lands lying between the Murray and Billabong Creek, near the town of Berrigan.

Hunter River.—The construction of storage reservoirs on the Upper Hunter or Goulburn River with a view to supplying water by pumping from the Hunter River to the adjoining lands and supplementing the water supply of Newcastle. It is stated that the valley of this river is one of the most fertile districts in the State, and that it is capable of carrying a dense population under the conditions of intense culture by irrigation.

Darling River.—The conversion of Lake Menindie into a large permanent storage by means of a diversion weir across the Darling River and of a canal through Lake Pamamaroo, the water so stored to be utilised in the irrigation of the bed of Lake Cawndilla and of certain lands to the south-west.

Warragamba River.—A scheme has been prepared for the construction of a large storage dam on the Warragamba River, so as to retain a depth of 225 feet and a volume of 103,000 million gallons of water. This would be available for the supply of 80 million gallons daily for the domestic services of Sydney, 30 million gallons daily for trade purposes, and 80 million gallons daily for irrigation purposes in the county of Cumberland. It is proposed that the water for domestic purposes should be conveyed and delivered at Potts Hill through 48 miles of open concrete channel and pipes; that the supplies for trade purposes should be delivered in the vicinity of the Great Western Railway, between St. Mary's and Penrith; and that the lands situated along the banks of the Nepean River and in the valley of South Creek should be irrigated.

* * * *

How far the limitless supplies of artesian water with which the continent is blessed may be used for purposes of irrigation cannot yet be determined.

Evidence before the author convinces him that the invaluable subterranean waters of Australia are permanent and inexhaustible. Here is a report from Mr. H. H. Dare, the Commissioner for Water Conservation and Irrigation in New South Wales, upon recent investigations conducted at Bellata Bore:—

“At this place,” says Mr. Dare, “there is an existing bore which was sunk about twenty years ago and which had originally a good flow. Latterly, however, the flow had decreased to a mere trickle over the casing. It was not clear whether this decrease in flow was due to the loss of pressure or to local causes. A second bore has now been completed about two chains distant from the

original bore. The bore head is slightly lower, and the flow obtained is somewhat more than that from the original bore, but very far below the original flow of the first bore. An experiment was made with an air lift pump, using a system much in vogue in the United States, but which has not previously been employed here. This method consists in placing a galvanised iron pipe, about 1½ in. in diameter, within the casing of the bore, to a depth depending upon the conditions existing in each case. Compressed air is then allowed to flow down this pipe, when the flow of bore is very largely increased. At Bellata Bore the flow before applying compressed air was only about 24,000 gallons a day, whereas under the influence of the air this increased to about 398,000 gallons per day. The result of the experiment appears to show that the water is still present in the artesian strata, but that it does not come to the surface in the same quantity as formerly owing to the loss of pressure head.”

When one calculates the total annual rainfall over the catchment of Inland Australia—which does not reach the ocean by surface flow and is not lost by evaporation—it is reasonable to suppose that it goes to replenish and sustain those underground seas which have been tapped at various widely-scattered points by artesian bores.

The “Great Australian Artesian Basin” includes considerably more than one-half of Queensland (taking in practically all of that State lying west of the Great Dividing Range, with the exception of an area in the north-west contiguous to the Northern Territory); a considerable strip of New South Wales along its northern boundary and west of the Great Dividing Range; and the north-eastern part of South Australia, together with the extreme south-eastern corner of the Northern Territory. This basin is said to be the largest yet discovered. It is about 569,000 square miles, of which 376,000 square miles are in Queensland, 90,000 square miles in South Australia, 83,000 square miles in New South Wales, and 20,000 square miles in the Northern Territory. As a result of this provision stock-raising has been made possible in the most arid parts of the interior. Over four and a half million acres are supplied from artesian sources in New South Wales alone.

The uncontrolled flow from one Queensland bore was calculated at four and a half million gallons a day.

Water from bores throughout Australia is being successfully used for purposes of irrigation. In some the flow is too highly mineralized to be so employed.

The Western Australian system has not yet been thoroughly explored, but it seems already that it will prove as valuable an asset as the arte-



Sultana Grapes, Yanco, N.S.W.



A Peach Tree, Yanco. N.S.W.

sian sea which underlies all these black soil prairies which extend from the Gulf of Carpentaria through western Queensland and northern New South Wales.

The total number of artesian wells in western New South Wales is nearly 500, with an approximate total flow of 111 million gallons per 24 hours. In the majority of these wells the water rises above the surface.

The deepest artesian bore in Queensland is at Bimera, in the Mitchell district, beyond Longreach. It took two years to complete, and has a total depth of 5,976 feet, or nearly $1\frac{1}{8}$ mile. The daily flow is 700,000 gallons of water at a temperature of 176 deg. Fahr. The shallowest is on Manfield Downs, on the Flinders River. The depth is 10 feet, and the flow 2000 gallons daily. The proved Queensland artesian area



Irrigation Channel, Berri, South Australia

The Great Artesian Basin of Australia differs from most other sources of subterranean water supply in that it is of the one-sided type. It may be compared to a huge saucer designed to hold all the overflow from the continental cup.

There may be some slight leakage from a shallow lip on the northern and eastern rims.

The estimated intake of that section of it which lies within the boundaries of New South Wales is 3,580,273,977 gallons a day. In the central districts of Queensland there are hundreds of artesian bores sunk to depths of from 500 to 4000 feet, yielding from 300,000 to 4,000,000 gallons of water per day. Some in the south-western portion of the State yield from 2,000,000 to 7,000,000 gallons in 24 hours, but the water is mainly used for watering stock and runs along miles of ditches.

includes 400,000 square miles, within which area there are probably about 1,000 bores.

The total area irrigated in the State is 8,661 acres.

A sub-artesian area of great extent has been discovered, and large numbers of bores ranging in depth from 100 to 600 feet have tapped inexhaustible supplies of excellent water.

Under the Queensland "Rights in Water and Water Conservation and Utilisation Act of 1910," grazing farmers, pastoralists, and dairymen, etc., are afforded assistance by the Government in putting down artesian bores on their holdings. Hereunder is an example of what can be done under the Act in question, so far as grazing farmers are concerned:—



Water for the Kitchen Garden, Yarrie, Western Australia

Cost of putting down a bore on a grazing area of 60,000 acres, the whole of which would be benefited, say	£2000	0	0
20 miles of drains at £15 per mile	300	0	0
	<hr/>		
Total cost of work	£2300	0	0

This outlay is treated as a loan to the grazing farmer, redeemable in 30 years. Annual interest and reductions amount to about three-half-pence per acre.

The first actual discovery of artesian water was made in 1879 on the Kallara pastoral holding, between Bourke and Wilcannia, New South Wales, at a depth of 140 feet.

The first Government bore was sunk in 1884, at Goonery, New South Wales, on the Bourke-Wanaaring Road. At 89 feet a flow of 24,000 gallons a day was struck.

Since that period travelling stock routes have been opened up all over Australia by means of artesian bores. As stated elsewhere, it is still in doubt as to how far artesian water can be applied for irrigation.

Experiments made with nitric acid as an antidote for the carbonate of soda occurring in artesian water have resulted in a neutralizing of the alkali and its conversion into nitrate of soda, a valuable soluble fertiliser.

This establishes a scientific possibility that artesian water may yet be largely available.

The carbonate of soda in certain artesian waters—poisonous under ordinary delivery to vegetation—can be made a fertilising asset of incalculable value to the Commonwealth. The power for this purpose may be supplied direct from some of the bores. Already many successful agricultural results, such as Pera, have been obtained from the use of artesian water.

In this, as in many other directions, the Commonwealth has barely glanced at the possibilities.

At the same time, in view of the geological aspect of the question, early regulation and control of artesian bores is a national necessity.

It has now been proved by meteorologists that Australia is not a drought-stricken country. Increased production of recent years has been due, not to better seasons—for the seasons have not been exceptionally rainy—but to improved farming methods, particularly in “dry” areas, and also to an extension of conservation, storage, irrigation, better transport, and the artesian supply.

Mr. H. A. Hunt, Federal Meteorologist, has made a most interesting analysis of Australian rainfalls and their results. He shows that the setbacks of past years were due, not to nature, but to human ignorance.

“In Australia,” says this gifted scientist, “past failures and losses have been due to a variety of causes; amongst them may be enumerated a non-appreciation of the absence of natural water-storage, an ignorance of the adaptability of local soils and climate, unsuitable methods of working, a want of knowledge of the existence of a considerable supply of artesian and sub-artesian waters, inadequate means of transit—both internal and external—and an uncertain market for products. The staple product upon which Australia has developed is undoubtedly wool, and this item of commerce is still its chief export. We have not to go back many years to the time when the grower of wool was much in the dark as to the value of his crop. The mutton was of very little value to the producer, the demand for such being entirely confined to our own population. The wool was sent to the home markets entirely at the grower’s risk, and the price he obtained for it there was quite a speculation. The conditions



Excavating Channels for Irrigation at Beremba, N.S.W.

being such, there was little incentive to make extensive monetary outlays for the conservation of water and fodder, for the preservation of an asset of varying and uncertain value. Consequently when our seasonal dry periods came round (which are undoubtedly periods of soil rest) disaster was inevitable to a more or less extent.

"Australia's commercial enterprise is quite on a different basis now. With the perfection of refrigerating appliances the meat markets of the world are open to it. The demand for Australia's wool has become such a factor in the world's supply that if the clip is short the growers, as a body, reap compensation in the enhanced monetary value obtained.

"The vicissitudes of wheat-growing tell much the same tale. The sowing of drought-resisting grain, dry-farming methods, and scientific manuring have, however, brought the proposition of profitable wheat-growing from the problematical to the actual stage. The output has been steadily growing from year to year, and, considering that nearly 500,000 square miles of the continent receive a sufficient average rainfall, i.e., 10 in. and

over during the wheat-growing period (April to October), the possibilities of future development in this direction are inestimable. The climatic history and prosperity of the last ten years or so contradict emphatically the preconceived notion that Australia is a particularly drought-stricken and precarious area of the earth's surface. The truth of the matter about Australia's rainfall is that, over two-thirds of its area, it is generally ample for pastoral and agricultural industries; that different regions have distinct seasonal dry and wet periods; and that it is subject in part, but never in the whole, to prolonged periods when the rainfall is short of the seasonal average. Australia is not peculiar in this respect."

For the sake of future development Mr. Hunt advises the locking and damming of the Darling River, and the conservation, in natural storages, of tropical rains along the western slopes of the Great Dividing Chain.

Water, he contends, can thus be conveyed by canals and pipes to the interior, to convert large areas thereof into the most productive pastoral and agricultural land.



The Bed of the Fitzroy River, Hughenden, Queensland
(Showing how Water is obtained for Irrigating in a Dry District)



Timber Workers



Trucking Ore from Whim Creek to Balla Balla, W.A.

UNDEVELOPED INDUSTRIES.

THE European War has taught Australia many lessons. The nation realizes at last the necessity for developing its own trade and industry, for supporting its own manufactures, encouraging local talent, and fostering native art. The coming years are likely to be strenuously devoted to a general building up of Australian production and commerce.

We have all the raw products. We can obtain all the capital and labor necessary. We intend to utilize within the boundaries of our Commonwealth opportunities which we have hitherto wasted or left undeveloped. In this building up there will be opportunities for labor and capital unequalled in the history of industrial civilization.

It is the policy which is going to make Australia the richest and most powerful, as she is now the freest and most prosperous, nation of the world.

We will preserve and increase the freedom of our national institutions, while offering to our citizens, and to those eligible for citizenship, chances and securities such as no other land can give.

The breed that stormed and held the heights of Anzac will grow stronger and more self-reliant as their generations follow. The home-land suns that browned their burly frames will not cease to shine from out our blue Australian heavens; the home winds that filled their mighty lungs will not cease to blow, and there will be white Australian loaves and good Australian beef and butter to give them stamina.

Their well-fed, well-developed bodies will house vigorous and intellectual minds. They will be just, powerful and humane.

This policy of Australian development is already a fixed national ideal.

In September, 1915, the Federal Minister for Customs asked the Interstate Tariff Commission to report as to what new industries could with advantage be established in the Commonwealth. The Commission's report was presented to the Federal Parliament in due course. In their conclusions, the Commissioners said:—

“So far as those industries which are already in existence in Australia are concerned, it has been shown that there is opportunity for greater enterprise, better efficiency, and a wider output. What entirely new industries may be established is a question depending almost wholly on the condition whether private enterprise, capital, and expert labour are available for the purpose. This fortunately has been the case with the iron and steel industry, which promises an expansion in industrial activity exceeding by far anything which may be anticipated from any other source. If this be successful, the local market is capable of absorbing material to the value of several millions sterling, and we may look forward to supplying our own requirements of rails, iron and steel wire, sheet, rod, angle and constructional iron and steel, together with innumerable other articles not at present made here. Attention is,

in particular, desirable to the following matters, as to which a large local demand exists:—

Copper, wire, rod, tubes, and sheet from the copper.

Tops, yarn, and the weaving of woollen fabrics from our own raw material.

The saving and utilisation of the immense quantities of fats and oils, the by-products of wool-scouring, at present run to waste.

of alunite, valued at £13,700. Alum is used in dyeing as a mordant, in the manufacture of white leather, for sizing paper, to harden plaster of Paris, in medicine, etc.

The systematic exploration of promising localities in Australia, with the view of the possible discovery of natural petroleum deposits.

The manufacture of tinplate from our own raw material.



Cedar Logs, Atherton Scrub, Q.

Improvement of the process of tanning and preparation of leathers, so that their reputation may command a demand in foreign markets in preference to the hides from which they are made.

Investigation as to the possibility of obtaining tannin extracts of commercial value from barks other than wattle.

The prospect of the profitable production of alkalis from the natural salt deposits of South and Western Australia.

The economic production of wood pulp from the fibre of the forest trees of Australia, or from other material which may be successfully cultivated here for the purpose.

The production of alum and potash from the local deposits of alunite, one of which, in the county of Gloucester, New South Wales, is said to be "one of the most remarkable in the world." In 1912 we exported 3,425 tons

The possible utilisation of cheap water-power for the purpose of manufacturing calcium carbide.

The local cultivation of the better qualities of tobacco.

The local manufacture of margarine, for which there is an immense market abroad.

The growing of flax for fibre and linseed.

The manufacture of zinc oxide.

The cheapening of the cost of sugar for manufacturing purposes.

"The systematic application of scientific research and scientific knowledge to the development of all forms of practical industry," the report continues, "has long been an outstanding feature of the modern industrial world, and is fostered as a matter of prime importance by the Government of Germany and other progressive countries. In Australia there has been hitherto



Brick and Drain-Pipe Works, Lithgow, N.S.W.

no co-ordinated effort in this direction, but the discovery of new methods of utilising raw materials obtainable here has been left in part to the voluntary effort of enthusiasts connected with the universities or technical colleges, and, in part, to the work of private individuals or companies, who believe that they see some particular opening for new undertakings by the study of some special scientific process. While the Commonwealth encourages industry by tariff taxation and by bounties, it has no recognised organ for the discovery of new methods of using local products or for diffusing a knowledge of scientific processes amongst our producers and manufacturers. A Commonwealth department, operating upon the problems of secondary as well as of primary production, might well be constituted with a view to the systematic application of science to Australian industry."

Following this most valuable report, the Prime Minister, Right Hon. W. M. Hughes, who had already done a mighty service to the Commonwealth in freeing its base-metal production from alien domination, summoned a conference in Melbourne to deal with vital questions of national research.

Delegates came from all the States. They represented both the Science and Commerce of Australia.

The Prime Minister put forward a list of problems awaiting solution. These included:—

Eradication of vegetable pests, such as prickly pear, Bathurst burr, Nagorra burr, California thistle, Darling pea, St. John's wort, onion grass, poison plants, etc.

Eradication of animal and insect pests, such as rabbits, flies, tick, mosquitoes, white ants, mice, locusts, codlin moth, etc.

Liquids for branding sheep and cattle that will be harmless to skins.

Preparation of skins for market, and removal of wool and hair, prior to tanning.

Maintenance of high class types in sheep, cattle, and horses.

Scientific method of killing, dressing, and classifying meat for export.

Possibility of establishing carbonising works for the removal of burr and grass seed from wool.

Utilisation and recovery of by-products from blood, bones, glue, gelatine, etc.

Prevention of evaporation and absorption of water from tanks and dams.

Utilisation and purification of artesian water for irrigation purposes.

Cultivation of Australian saltbushes and indigenous grasses.

Re-establishment of salsolaceous plants on alkaline soils in dry districts, with and without artesian water.

Cultivation of medicinal plants.

Cultivation of fibre plants, for paper-making.

Manufacture of nitrogenous fertilisers from the atmosphere.

Manufacture of nitric acid from the atmosphere.

Production of potash salts for agriculture.

Reduction of losses of coal in coal-mining, recovery and utilisation of by-products of coal and coke industries.

Recovery of zinc from its ores.

Manufacture of calcium carbide.

Manufacture of alkalis.

Production by electric furnace of ferro-chrome, ferro-tungsten, ferro-molybdenum, ferro-manganese, ferro-titanium, ferro-nickel.

Production of aluminium and its alloys.

Recovery of sulphuric acid, arsenic, etc., from minerals.

Broadly outlined by the Prime Minister, the proposals of the Federal Government aimed at co-ordinating existing institutions—Commonwealth laboratory, universities, agricultural colleges, technical and mining schools, and ordinary schools. The objective aimed at was to apply to pastoral industry, agriculture, mining, and manufacture the resources of science in such a way as to more effectively develop our unlimited national resources. Consideration must also be given to investigation and industrial research, such as the study of problems associated with our great primary industries, pastoral, agricultural, viticultural, and the mining of coal and metals, and the metallurgical treatment of the latter; and the chemical and physical study of problems bearing on the secondary (manufacturing) industries, with a view particularly to the improvement of the quality of manufactures, the reduction of the cost of production, and whenever economically possible the utilisation of waste materials.

An advisory committee was appointed, which, after a fortnight's deliberation, presented to Cabinet a report and recommendations.

The establishment of a Commonwealth Institute of Science and Industry, aided by an advisory council consisting of nine representing members, was advised.

This proposal has met with Government approval. The advisory council is in process of appointment as this section goes to press.

The plain duty before us is to develop our resources; to create power and wealth for ourselves and for our national relations and friends.

From Germany in 1912 we imported goods to the value of £7,153,543—about one-eleventh of our total imports.

These included apparel (nearly two million pounds' worth), manufactured metals (worth another two millions), beverages, dressed leather, and other articles which we were quite capable of producing, and in the future *will* produce for ourselves.

There was not an article on the list of German imports that Australia could not have provided.

Our grass-tree gum had been going to Germany in large quantities. Some of it was actively returned to us in the form of high explosive.

Not long ago the Imperial Institute brought under the notice of the Commonwealth that there is a good demand in England for white diatomaceous earth of good quality.

This substance, which is technically known as kieselguhr, occurs in several localities in New South Wales, as at Cooma, in the neighbourhood of Barraba, and the Warrumbungle Mountains. In 1897 Mr. G. W. Card wrote an interesting pamphlet on these deposits in New South Wales, stating that their existence had long been known, and from time to time the possibility of utilising these, more especially in the manufacture of dynamite, had long been considered. Many new uses are now being found for the material.

Mr. R. T. Baker, Curator of the Technological Museum in Sydney, in a newspaper interview recently, said:—

“At the present time European sources of marble are, of course, entirely closed as far as Belgium, France, and Germany are concerned, and a great opportunity has arisen for the development of our own marbles. For instance, European black marble is quite unprocurable here now. To replace this our black Windellama marble might be substituted. It is in every respect equal to the best Belgian black marble. It is just being realised in commercial circles at last that in Australia there is to be found sufficient building material in our rocks and marbles to supply all the nation's wants, both in quality and quantity.

“As regards tests, in several instances it has been proved that Australian marbles stand a greater crushing strain than even our granites. This demonstrates that Australian marbles have a much closer texture than the imported ones, and this enhances their value to the builder and architect very considerably.”

Similarly, the higher quality and superior value of Australian hardwoods and ornamental timbers

are only just beginning to be realised at home. Thirty million Australian eucalypts were planted in the United States in 1913.

The Eucalyptus Hardwood Association of California recently announced that hardwood tool-handles were giving great satisfaction, and were considered equal to the best second-growth hickory. Yet tool-handles to the value of £44,237 were imported into Australia in 1912!

Australian hardwoods are easier to work than oaks, walnuts, and other imported timbers. A $4 \times \frac{1}{2}$ hardwood scantling is equal in breaking

intellectually progressive, we have been much behindhand in our local manufactures. Importation was a national weakness.

Approximately, Australia consumes two million gallons of linseed oil per annum, equal to 25,000 tons of seed, nearly every pound-weight of which is imported. Every ounce of it should be grown in the Commonwealth.

The grease of our wools is a most valuable by-product which we have exported and then re-imported as lanoline, etc., from Germany and elsewhere for years.



Electrolytic Room, Cobar Copper Works, N.S.W.

strain to a 4×3 oregon. Yet in 1913, over 41 million feet of oregon were used, with hardwood at 13/- a hundred, and oregon at 17/6!

Meanwhile America was paying twice as much for Australian hardwood as they were for their own oregon, and regarded it as a far more useful and durable timber.

Our trees mature much more quickly than the trees of other countries. For furniture and decorative work we have the most beautiful woods in the world. Although we have a greater railway mileage per 1000 of the population than any other country, although we are politically and

We possess the finest clays for potteries, but we have made little use of them so far.

We are blessed with enormous deposits of shale—over ten million tons, 60 years' work, exist in one mine—and the existence of mineral oil has been established in Papua and on the mainland. Yet we imported all the mineral oils consumed in the Commonwealth.

Although the British Army Council, before and during the war, largely used American electrolytic copper, Australian refined copper is admitted by arsenals and principal electrical works to be of excellent quality.

It was eagerly sought after by German buyers during their military-preparatory period, and much of it was also returned to us with our grass-tree gum.

Around our shores marine product of inestimable value awaits exploitation—tons of fish suitable for canning, beche de mer, trepang, shell, kelp, oil, bone, and fertilizer by-products.

Just as the milling of our wheat here (occasioned by war conditions) yields us additional profits in wages, etc., of over a million and a quarter, so the canning and preparing of our own fish will prove a huge source of national income.

Imported flour in 1915 convinced our too-often unpatriotic housewives of the superiority of the Australian staple.

In view of this fact the assertion that we can increase our annual wheat yield to 800 million bushels is received with pleasure.

The millions of money that have gone to our enemies we shall in the future keep for ourselves. Primary production will be increased by increasing manufacture, and the undeveloped industries of this continent will provide wealth and prosperity for Australian citizens.



Half a Ton of Rock Ling

FEDERAL ADMINISTRATION.

POST, TELEGRAPH, AND TELEPHONES.

IT is a common fact that all machines work stiffly at the beginning. Time, friction, and well-oiled parts lead ultimately to smoother running. After Federation, special legislation, for which there was no precedent, had to be introduced to meet wider national needs. State Departments, such as the Post Office and Telegraphs, had to be brought under one control.

Co-ordination of departmental activities is not yet complete in Federal administration. It will be a long time before the work of nation-building has reached its finished results. But the work is going on steadily, peacefully, and in accord with the spirit which induced the various States to unite as an Australian Commonwealth.

Federal legislation in most instances has been framed to increase the general welfare of the Australian people.

In some cases—the Sugar Bonus Act, for example—special measures have been passed to meet the necessities of individual States.

Certain State activities and changes, such as lighthouses, have fallen naturally under Commonwealth control. Others it became necessary to establish; others yet were called forth by the war.

Special Acts of Federal legislation have given additional powers to the Commonwealth Government. Some powers conferred by the Constitution have been assumed as a matter of course or convenience.



Martin Place and G.P.O., Sydney



Public Works Offices, Sydney

The postal, telegraphic, and telephone systems of the States were quickly Federalized and taken over.

Since 1901 they have presented succeeding Ministers with anxious problems. The complete solution of these administrative and financial problems will require time. Neither with public education nor the post office in a country so wide and undeveloped as ours, can we look too closely at the margins between expenditure and returns.

Uniform postal rates now exist in all the States. There were, at the end of 1913, 5853 post offices open for business in the Australian Commonwealth. During that year in round numbers 521 millions of letters and postcards had been handled by our postal authorities, 137 millions of newspapers, 70 millions of packets, and four and a quarter million parcels.

Although a widely-scattered people, it can be seen from this that the transmission of news and intelligence is greater per average—and mileage—than that of most countries. The universal rate of postage for letters in the Commonwealth has

been fixed since 1910 at one penny per half-ounce; printed papers as prescribed a halfpenny per 2oz. or part of 2oz.; books printed outside the Commonwealth, $\frac{1}{2}$ d. per 4oz. or part of 4oz.; for books printed in Australia, $\frac{1}{2}$ d. per 8oz. or part of 8oz.

The latter, a preferential rate, was instituted with a view to offering some slight encouragement to Australian publishing.

Magazines, reviews, serials, and similar matter printed and published in Australia, are carried at $\frac{1}{2}$ d. per 8 ounces or part of 8 ounces. Imported productions of similar character are charged $\frac{1}{2}$ d. per 4 ounces or part of 4 ounces.

Commercial papers, patterns, samples, and merchandise as prescribed pay 1d. per two ounces or part of two ounces. Newspapers of Australian origin—under the prescribed conditions—1d. per 20 ounces, and all other newspapers $\frac{1}{2}$ d. per 10 ounces or part of 10 ounces.

Postage for interstate letters and letters to the United Kingdom and British possessions all over the world is now uniformly one penny per half-

ounce. The rate on letters to foreign countries, (excepting New Hebrides, Banks and Torres Islands, where the rate is a penny per half-ounce), is twopence halfpenny for each half-ounce.

In November, 1907, the Federal Government entered into an agreement with the Orient Steam Navigation Company Ltd., providing for a fortnightly mail service to Europe for a period of ten years, commencing February, 1910. The mail

Taranto to Adelaide is to be completed within twenty-six days fourteen hours, and from Adelaide to Taranto within twenty-seven days two hours, but the latter period may be exceeded by thirty-six hours during the prevalence of the south-west monsoon. The amount of the subsidy is fixed at £170,000 per annum; but, if the earnings of the company be decreased, or the expenses increased, by reason of any Commonwealth shipping legis-



Hinton Bridge, N.S.W.

service was to be carried out by existing vessels belonging to the company and by five new mail ships, which have been specially built, and which are each over 12,000 tons gross registered tonnage and of not less than seventeen knots speed. An additional new vessel was to be added within eighteen months, and another within six years, from February, 1910, and the first of these—the *Orama*—entered into running during November, 1911. The vessels are to call at Fremantle, Adelaide, Melbourne, Sydney, and Brisbane, and at least six of them at Hobart during the months of February to May inclusive. The voyage from

lition passed subsequently to the date of the agreement, to the extent of not less than £5000 a year, the contractors have the right to terminate the agreement unless the subsidy is increased. Insulated space of not less than 2000 tons of forty cubic feet is to be provided in each of the new vessels, and the freights are not to exceed one halfpenny per lb. for butter and sixty shillings per ton for fruit. White labour only is to be employed, and no discrimination is to be made between unionists and non-unionists. If before or during the sixth year of the period of the contract an accelerated service is provided by any compet-

ing line of mail ships, the contractors must, if so required by the Postmaster-General, provide a service equal to the competing service, at an increased subsidy, to be determined by agreement or arbitration. The Commonwealth flag must be flown on the mail ships, which the Commonwealth has the right to purchase at a valuation at any time. Within six months of the Postmaster-General establishing a permanent wireless telegraphy station at Rottneest Island, or at any point on the coast between Fremantle and Brisbane, the company must fit the mail ships with wireless telegraphy installations. The new service was inaugurated on the 11th February, 1910.

At present, mails to and from Europe *via* San Francisco are carried by the Union Steamship Co., subsidised by the New Zealand Government, and the Oceanic Co., each of which takes Australian mails at poundage rates. The services are once in four weeks.

Before the war the Norddeutscher Lloyd had maintained a service between Germany and Australia, *via* Genoa, which was subsidised (since 1886) by the German Imperial Government.

The Messageries Maritimes was also subsidised by the French Government (£120,000) for the carriage of mails between Marseilles and New Caledonia.

Apart from main postal routes, the Commonwealth Postal Department maintains services, regular and otherwise, with various parts of the world.

Subsidies paid for services between Australian ports amount to nearly £51,000 annually.

The average time occupied in conveyance of mails between Adelaide and London and London and Adelaide during 1913 was 28 days 18 hours. Melbourne receives its English mail by train 17½ hours later, Sydney 42 hours, allowing for a seven-hours' stop-over at the Victorian capital.

In 1913 nearly nine millions value was issued in money orders and £3,550,781 in postal notes. Commission and poundage on these transactions amounted to £133,132. By railway, water, and other modes of transit the mails of the Commonwealth were travelled in 1913 over nearly 43 millions of miles.

The national postal system found employment for just on thirty thousand people, besides 5342 mail contractors. Its gross revenues, inclusive of telegraphs and telephones, reached over four and a half million sterling.

The total deficit on working during 1913-14 was over half a million. A recent increase in telephone rates, with the introduction of more economical management, is expected to make up the deficiency.

The first electric telegraph for public use was introduced into Australia in 1854, as a short line between Melbourne and Williamstown. In 1856 Adelaide and Port Adelaide were connected. In 1857 the first Tasmanian line was completed, and in 1858 Sydney and Liverpool were joined. The first line in Queensland—Brisbane to Rockhampton—was opened in 1864. Perth and Fremantle were brought together in 1869, and the same year Tasmania was connected with the mainland by cable.

In 1913 the Commonwealth owned 46,218 miles of line, and there were 4,624 public telegraph offices in Australia and Tasmania. During that year over thirteen and a half million telegrams were dispatched from those offices.

The charges for telegrams of 16 words have been 6d. within prescribed town and suburban areas, ninepence within State boundaries, and one shilling interstate, with a general rate of one penny for every extra word.

Newspaper wires are despatched at special rates. Commencing in February, 1914, the Postal Department instituted a system of letter-telegrams between all telegraph offices which are open between 7 p.m. and midnight. The letter-telegrams are forwarded during the night by telegraph to the office of destination and are delivered as ordinary letters by the first letter delivery, or are despatched by mail to the address in the ordinary way. The rates charged throughout the Commonwealth are one shilling for the first 40 words, and one halfpenny for each additional word, double these rates being charged on Sundays. At present the service extends to 60 offices in the Commonwealth.

Under the Wireless Telegraphy Act, the Postmaster-General holds an exclusive right to establish wireless stations and appliances within Australia. He is empowered to grant licenses for this purpose, but all experimental licenses were cancelled at the beginning of the war, and all private installations dismantled for the duration of hostilities. The Act does not apply to the Royal Navy. The Commonwealth has a connecting circle of nineteen wireless stations around the Australian mainland, and stations at Macquarie Island, Woodlark Island, Rabaul, Wilhelmshaven, Nauru, and Bougainville. The four latter are located on former German territory, now occupied by our Government. Forwarding rates between the mainland and these are 3d. per word.

The high-power stations are Sydney, Perth, Woodlark Island, and Port Darwin. These will form the Australian unit in the Imperial scheme of radio-telegraphic communication. At the conclusion of the war the Postal Department pro-

mises an inland scheme, under which isolated homesteads can be connected with the ordinary land services.

The Eastern Extension cable system links Australia with the outside world, *via* Port Darwin, by several branches. The "All Red" Pacific cable system was completed in 1902. The Australian shore end is at Southport, in Queensland, and there are stations on this route at Norfolk Island, Fiji, and Fanning Island. A land wire leased by the Pacific Cable Board joins Bamfield, British Columbia, to Montreal, and the Anglo-American and Commercial Cable Companies transmit the messages of this system across the Atlantic. The loss on the Pacific system (proportion of which is borne by the Commonwealth) is a steadily decreasing quantity. The administration is by a board consisting of two representatives each from Great Britain, Canada, and Australia, and one from New Zealand.

New Caledonia and New Zealand have separate cable systems. The latter is jointly subsidised by the Governments of France and the Commonwealth. Altogether 72,000 miles of submarine cables and connecting land wires have terminals in Australia.

The standard public rate for cable messages

between the Commonwealth and Great Britain is now three shillings a word, and sevenpence halfpenny a word for "through" press messages.

"Deferred" cablegrams can be sent under certain conditions at a reduction of 50 per cent. These messages can only be transmitted after non-urgent private wires and press cablegrams. They may be sent *via* Pacific and Eastern routes to countries to which the ordinary rate exceeds tenpence per word.

Week-end cable letters are now charged at ninepence per word to the United Kingdom and Portugal, 7d. South African Union, 7½d. India, Ceylon, and Burma, 7d. Canada. The minimum charge on these lettergrams varies from 15/- to the United Kingdom and Portugal, 11/8 Africa and Canada, and 12/6 India, Ceylon, and Burma.

Total cable subsidies paid by the Commonwealth in 1913-14 were £10,650. The Postal Department has established telephone services in all the capital cities and important towns throughout the Commonwealth. These in the year 1913 totalled 1181 exchanges, with a subscribers' list of 107,553. For exclusive service the Government telephone rental charges vary from £3 to £4, with twopence per call under the recently-increased rates.

CUSTOMS AND TARIFF.

UNDER the Constitution, uniform rates of Customs duties are now imposed, with free trade between the Australian States.

The responsibility of shipowners, charterers, masters, or agents in regard to goods carried by sea has been defined by a Federal Act of Parliament since 1905. An Act relating to Secret Commissions, Rebates, and Profits was passed in the same year, together with an Act "to compel the placing of a proper description on certain prescribed goods, on packages containing the same, being imports or exports of the Commonwealth."

"An Act for the Preservation of Australian Industries and for the Repression of Destructive Monopolies" was embodied in the Federal Statutes in 1906. This Act is aimed at trusts and combinations in trade or commerce, injurious or detrimental to the public. It has been amended in 1908, 1909-1910.

"Preferential duties of Customs on certain goods the produce or manufacture of the British Colonies or Protectorates in South Africa" were agreed to in 1906.

The Customs Tariff Act of 1908, repealed previous tariffs and imposed new rates of duties, with preference on certain goods "the produce or manufacture of the United Kingdom."

The Customs Act of 1910 gives the Customs control of all goods for export, the exportation of which is subject to compliance with any condition or restriction under any Act or regulation, extends the machinery provisions for the prevention of the importation or exportation of goods which are prohibited imports or exports respectively, amends the provisions for the payment of duty under protest, gives the Governor-General power to prescribe the nature, size, and material of the coverings for packages, and the maximum or minimum weight or quantity to be contained in any one package of goods imported or exported, or transported coastwise from one State to another; the condition of preparation or manufacture for export of any articles used for, or in the manufacture of, food or drink by man; the conditions as to purity, soundness, and freedom from disease to be conformed to by the goods for export.



Ocean and Interstate Liners,

Customs and Excise yielded £14,881,070 of revenue during 1913-14. After the outbreak of war special Acts were passed relating to trading with the enemy, and stringent regulations enforced by proclamation regarding Australian exports and imports.

A complete reorganization of all matters relating to trade and production is certain.

At the moment of writing it seems that preferential duties will be a first axiom in the future tariff, that trade legislation will be enacted having for its object first the development of Australian trade, commerce, and manufacture, with sympathetic treatment of certain imports and manufactures of the Empire and its Allies.

In 1912-13—the last year from which normal figures can be given—the total value of oversea imports for each inhabitant of the Commonwealth

was £16/12/-, of exports £16/7/2. The total sum collected in duties on merchandise, including spirits and tobacco, was £12,545,135. Future figures will doubtless show a great diminution in the annual value of imports and a great increase in that of exports. Australia, as a producer of food and raw products, has hardly touched the fringe of her possibilities.

Trade between the Commonwealth and the Orient has greatly increased in volume since the war, particularly in regard to Japan.

There is no reason why amicable commercial relations should not be sustained between the two countries. Japan has need of much Australian raw product. "Reciprocity," according to Confucius, is the one word likely to express all virtues. It is a term which can surely be applied as between Japan and Australia.



and Ferry-Boats on Sydney Harbor

COMMERCE AND FINANCE.

SHIPPING, navigation, quarantine, light-houses, lightships, beacons, and buoys are under the control of the Commonwealth.

On arrival of every vessel at a port in the Commonwealth, whether from an oversea country or from another port within the Commonwealth, the master is required to deliver to the Customs officer a form giving all particulars, necessary for statistical purposes, in regard to the ship, passengers and crew. Similarly, on departure from a port, a form containing corresponding information is lodged. These forms, which provide a complete record of the movements of every vessel in Commonwealth waters, are at the end of each month forwarded by the Customs officer at each

port to the Commonwealth Bureau of Statistics, and furnish the material for the compilation of the shipping and migration returns.

Entries and clearances during 1913 amounted to over ten and a half million tons. Of this Germany was credited with by far the highest proportion.

The tonnage entered at Sydney exceeded that of every port in the United Kingdom except London, Liverpool-Birkenhead, Cardiff, and the Tyne ports. The gross tonnage of vessels engaged in regular interstate and coastal services for that year throughout the Commonwealth had reached 364,937 tons—the growth of 61 years.



Circular Quay, Sydney

Under the Constitution, Federal governments have power to legislate with respect to banking and the issue of paper-money.

By an Act passed in 1910, the Treasurer was empowered to issue notes as legal tender throughout the Commonwealth, and redeemable at the seat of Federal Government. These notes have been issued at 10/-, £1, £5, £10, £20, £50, and £100.

There are still 23 private banks trading in the Commonwealth under various charters, four of which have their head offices in London, but the private note issue has now ceased.

The Commonwealth Bank was formally established by Act of Parliament in the latter part of 1911, and opened in 1913. It received no power to issue notes; but has the usual functions and powers of a proprietary institution.

This national bank is controlled by a Governor and Deputy-Governor appointed for seven years, subject to correct administration and eligible for re-appointment.

A Savings-bank department has been established in connection with its operations, and the various departments of Commonwealth government now transact all their banking business through it.

The total paid-up capital of all cheque-paying banks of Australia for 1913-14, amounted to £31,142,583. The total deposits for 1914, all States, equalled £163,854,555, averaging £34/4/7 per head of the Australian population.

Revenues.—The Commonwealth Surplus Revenue Act of 1910, passed by the Fisher administration for a period of at least ten years, provided “that the Commonwealth was to retain the whole of the Customs and Excise revenue, and to make

to the Government of each State (by monthly instalments) an annual payment, equal to 25/- per head of the population of the State. The population of a State in any financial year was considered, for the purposes of this Act, to be the number estimated by the Commonwealth Statistician as existing in the State on the 31st December falling in that financial year."

By the same Act extra financial assistance was provided for the States of Tasmania and West Australia, in consideration of the sacrifices made by these smaller States in yielding control of their Customs revenues to the Commonwealth.

first complete financial year to £21,741,775 for 1913-14, or £4/5/3 per unit of the population.

Of this, Customs, Excise, Postal, and Land Taxation contributed the greater proportion.

A Federal Land Tax was first imposed in 1910. In the Budget of 1914-15 this tax was raised by altering the graduation so that the increase in rate over the whole taxable value of the estate, for each succeeding pound of taxable value between £5000 and £75,000, was one eighteen-thousand seven-hundred and fiftieth of a penny, instead of one thirty-thousandth of a penny, as hitherto. The



The Law Courts, Melbourne

Under these grants Tasmania receives a first annual instalment of £95,000; then eight annual payments of £90,000 each, and a final *douceur* of £85,000.

Western Australia receives for ten years an annual payment, beginning with £250,000, and progressively diminishing by £10,000 each subsequent year.

One-half the amount was to be detailed to all the States (including Western Australia) in proportion to population.

The consolidated revenue of the Commonwealth had increased from £11,296,985 in the

maximum rate for resident owners now becomes 9d. in the £, on estates whose taxable value is more than £75,000. Corresponding increases in the rates payable by absentee owners were made, rising to a maximum of 10d. in the £ on estates whose taxable value is more than £80,000. These advances are estimated as likely to increase the annual yield of the Land Tax by £1,000,000. In addition to this, the Federal Government has, for the first time, introduced succession duties on estates of deceased persons, in addition to those already imposed by the State Governments. The new Commonwealth scale of succession duty, after

starting by the exemption of all estates of less than £1000, ranges from a minimum of 1 per cent. to a maximum of 15 per cent. on estates of a higher taxable value than £71,000.

The Federal revenue from Land Taxation for the Commonwealth was £1,459,962 for the year ending 30th June, 1913.

Patents, Trade Marks, Copyright, and Designs are vested in the Commonwealth. The total revenue from these for the year mentioned fell short of thirty thousand pounds. It is possible that amending legislation dealing with these matters will receive legislative consideration when the question of Trade and Tariff are revised at the conclusion of the war.

Acts for the enforcement of arbitration in industrial disputes are a feature of Australian State legislation since 1891. Conciliation and arbitration laws exist in each of the States, which have been supplemented, but not yet superseded, by Federal legislation.

The Commonwealth principal Arbitration Act of 1904 applies only to industrial disputes extending beyond the limits of a single State.

Employers and employees may settle disputes and establish conditions of labour by mutual agreements, which, being registered, have the force of awards such as are given direct by the Courts in cases referred to them where the parties do not agree.

In Commonwealth administration the Court consists of a judge of the Federal High Court. This Court may, on application from an original party, appoint two assessors at any stage of the dispute.

Cases are brought before the Court either by employers or employees. The consent of a majority of a union voting at a specially summoned meeting is necessary to the institution of a case; the Commonwealth Act requires the certificate of the registrar that it is a proper case for consideration.

Australian industrial legislation aims at preventing strikes and lockouts in relation to industrial disputes, other means of settlement being provided. Such is the declared object of the Commonwealth Acts. It is decreed that no person or organisation shall, on account of any industrial dispute, do anything in the nature of a strike or lockout, or continue any strike or lockout, under a penalty of £1000. The Court may fix and enforce penalties for breaches of awards, restrain contraventions of the Acts, and exercise all the usual powers of a court of law.

The Commonwealth Court may prescribe a minimum rate of wage; it may also, as regards employment, direct that preference of employ-

ment or service shall be given to members of unions. An opportunity is offered for objection to a preference order, and the Court must be satisfied that preference is desired by a majority of the persons affected by the award who have interests in common with the applicants.

The Commonwealth Court is to bring about an amicable agreement, if possible to conciliate and not to arbitrate, and such agreement may be made an award. In order to prevent a matter coming into dispute, the President of the Commonwealth Arbitration Court may convene a compulsory conference under his own presidency. Attendance of persons summoned to attend is compulsory. Provision is made in the recent Act, whereby, if there is no settlement arrived at in the conference, the President may refer the matter to the Court and then arbitrate on it.

There are four ways in which a matter may be brought before the Court—

- (a) By the registrar certifying that it is a dispute proper to be dealt with by the Court in the public interest.
- (b) By the parties, or one of them, submitting the dispute to the Court by plaint in the prescribed manner.
- (c) By a State Industrial Authority, or the Governor-in-Council of a State in which there is no such authority, requesting the Court to adjudicate.
- (d) By the President referring to the Court a dispute as to which he has held a conference without an agreement being reached.

All parties represented are bound by the award, and also all parties within the ambit of a common rule. The Court possesses full powers for enforcement of awards.

Uniformity of industrial legislation is gradually being achieved throughout Australia. It is generally recognized by capitalists and workers that if the principle of arbitration can be successfully employed, it is a far better and more humane method of settling industrial troubles than that of strikes and lockouts.

If by mischance a man or woman fails in life's battle in this gracious land of freedom and humanity, they are not penalized for misfortune nor driven to end their days as mendicants in some cold and cheerless institution. They may, as a common right of Australian citizenship, avail themselves of the provisions of a Federal old-age pension, which, although small, is yet sufficient to keep them from destitution. Since its



Challis House, Martin Place, Sydney

inauguration, years ago, this system has brought consolation to some thousands of deserving people, and pending a fuller legislative acceptance of the humanitarian doctrine that poverty is a social rather than an individual crime, the Old-Age Pensions Act will continue to fill a beneficent purpose.

The Commonwealth Invalid and Old-Age Pensions Act came into operation in 1909-1910. The general administration of the Act is, subject to the control of the Minister, placed in the hands of the Commissioner of Pensions, who is assisted by a Deputy Commissioner appointed in each State. Power is given to the Commissioner and the Deputy Commissioners to summon witnesses, receive evidence on oath, and require the production of documents for the purposes of the Act.

Each State is divided into districts, each of which is placed in charge of a Registrar, whose duties consist in receiving and investigating pension claims and in keeping such books and registers as are required for carrying out the provisions of the Act.

The number of old-age pensioners in Australia represents about $1\frac{3}{4}$ per cent. of the total population.

Persons of good character who have resided in the Commonwealth for 20 years, and who do not possess accumulated property in or out of Australia worth £310, and who have passed, for women, their 60th year, for men, 65, may apply for and receive an old-age pension.

The rate of pension payable, whether for old-age or invalidity, is required by the Act to be determined by the Commissioner or one of the Deputy Commissioners, and is to be fixed at such amount as he deems reasonable and sufficient, having regard to all the circumstances of the case, but must not exceed £26 per annum in any event, nor be at such a rate as will make the pensioner's income, together with pension, exceed £52 per annum.

For an invalid pension the age qualification is attainment of the age of sixteen years if accompanied by permanent incapacitation for work.

For an invalid pension continuous residence for at least five years is required. In neither case, however, is continuous residence in Australia deemed to have been interrupted by occasional absences not exceeding in the aggregate one-tenth of the total period of residence. The applicant for any pension must be residing in Australia on the date when he makes his claim, and in the case of an invalid pension must have been incapacitated while in Australia.

Payments received by way of benefit from any registered friendly society, or during illness, infirmity, or old age from any trade union, provident society, or other society or association, are not, for the purposes of the Commonwealth Act, treated as income. As regards accumulated property, the pension is subject to a deduction of £1 per annum for every complete £10 by which the net capital value of the property exceeds £50. Also, if both husband and wife are pensioners (except when they are living apart pursuant to any decree, judgment, order, or deed of separation), the deduction in the case of each of them shall be £1 for every complete £10 by which the net capital value of the accumulated property exceeds £25. From the capital value of accumulated property is deducted the capital value of a home in which the pensioner permanently resides, and all charges and encumbrances existing on the property, other than the home.

In 1914 there were only 87,780 old-age and 16,865 invalid pensioners in Australia out of the whole population. The total amount disbursed was £2,579,265. In its invalid and old-age pensions scheme Australia makes more liberal pension provision than any other country in the world.

In 1912 the Federal Parliament enacted that in future a maternity allowance of £5 should be payable out of the Consolidated Revenue Fund to every woman resident of the Commonwealth who gives birth to a child in Australia or on board an interstate vessel. Asiatics, aboriginals, Papuans, and Pacific Islanders are excepted.

For 1913-14 the total payments in the Commonwealth under this Act reached £412,780.

By the enactment of the Commerce (Trade Descriptions) Act 1905, the Quarantine Acts 1908 and 1912, and the Customs Act 1910, the Commonwealth Government has taken the first steps towards the exercise of its constitutional powers for the protection of the public health. All these Acts are administered by the Department of Trade and Customs.

In all the States Public Health Acts exist, and are in most places rigidly enforced.

* * * *

Naturalization came under Federal control in 1904. This is a matter which, in the light of events, will probably come up for revision. Before the outbreak of the European war the grant of a certificate of naturalization entitled the recipient within the Commonwealth to all rights and privileges of a native-born citizen. Aboriginal natives of Asia, Africa, or the Pacific Islands,

excepting New Zealand, were barred. By far the greater number of applicants had been German.

The regulation of immigration into Australia is in the hands of the Commonwealth, which exercises great care in this direction.

Desirable immigrants have always been welcomed, but people suffering from transmissible diseases or who are mentally deficient, criminals

and others regarded as undesirable are prohibited. It is likely that immigration laws as they apply to certain aliens will be modified. The spirit of this particular regulation has been protective rather than antagonistic. It has never been meant, as far as Australian public opinion is concerned, to exclude individuals from the Commonwealth whose racial standards approximate to our own.

IMMIGRATION.

AS an example of the prosperity of the Commonwealth during 1913, it was shown by vital statistics published in April of 1914, that marriages had increased 80 per cent. over the preceding year. In 12 years the average death-rate had fallen from 12.22 of every thousand to 10.78, while the birth-rate had increased by over 28 per cent.

Although no country engaged has suffered less material loss than Australia, it did not require a general European war to convince a majority of Australians that the main plank in their national platform was *effective occupation and development of national resources.*

For the carrying out of this vital policy, a greater population is essential. Various measures had been taken by some of the State and Federal Governments to bring the attractions and opportunities of the Commonwealth forward, and a steady stream of immigrants from Great Britain and Europe was pouring in when the crash of Empires began.

Arrangements had been made by nearly all State Governments with various shipping companies, whereunder substantial reductions in fares were made to immigrants. These reductions are generally granted to all persons desiring to settle on the land or engaging in any form of rural in-



“Welcome and Good-bye,” on Port Melbourne Pier

dustry, to domestic servants, and to any others who satisfy one of the several Agents-General in London that they will make suitable settlers. Provision had also been made whereby settlers might nominate their relatives or friends for passage to Australia at greatly reduced rates.

On arrival of ships conveying immigrants, Government officers made themselves acquainted with the requirements and capabilities of the passengers, who were assisted in every possible way to get a fair start in the land of their adoption. This system will necessarily be reverted to in connection with future immigration schemes, for the protection and assistance of the new arrivals and also to prevent any dislocation of the labor market.

Intending settlers are taken in hand by officers of the Lands Department. Their interests are specially studied by the Department of Agriculture, and they are naturally encouraged to become successful primary producers. For this class of immigrant Australia will hold unequalled opportunities for a hundred years or more.

Apart from various Government schemes for assisting immigration and increasing settlement and production in Australia, several private associations and syndicates have taken a hand in this all-important national movement.

The British Immigration League has been particularly active. In connection with this institution a Land Settlement scheme was organized. Not more than six per cent. interest was to be received by those who subscribed money, and provisions were made for advancing the whole of the passage-money, if necessary, to eligible settlers. City youths were to be trained for rural occupations. Army service men and retired or discharged soldiers have been specially sought for by the persons interested in this scheme.

Many plans for settling retired and wounded soldiers on the land in Australia are under earnest consideration, as this is being written. The Commonwealth has plenty of room, and a friendly welcome for such immigrants. Provided they are not physically incapacitated, thousands of these trained men can be converted into successful producers.

The Federal Government appointed Mr. J. C. Watson, an ex-Prime Minister of the Commonwealth, to organize a scheme for the employment of returned soldiers. Mr. Watson's functions have been mainly to secure co-ordination among various special agencies which it is proposed shall be established by the State Governments (1916).

Various large landowners in the eastern States have made generous offers to assist the objects of the movement. Some have even placed por-

tions of their estates at the disposal of the Government, besides making donations and concessions to the same end. In New South Wales landed people offered to accept long-dated Government bonds for their holdings on fair terms of sale. These schemes for finding land for soldiers—first, our own, and later no doubt for soldiers of the Empire and its Allies—has received popular approval throughout Australia. Further, all those pastoralists who have co-operated in the publication of this volume, and whose names and addresses may be found in the Pastoral Section of *Australia Unlimited*, express their willingness to answer legitimate enquiries from intending settlers abroad.

Our civilian community recognizes that those who have voluntarily fought in this war are helping to preserve this country for liberty and democracy, and their services in the cause of humanity shall not be forgotten.

The war has aroused a spirit of freedom and adventure in civil life in Europe which Australia hopes will benefit our interests and equally the interests of our international friends. No other land can offer the awakened souls of men a continuation of that open life for which the adventure of war has given them a taste.

There are further conquests to be made in Australia by those who have felt the thrill of action on fields of war; conquests less exciting and gory, but bringing more permanent and satisfactory results. Apart from this, there is the great question of the re-organization, and re-establishment on impregnable foundations, of the British Empire.

Lord Willoughby de Broke, in a letter to the Secretary of the British Immigration League of Australia, has stated this aspect of the case with judgment. "Our chief Imperial wealth," he says, "consists of men, women, and land. The development and distribution of these human and agricultural resources are supremely important. It is essential that we should regulate what Dr. Saleeby, with profound truth, in his lectures on 'War and Race Regeneration,' calls 'Our vital imports and exports.' We should regulate them so as to redress the disproportion both of the sexes to one another and of the population to the square mile in different parts of the Empire. The marked excess of one sex over the other is opposed to national welfare. In the British Isles women outnumber men. In Australia, Canada, and South Africa, men outnumber women. In the oversea dominions the density of the population to the square mile forms an alarming contrast to that of the United Kingdom.

"Nor can any country thrive where there are too many dwellers in the towns, and too few on



The First Unit of the Royal Australian Navy
Entering Sydney Harbor on October 3, 1913

(From the Painting by A. W. Burgess in the Sydney Public Library.)

the land. In England the towns are overcrowded, and in all of his Majesty's dominions, beginning at home, there are not nearly enough people cultivating the soil. The earth of the British Empire has not yet been made to bring forth her increase. Imperial agriculture is the most vital of all our industries. After the war is over, the science and art of cultivating the earth will be more valuable than ever. There can be no finer object than to enable our race to enter upon its vast agricultural inheritance."

In a series of thoughtful articles in *Sydney Morning Herald* on the War and Immigration, Mr. T. Sedgwick says:—

"Australia has been made what she is by a million immigrants and their descendants. The land was always here, but during the last century the presence of population has made her worth two thousand million pounds, whereas formerly she was worth nothing. Were the horizon clear we could afford to wait patiently until the present population had multiplied and covered her vast areas, but population elsewhere is moving and increasing at infinitely greater ratios than are the people of the Commonwealth.

"Encouraging immigration from Great Britain would go far to helping the motherland and her people, who suffer from the effects of an overcrowded labour market, and all its attendant evils. Increased migration to Australia would increase the food supply at home, multiply the demand for her exports, even after allowing for the effects of the new Customs tariff, and reduce the number of workers. It would give the older people a chance to get employment in situations now filled

by boys and girls, and release, to the great relief of the rates, some thousands of workers who are now kept in the workhouse because their proper situations are filled by better men and lads who would migrate if they could find the fare. There is work for all, and there are plenty of defenders when the population of the Empire is properly distributed."

Speeding Sir Rider Haggard on his mission of enquiry to Australia, Earl Grey said:—"If the Empire is to continue, there must be great intermigration between England and the Dominions. The settlement of vacant Dominion lands with Britons will contribute to the strength and safety of the Empire."

The whole problem of Empire development will doubtless be worked out in the light of new and unexpected experiences. But the future stability, power, and security of British civilization depend far more upon the effective occupation and development of the continent of Australia than politicians in either London or Melbourne have hitherto realized.

With even twenty millions of such people as sent their deathless legion to the Dardanelles, Australia would not only be secure against all invaders, but would become such a bulwark of Empire as the most ardent Imperialist has hardly dared to dream of.

One feels certain that this all-important question will henceforward receive attention from those wise and serious intellects upon whom the onerous burdens of building the future house of Empire depends.

ART and

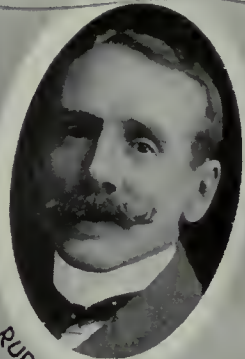
LITERATURE



NORMAN LINDSAY



HANS HEYSEN



RUPERT BUNNY



FRED. C. McCUBBIN



BERTRAM MACKENNAL, A.R.A.



ARTHUR STREETON



MRS. AENEAS GUNN



HENRY LAWSON



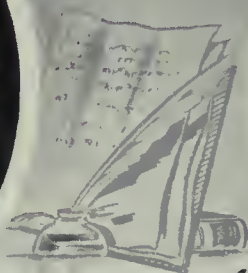
BERNARD O'DOWD



LOUIS ESSON



RODERIC QUINN



ARCHD. T. STRONG



Melbourne Public Library and Museum.

SOCIAL AND INTELLECTUAL LIFE.

IN Australia there are no aristocratic classes. Possessors of money being fairly frequent and exceptionally rich people rather rare, the evolution of a plutocracy has been checked.

The actual owner of millions is rarely regarded with reverential or approving eyes.

In the cities money makes, to some extent, a class of its own. In the bush social barriers are practically non-existent.

Caste and conservatism are abhorrent to Australian custom. If there is any local standard for gauging a man's worth, it will be good-citizenship, prominent public services, benefaction to philanthropic and educational institutions.

Unfortunately there is yet very little artistic or intellectual association.

Artistic or literary achievement, even scientific accomplishment, Australians have in the past held in rather slight regard.

There are indications, however, that Australian culture and Australian intellectual worth are coming into their own.

Once it was unfashionable to recognize Australian science, applaud Australian literary effort, or praise the work of Australian artists.

A persistent preference for the foreign article so discouraged local genius that it grew timid and deprecatory, or else fell a prey to a melancholy which re-acted upon all its aesthetic output.

The cultivation of a distinctive Australian sentiment was not encouraged by our higher schools and universities. The tendency was to import all our professors and educational experts, our scientists, editors, and specialists, many of whom were entirely unfamiliar with Australia's mental outlook, antagonistic by environment and early training towards our social and political ambitions, and unsympathetic to native ideals.

Australian writers of my own generation have felt most keenly the lofty and contemptuous patronage of pedagogic critics.

We have loved our young country and realized her. In spite of social and monetary disadvantages, under which we all labored, we have endeavoured, to the best of our abilities, to express our free and glorious motherland.

A few years ago a little group of writers and associate artists, who mostly found expression through the Sydney "Bulletin," struck the first definite national note in Australian literary and

artistic thought. Their influence has grown beyond expectation.

The lessons of the war have been costly; but they have taught Australians that their race is a virile one, capable of giving a lead in the new progressive movements of to-morrow.

In the light of these revelations we look forward to a greater intellectual achievement in Australia from now onward. Literary and artistic genius of the next generation will not suffer the neglect and opposition which made life's highway more flinty to our feet.

In those days the social standing of a celebrated Australian artist or author will be at least as high as that of the German manager of a cement factory. The presence of intellectuals at public functions will be considered as desirable by Ministerial secretaries and such small functionaries, as that of retired liquor retailers and political nondescripts.

Despite its handicaps, the inventive, artistic, musical and literary genius of the Commonwealth has not been inactive. During the last twenty years its production has steadily increased.



The Mitchell Library, Sydney.

At least an unpatriotic anti-Australian sentiment will not hobble their efforts.

Old prejudices will be gone. Ugly old antagonisms will no longer be allowed to lift their heads and hiss envenomed contempt.

Pictures painted by Australian artists will be preferred. Books published in Australia will not enter into such hopeless competition with the presses of the old world.

Our successors will be encouraged to express AUSTRALIA. It is possible that a majority of them will be enabled to reap an adequate harvest from their life's efforts.

Turning to the pages of Fred. Johns's Annual—the "Who's Who" of Australasia—we find many famed and familiar names of men and women yet in the flesh who have "done their bit" for the intellectual development of the Australian nation.

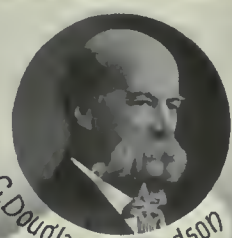
Among them, pre-eminent, that of my old schoolfellow and life-long literary contemporary, Roderic Quinn, many of whose dainty lyrics have in them a quality which, among English poets, is only equalled by John Keats. Quinn's imperishable work has not yet received the recognition it deserves, save from discriminating critics like



George Lambert



Max Meldrum



C. Douglas Richardson



Edward Officer



John Shirlow



Julian Ashton



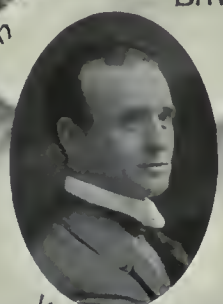
DAVID LOW



Margaret Baskerville



C.J. Dennis



Will Dyson



John Longstaff



Edward Dyson



J.B. O'Hara



Dorothea Mackellar



Hal Gye



Ethel S. Turner



Marie E. J. Pitt



Hugh McCrae



T.W. Heney



Prof. Ernest Scott

ART

and

LITERATURE



Princess Theatre, Melbourne.

Le Gallienne and Yeats. But it will live in the literature of Australia when more popular verse has passed into oblivion.

Among living prose writers of the Continent the natural genius of Henry Lawson has made him celebrated. Although one disagrees with Lawson's outlook, one finds in his work a delightful native art, a profound sympathy, and a fine patriotism. While Lawson's earlier bush pictures and characters usually depict passing phases of pioneer life, they are in themselves literary gems of an eminently readable character.

In the newer school of cheerful and more authentic descriptive writers Randolph Bedford, Mrs. Aeneas Gunn, E. J. Banfield and C. E. W. Bean appeal to the Australian with a knowledge of his country.

Louis Esson, after the methods of the Celtic Repertory School, has chosen the dramatic form of expression. Privileged to read over a volume of Esson's short Australian plays in manuscript recently, one formed the conclusion that he is quietly doing work for Australia which will later on have a high historical value.

Amidst the more scholastic group one notices the fine poetic genius of David McKee Wright, Ruth Bedford, Dorothea Mackellar, Bernard

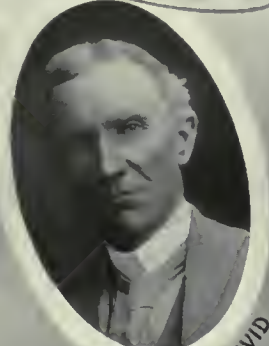
O'Dowd, John Le Gay Brereton, Enid Derham, Christopher Brennan, Archibald Strong, George Gordon McCrae, Dorothy and Hugh McCrae, Dowell O'Reilly, Professor W. A. Osborne, J. B. O'Hara, and still the list is by no means complete.

Professor Gilbert Murray occupies a niche to himself alongside Professor Grafton Elliot Smith—two men of which any young country might be justly proud. Professor Ernest Scott and Dr. W. H. Fitchett stand for historical literature and diplomatic journalism. Ambrose Pratt, Louis Stone, A. B. Paterson, Steele Rudd, Edward Dyson, Mrs. Campbell Praed, J. H. Abbott, Ethel Turner, E. S. Emerson, Mary Grant Bruce, C. J. Dennis, Randolph Bedford, Vance Palmer, Katharine Prichard, Louise Mack, Donald Macdonald, are all well-known and deservedly popular Australian writers. There are many other brilliant possibilities among younger aspirants to the fame of letters.

Prominent among the earlier generations stand Marcus Clarke, Rolf Boldrewood, Louis Becke, Lindsay Gordon, Henry Kendall and Victor J. Daley.

The last name deserves more than mere mention. Daley, as a poet and prose writer, was

SCIENCE · MUSIC

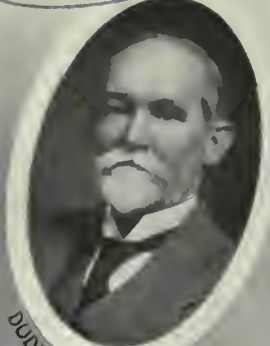


PROFESSOR DAVID



SIR DOUGLAS MAWSON

AND DRAMA



DUDLEY LE SOUEF



J.H. MAIDEN



MADAM MELBA



E.J. DUNN



AMY CASTLES



SIR BALDWIN SPENCER



ADA CROSSLEY



OSCAR ASCHE



PERCY GRAINGER



NELLIE STEWART

probably without equal in his own period. He has left a precious heritage of more than one volume of polished and artistic verse, and, when Australian Literature comes to its own, his collected prose will make a small library of delightful reading.

Among artists Australia has produced celebrities like Bertram Mackennal, Rupert Bunny, John Longstaff, Thea Proctor, George Lambert, Mortimer Menpes, Hans Heysen, Frederick McCubbin, Percy Spence, E. Phillips Fox, Meldrum, Edward Officer, Pignuenit, Norman and Lionel Lindsay, Will Dyson, Arthur Streeton, Julian Ashton, Bess Norris, Tom Roberts, J. S. Watkins, Mrs. Ellis Rowan, Florence Rodway, Norman Carter, Margaret Baskerville, John Shirlow, Sid Long, and scores of others. The fame of some has so far been confined to local audiences, who are rapidly learning to appreciate them; others have achieved celebrity in Europe.

Europe, too, discovered Melba, Ada Crossley, Percy Grainger, Lalla Miranda, Amy Castles, Peter Dawson, Oscar Asche, Amy Sherwin, Alice Crawford, Madge Titheradge, and many others whose names are world-familiar in the realms of the musical and dramatic arts.

Many more dramatic celebrities *might* have been produced if encouragement had been given to Australian talent.

In fields of science and invention Australians have done much. The fame of Louis Brennan, the inventor of the monorail and Brennan torpedo, is as widespread as that of Sir Douglas Mawson, the Antarctic explorer. With Mawson was associated in his services to science, Professor David, of geological celebrity.

Professor Sir Baldwin Spencer has won honour for his researches in and valuable works upon Australian anthropology; Messrs. E. J. Dunn and Dudley Le Soeuf publish useful books on local geology and zoology; Mr. J. H. Maiden is the leading authority on Australian botany and Mr. R. T. Baker is doing fine service in economic Australian botany; both have published valued handbooks. Mr. E. E. Pescott has done much to foster an appreciation of Victorian native flowers, Dr. R. S. Rogers is the leading authority on Australian orchids, Mr. R. H. Cambage is working upon the relation of the eucalypts to the geological formation on which they grow; Mr. W. M. Bale is doing valuable scientific work in relation to the fisheries, as are Messrs. Fredk. Chapman and Etheridge in local palaeontology; Messrs. W. Gillies, Donald Macdonald and Charles Barrett are popularising nature study; G. W. Mathews, Dr. Leach, A. J. Campbell, Robert Hall, and A. H. Mattingley are equally prominent among those who are carrying on the pioneering work done by John Gould in regard to Australian

birds; on butterflies Messrs. G. A. Waterhouse and G. Lyell are the local authorities; Mr. W. W. Froggatt is celebrated for his research work in entomology, especially the insects of the South Seas; the mollusca provide the special field for the activities in conchology of Mr. C. Hedley, and much valuable work is being done by Mr. F. B. Guthrie in original research in agricultural chemistry, and by Messrs. A. E. V. Richardson and Hugh Pye in wheat-breeding, and Mr. H. A. Hunt is rendering great service to the country in regard to meteorological observations.

Less popular, but probably not less gifted, are men like Professor Durack, Professor of Physics at Allahabad University, the first white child born on Cooper's Creek, and other modest Australian geniuses whose names are hardly known in the wide Commonwealth which gave them birth.

Law and justice, education, medicine, surgery, engineering, higher schools and universities, politics, commerce and public institutions have all produced Australians of merit and distinction.

In fields of athletics the name of our champions is legion. World-famous cricketers, footballers, rowers, swimmers, pugilists, runners, cyclists, shooters and athletes have won the transient laurels of superior physical skill or activity.

Naturally, a sunny land where high wages, short hours, and ideal industrial conditions prevail, gives leisure for general exercise and development.

Surf bathing is universally popular along our beaches, and nowhere else can be found such splendid types of men and women as the glorious open air life of Australia is giving us.

"Giants, demi-gods, and super-men" is how an English critic who saw the Australian legion at Gallipoli describes our brave, brown boys.

Such men, mated to the brave brown girls one sees along the sands of Manly or Mordialloc on summer days, will surely evolve a future race of even superior mould.

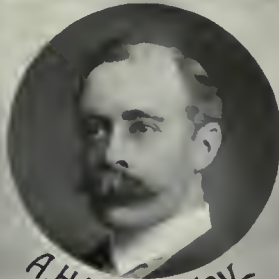
With paternal governments, savings banks, friendly societies, and splendid State institutions behind them, decreased domestic anxieties are making healthier and happier households.

The world is welcome to know that we have no time in this country for preventable poverty, dirt, disease, or social, economic, or civic injustice.

We give our people free educational opportunities, and fairly even chances to secure and enjoy—each and every one—a share of human happiness and earthly success. We give all adult men and women an equal voice in their own government. We protect, as far as we can, the individual against the State, and the State against the individual. We are continually introducing such laws and reforms as a majority of our people



H.A. Hunt



A.H. Marringley



Geo. Lyell

SCIENCE



Richd. T. Baker

Dr. J.A. Leach



Dr. R.S. Rogers



R.H. Cambage



G.A. Waterhouse



Robt. Hall



E.E. Pescott



Fredk. Chapman



F.B. Guthrie



Walter W. Froggatt

consider to be in the national interest. Under conditions such as these, in time, and with patriotic, persistent, public encouragement—perhaps with Government assistance through Customs and copyright—we can and doubtless will be capable of intellectual achievements such as have made Hellenic civilization immortal.

Australia, too, may “build below the tide of war,” and base her fame “upon the crystalline sea of Thought and its eternity.”

Visions of a Hellenic Democracy in the South inspired that little group of Australian writers

who began nearly thirty years ago to give to the world the first true thoughts, the first timid hopes and dreams of their Motherland.

Despised and opposed at first, they have seen the little Promethean spark grow to a steady flame.

When “Democracy with rifle volleys death-winged” was born, her cradle was made for more than one vigorous offspring of Freedom. Vision has not yet become reality, but in the eyes of our Poets and Prophets, it is slowly, surely, grandly assuming shape.



A Kookaburra (Laughing Jackass).



Henley-on-the-Yarra Regatta.

OUTDOOR SPORTS IN AUSTRALIA.

THE climate of all southern Australia is favorable to athletic development. Golden beaches extend for thousands of miles along its coastlines. Brisbane, Newcastle, Sydney, Melbourne, Adelaide, Perth are all either directly on the coast or within easy distance of cooling surf.

Our coastal populations are afforded continental opportunities for surfing and swimming. Their numbers are increased during long summer months by visitors from inland. Every public holiday in summer sees the beaches by the coastal cities and town crowded with bathers of both sexes.

The system of mixed bathing has gradually become popular. A decided improvement in the physical stamina of city women has resulted. The street-corners are no longer a habitat of idle youngsters, and the moral tone of the community has correspondingly improved.

Before the war Australia spent its spare time and cash very largely in sport. Every country town had its racecourse, its cricket ground, and football field.

Apart from genuine athletics—always a fine thing for national strength and sanity—it must be admitted there was too much gambling sport. This might be attributed to the over-prosperity of a young people, but to the serious-minded citizen it threatened to become a national evil.

Australia has probably been cured of her horse-racing and betting fever; but encouragement will always be given to sports which make for individual physique and good health. In all private educational institutions, in all our State schools, colleges, and universities sport of this character is encouraged. All over the Commonwealth sports clubs and associations are open to young people of active physical temperament.

Football is a universally popular winter pastime; cricket has its thousands of summer enthusiasts. Golf, bowls, tennis, baseball, lacrosse, yachting, rowing, swimming, hunting, fishing, skating, boxing, wrestling, coursing—it would be difficult to find an Australian under fifty years of age who is not interested—if not an actual participator—in one or other or more of these amusements.

For those who love the outdoor life and who are free to wander, there are pleasures of the open and the wild. The call for fur, fin, and feather is one which the author himself has followed all over the Commonwealth. Memories of hunting days are the happiest of all. They carry one from the Adelaide River, where the black buffalo wallows, to the plains of Carnarvon, where the grey bustard roams, from Mallacoota to Wilcannia, from the Proserpine to the Wollondilly, over marsh and stubble, through scrub and bracken, by reedy swamps and running streams, over the hills and plains, by cool lagoons and fresh and saltwater inlets, through the forests and

My father shot bison on the prairies of America, and wild bustards on the plains of Australia with equal enthusiasm. Within the circle of his long days, but recently ended, he had harpooned eight whales within the Arctic Circle and hooked black bream in Hawkesbury River. He had taken his fill of a man's life on the frontiers of two continents, and died content.

Across my vision, as I write, there goes a lad of twelve with a new 28 bore gun, of which he is very proud. When, a week ago, we crouched in the rushes together at nightfall, and he stopped a brace of black duck on the wing, I knew that



Crowd at a Cricket Match in Australia.

the gorges, through green jungle and grey salt-bush, round, across and over the great Australian Continent.

It was in my blood. My grandfather cared nothing for his possessions, or mine, but he killed his brace of snipe with right and left barrel, and could crack the neck of a duck at twenty paces with a pistol ball. May the gods who preside over regions where the souls of sporting Irish squires sojourn forgive him his worldly mistakes! He dissipated a little heritage which should have been mine, but I bear him no ill-will. Careful business men are always plentiful in this world, but good snipe-shooters are rare.

his reading will not be in ledgers nor his seat on an office stool.

The Open Way! I remember a lad of seventeen chained to a desk in Sydney town, who, when his annual holidays came round, would hurry into the bush, with gun and cartridge bag, to tramp from daylight till dark in pursuit of game. How he counted off the flying days that ended all too soon!

Born and reared in the bush, a solitary child, like many another bush boy, my first friend and companion was an old black dog. We hunted spotted daysures (the "native cat" of Australia) and opossums together. My sporting weapons



A Big Shoot on the Burdekin River.



The Mountain Devil, Western Australia.

in those days were catapults and bows and arrows. But I doubt if the close-shooting, hard-hitting, double-barrelled Cashmore gun, with which I sometimes drop a duck at 70 or 80 yards these days, brings me as much thrill as did the bagging of a "soldier bird" with my youthful catapult.

The Open Way! I thank the gods for all my days, their griefs and joys alike; but I thank most the gods for those glorious days the bush has given me. Other men may find their pleasure in political power; in the amassing of more and more money; in the social world; but for me the lakeside, the riverside, the upland and the plain.

I think I know the game trails of Australia fairly well, and something of the game.

For those who care to listen, I have a few words to say on this subject. I speak for the little band of Australian field sports, a brotherhood without a club or association, made up of many queer characters, but keen.

Experience makes us wise. When we are crawling through the rushes we always endeavour to crawl against the wind. We go quietly, and as far as possible we avoid conversation—even with the dog.

Ask us what we consider the best Australian game birds, and opinions will differ. Put the question to a plebiscite, and it would probably be decided in favor of the black duck, the bronze-wing pigeon, and the quail.

The black duck is a fine table bird, a fast flyer, and, where he has been disturbed by shooters, very shy. This beautiful bird has a wide range. I have shot them on Northern Queensland lagoons, on the rivers and swamps of the Terri-

tory, in western Queensland, all over New South Wales and eastern Victoria. Thirty years ago I shot bronzewings and casual black duck on a lagoon at Bondi, where suburban villas now stand.

From my camp at Mallacoota I go out nearly every evening after the day's writing. There are places where the duck and teal come in at dusk to feed. Our bags are not large, but there is great joy in waiting at the fall of day beside a swamp or saltwater inlet for the familiar whirring of wings that heralds the arrival of the game. There is a tonic for the nerves in the quick snap-shooting and the occasional plunk of falling birds. There is something soothing in the pipe—which also keeps away mosquitoes—and the ride or tramp or pull home, by moonlight or starlight, after the birds have ceased to come in.

Sometimes we get the grey teal in considerable mobs. Using a 12-bore Cashmore gun on one occasion, I killed and disabled with a single charge of No. 4 shot no less than sixteen of these birds. This is probably a record for a cartridge of ordinary loading. The powder used was "Amberite," which I shoot among other smokeless sporting powders.

Black duck and teal on the coast are slightly inferior in flavor and quality to the fatted birds one kills along the gilgas and billabongs of the interior; but for black duck anywhere roasted in a camp oven, or teal grilled over a wood fire, the sportsman has appetite.

Wood duck—*chenoneta jubata*, the maned goose, in reality—I have found plentiful in the upper reaches of the northern rivers in New South Wales and throughout the Riverina.

SOME AUSTRALIAN ANIMALS



Opossum.



Dingo.



Native
Bear.



Kangaroo Rat.



Wombat.



Platypus.



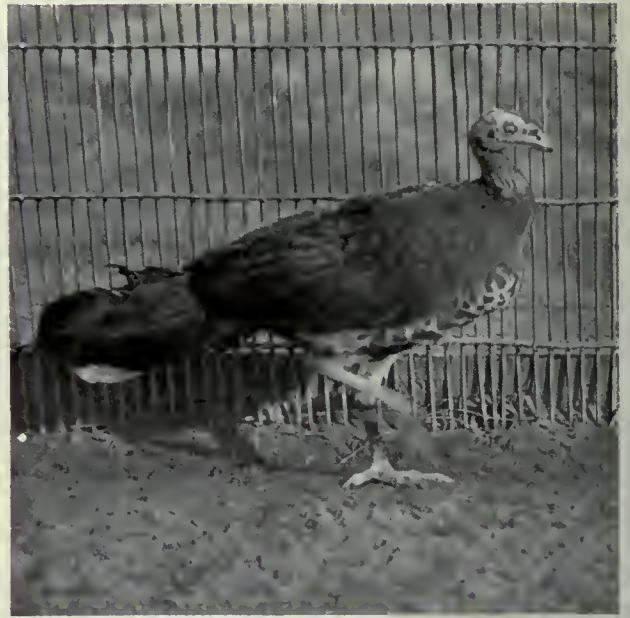
Carpet Snake.

On my motor-boat journey down the Murray River, I shot scores of them on the banks and sand spits. Magpie geese in the Territory and whistling duck in Northern Queensland I have found so plentiful that when they rose from the swamps one saw the shadow of the mob passing over the ground like the shadow of a cloud drifting across a field.

Up there one gets the beautiful Burdekin duck, the chestnut-breasted teal, shoveller, and sometimes the white-eyed duck, the "canvas back" of North America.

Blue-wing are often plentiful on the Victorian coast. The pink-eared widgeon and the shel-drake or mountain duck I have shot all over the eastern States of the Commonwealth. The latter are most frequent, I think, in the swamps between Mount Gambier and Casterton.

In wet seasons wild fowl are most abundant in the back country. The overflow from our inland rivers forms lakes, lagoons, and billabongs, on which aquatic birds by the million come to feed. There almost every variety of duck known in the south, and pelicans, black swans, waterhens, coots, ibis, plovers, snipe, spoonbills, herons, bittern, cranes, cormorants, egrets, grebes, divers, stilts, rails, congregate.



Brush Turkey.

The painted snipe is mostly found, in season, in swamps along the Great Dividing Range.

I have shot jacksnipe by the hundred on the swamps of the Clarence. During a sojourn of over three years on the northern rivers of New South Wales I had some splendid shooting. About the flats of Ulmarra and Lawrence, on the Coldstream, on the Clarence, above and below the city of Grafton, on the Richmond River, and through the Dorrigo I have filled many fine bags.

Quail, too, were numerous. Quail shooting is to me the best of all outdoor sports. A good dog, a cool day, responsive cover, and anything up to and over six brace at the finish make a sportsman's happiness. Stubble quail, dot-trel, and brown quail are widely distributed. Between Gladstone and Rockhampton, in Queensland, and on the western plains of Victoria, I have had my best quail-shooting.

The indigenous great grey quail seems to be extinct. The last of these I chanced upon were at the western approach to the Dorrigo, by the "Little Murray," a rushy mountain stream. When I was a boy these birds were fairly plentiful on the flats of the Fish River, and I have got them, years ago, about Wollongong and Dapto and around Camden and the Oaks, in New South Wales.

The Mallee fowl I have seldom shot. I remember that they were plentiful on the Lower Lachlan decades ago, and that excellent custards were made from their eggs. Emu egg custard also is not unknown in the West.

King quail were to be got about Yamba, in northern New South Wales, on the scrubby headlands a few years ago. Lately I have shot them



Kangaroo, with Young in Pouch.



“All in the Day’s Sport.”

in eastern Gippsland, between Mallacoota and Wingen River. Brown quail come down from Java and the north in thousands at certain seasons and disperse themselves over southern Australia.

The habits and breeding-places of quail are always interesting discussion for the Brotherhood of the Open Air.

Of pigeons there are many varieties between Thursday Island and Cape Otway, but I think bronzewing and wonga are best shooting and best eating of our Australian species.

The bronzewing is a fast flyer, and, although there is little art in the actual shooting of the mottled wonga, a sportsman deserves all the wongas he can find, especially in mountain country.

Bronzewings I remember to have been most plentiful on the western slopes of the Nandewar Ranges and between Cowra and Blayney, but a great deal depends upon the season and the feed.

The topknot pigeon is excellent shooting, and a fine game bird. The fat “squatter” and the green scrub pigeon are most flavorful, but too easily slain to please a true sportsman.

I have stood in one spot and shot twelve “squatters” one after another in surrounding trees—enough for the blackboy and myself for at least two meals—more would be murder.

The little green fruit-pigeons and fantails, like quail, make acceptable adornment for breakfast toast, but the flock and Torres Straits pigeons are intended for stews.

Flock pigeons are usually plentiful when the fruit of the cabbage palms ripens and the Moreton Bay fig is full-bearing in the jungles of the North. There the brush turkey is also to be found.

When Siberian marshes freeze over, migrating godwit, sandpipers, and plover come down the eastern coast of Australia. With whimbrel and oyster-catchers, stilts, sea-curlews, spurwings, golden plovers, and dottrels, they make animate salty margins and sand-flats of our seaward lagoons and estuaries.

The Australian bustard, the wild turkey of the Australian plains, is a difficult bird to approach on foot, but one may get within reasonable distance on horseback or in a vehicle. Bushmen usually shoot them with a small-bore Winchester rifle.

Throughout the bush the 32-bore Winchester is most popular. It is used by marsupial hunters and sportsmen.

Personally I prefer the short-barrelled 38. for larger game, and use a 25.20 magazine for wallabies and the larger birds.



Melbourne Cup, Flemington Racecourse.

With the 38. one is sure of kangaroos, wild pigs and larger game. The Northern buffalo is only amenable to the Martini bullet; an alligator *may* be bagged with a 38.

Practice ammunition for the 303 military rifle mostly goes after kangaroos, emus, and such living targets as the back country affords the trainee or rifle-club man.

Although scarcely classed as game birds, Australia has a gorgeous variety of parrots, many among which the bushman knows to be edible. The superb king parrot, the crimson lory, and the rosella are grain-eaters, whose flesh is excellent. Cockatoos, gang-gangs, and galahs are tougher, and the honey-eating species somewhat sweet, unless they be steeped in salt and water before cooking. Wattle-birds, bower-birds and ground-pigeons no hunter will despise when quail, duck and pigeon are not to be had.

Kangaroo hunting is supposed to be a popular Australian pastime. In point of fact it is a rather rare amusement in the bush. Wallaby drives and hare drives will always assemble a crowd, especially when crops have suffered. Now-

adays the ubiquitous rabbit is held in disregard by most Australian sportsmen. People who are cursed with rabbits usually treat the evil with phosphorized pollard; the average gunner finds better sport.

Rabbit-shooting has palled on us, except as practice for small-bore rifles. Bushmen will not waste shot-cartridges on bunny, who is trapped like the opossum for his fur or his carcase during the export season.

Angling in Australia holds in loose but certain bonds of association a large group of that Brotherhood of the Open Way. On seaward reefs around our coasts good red snapper may be hooked somewhere all the year round. Along cool mountain streams fat trout will answer to the fly in the summer. Red bream, black bream, whiting, tailor, flathead, yellow-tail, salmon trout, blackfish bite freely in the estuaries and along the coast. Rock fish and sea salmon, sharks, stringrays and tunny delight the angler's heart. Murray cod and barramundi supply inlanders with piscatorial pleasure and a welcome change of diet.



Snapper.

AUSTRALIAN BIRDS



Barn Owl.



Boobook Owl.



Wedge-tailed Eagle.



Lyre Bird



Native Companions



Emu



Pelicans.

In no other part of the world can the lung fish be captured, as in no other part of the world could a sportsman's bag include, if he so wished, a duck-billed platypus or an echidna—surviving examples of past forms of animal life, and nearest living approach of the animal to the bird.

Gun licences are not necessary in the Australian States, and there are no private preserves. It is regarded as an act of meanness to refuse a sportsman permission to shoot over private property. There are close seasons for game birds in all the States, and, curiously enough, one may not shoot on Sunday. Certain song birds and birds of beauty, such as lyre birds and black swans, are perpetually protected.

Apart from these necessary restrictions, the sportsman may roam far and wide without let

or hindrance, enjoying the beauty of nature, the benefit of pleasant exercise, the healthfulness of fresh air, and the excitement of the hunt.

Australia is a good country, messieurs. We of the Brotherhood, who seek in friendly rivalry the first snipe of the season, who stalk gaitered behind pointers over the stubble, who wade with retriever at our heels in swamps, and crawl reptilian through coverts; we to whom the iridescent gleam of a black duck's wing is fairer than the flash of jewels; we to whom the whirr of an up-flying covey is music in sooth; we who ride long miles and lie out o' moonlight nights, we know how good and beautiful is our Motherland. *We* know, because, as we rode and tramped and waded and waited, we *saw* and *heard*.

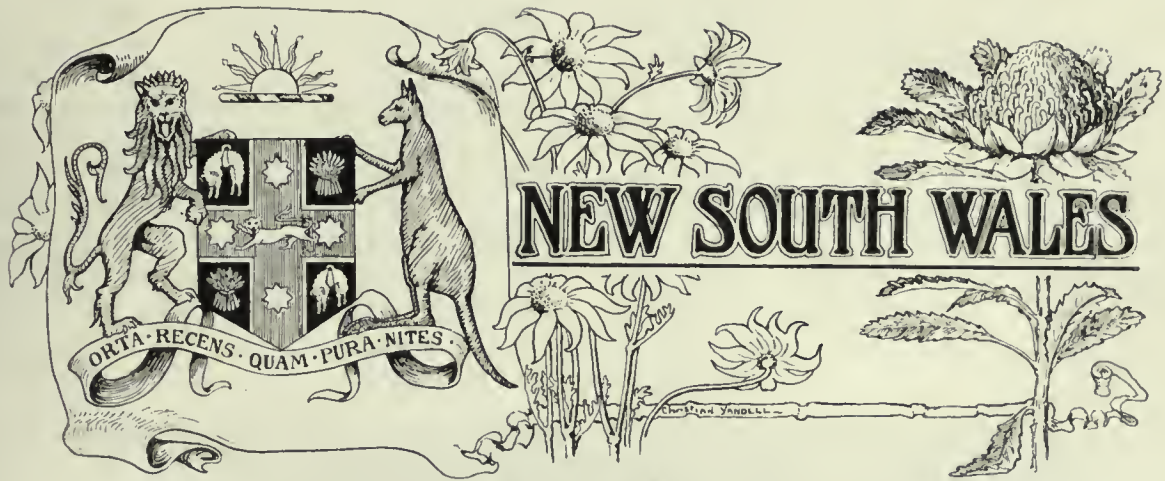


A Yacht Club Outing.

NEW SOUTH WALES



Circular Quay, Sydney



REVENUES AND RESOURCES.

NATURE has been generous to the Mother State. If the federation of the Australian colonies had never taken place, New South Wales would still have become a great and powerful and populous country. She might have maintained a fleet and an army for her defence; and in every branch of manufacture, industry, and primary production sustained and developed, within her own boundaries, an autonomous nationhood.

Her eastern frontage of 700 miles of seaboard is a wide-open doorway to the markets of the world. In Port Jackson, Twofold Bay, Jervis Bay and Port Stephens she possesses four of the best natural harbours that anywhere around the world's borders give access to the Seven Seas; while scores of minor havens and harbors, made and in the making, give resting-places for the feet of her maritime trade.

She holds inexhaustible stores of iron and coal. In copper, tin, silver, gold, all the useful and precious minerals, her national wealth is inestimable.

From north to south the State is traversed by a mountain system which forms a compensating balance in the fluctuating scale of climate.

On its eastward fall, from the Tweed to the Kiah, everflowing rivers and perennial streams empty at frequent intervals into the Pacific.

From the tropical banks of the Richmond to the black flats of Towamba a thousand river-voices sing their songs of beauty and fertility.

Westward of the mountains run the long, sluggish watercourses of the interior; the branching rivers of the North-west, the spreading systems of Riverina, the remote, romantic Darling, the lordly Murray, forming a State boundary 1,800 miles in length.

In the 305,733 square miles which make the total area of the State, the agricultural products of cold, temperate, and tropical climates flourish; gooseberries will grow at Glen Innes and guavas at Grafton, within the radius of a short day's journey.

If, from the vantage of some high-soaring airship, one could take in the whole physical features of the State, one would see on the northern coasts tropical jungles rooted in basaltic soils, interspersed with hardwood forests rooted in soils of lesser fertility; and broad rivers meandering through alluvial valleys. On the Tweed, Richmond, Clarence, Bellingen, Macleay, Manning, Hastings, Hunter and Hawkesbury, green squares of tilth—sugarcane, maize, lucerne—would proclaim a prosperous agriculture.

South of Sydney there would lie the Illawarra and Shoalhaven districts—mostly volcanic, rich and productive, falling away into further forests of hardwood and open stretches of river and settlement, through Milton and Moruya, Bodalla and Bega.

Then along the vast tableland north-to-south and down its granite slopes and spurs, from Tennerfield to Nimmitabel, through mountain-walled

valleys and elevated plains the poppet-heads of many mines, the smoke of many towns would tell the same tale of riches waiting on enterprise and labor.

Beyond the north-western, central and south-western slopes, spreading to the sunset, the delighted spectator would behold an immense plain, sometimes treeless, sometimes diversified with timber; with a large black patch in the north-west, and south and west, for the most part, either bright red or reddish brown. From Parkes to Menindie, from Bourke to Swan Hill, from the railheads of New South Wales to the South Australian border line, this flat or gently undu-

In a country three times the size of the British Islands, with coasts, mountains, and plains spread over ten degrees of latitude, there is sure to be a considerable variation of temperature.

When we go to the meteorologist and the health specialist, we find that New South Wales possesses an equable series of climates that can only be classed with the other Australian climates for health, and physical and mental efficiency.

To quote Dr. T. P. Anderson Stuart, professor of physiology at Sydney University, and Chairman of the Royal Prince Alfred Hospital:

"There are no diseases peculiar to New South Wales; there are no peculiar risks of



Forest and Clearing

lating surface, with low ranges here and there, cobwebbed by rivers and billabongs and anabranches, spotted with silver lakes, which spread in wet seasons and shrink in the dry, edged with green wheat and dotted with shearing sheds, would fill the wider part of his vision. Its fertility may be accepted as universal, its future productiveness cannot be foretold. It is an estate beyond the range of computation in actual values; but some attempt will be made in following pages to show what a possession it forms for the people of to-day, what a heritage it may become for the generation of to-morrow.

Having roughly surveyed the physical features of the country and found that it is a land beautiful and good, let us compare its climates and see how they make for health and comfort.

any kind; there are no special precautions to be taken nor provisions to be made prior to leaving the older lands with a view to settling in the State. The climate is much cooler than is indicated merely by its latitude, and, being in the Southern Hemisphere, its temperature tends to be equable. *It is one of the most temperate and uniform in the world.* Owing to the extreme dryness of the atmosphere, high temperatures in New South Wales are not nearly so oppressive as even much lower temperatures would be in London or in France; and the high temperatures do not, as a rule, last long. On the New England tableland the climate of Armidale and other towns may be considered as nearly perfect as can be found. Cooma, in the centre of the Monaro plains,

at an elevation of 2,637 feet above sea-level, enjoys a summer as mild as either London or Paris, while its winters are far less severe. Kiandra, the highest village in the State (4,640 feet) has a mean summer temperature of 56.4, and a winter temperature of 32.5 degrees, corresponding with that of Dumfermline in Scotland. . . . The climate of the great plains, in spite of the heat of part of the summer, is very healthy, and an inspection of the death rates amply bears out this view. *Bourke has exactly the same latitude as Cairo*, yet its summer temperature is 1.5 degree less. New Orleans also lies on the same parallel; but the American city is 4 degrees hotter in summer. Accompanied by clear skies and an absence of snow, the winter season is both refreshing and enjoyable.

"In this region the rainfall is lowest of all—less than 20 inches. The air is dry, so that in spite of the high temperatures on occasional days in summer, one does not feel so listless and indisposed to action as on the coast. From this difference, temperatures are quite comfortable in the interior which would be intolerable

on the coast. Nowhere in the State is the midday *siesta*, so common in India, indulged in. Punkahs are not used.

"From the standpoint of health, it is fortunate for the country that dryness is one of its characteristics; otherwise, instead of being the abode of health, the interior of the State would, with abundant rains, have become an impenetrable jungle, the lurking place of those malarial fevers which devastate so many fair regions of the Old World and America. New South Wales may, therefore, be compared favourably with any part of the world; and, taking into consideration the comparatively low latitudes in which it is situated, it offers a most remarkable variety of temperate climates. From Kiandra, on the highest part of the Great Dividing Range, to Bourke, on the great interior plain, the climate may be compared with the region of Europe extending from Edinburgh to Messina, but more generally resembling that of Southern France and Italy. *It may, therefore, be regarded as peculiarly fitted for the habitation of people of European race*, embracing, as it does, within



A New South Wales Wheatfield

its limits, the climatic conditions under which the most advanced races of the world have prospered." (Coghlan.) I know of no evidence of any deterioration of the Anglo-Saxon people due merely to residence in New South Wales. A recent writer points out that a great distinction must be drawn between hot dry and hot humid regions. In the former many of the mightiest nations of antiquity had their home, *e.g.*, Ancient Egyptians, Saracens, &c., and Europeans thrive and multiply, while the natives of hot humid climates have always been lacking in hardihood and warlike propensities. Do not Australians hold a high position in all branches of manly sport? The one great need of Australia is population—every other need is small compared with this one.

"Whatever way you look at it, New South Wales is a healthy country. Compared with the death rates of other countries, especially those of the Old World, the death rate of New South Wales,—10.91 per 1,000 of the population—is remarkably low. For instance, that of France is 17.5, of the United Kingdom about 13.8, of the German Empire 15.6, of Italy 18.2, and of Austria 20.5. In England and Wales 9.5 out of every hundred children born die in their first year—in New South Wales only 6.8 so die. This favourable rate for New South Wales is due to the salubrity of the climate, the absence of pestilences, the superior social conditions of the people—good, plentiful, and cheap food and clothing—and healthful occupations. These figures are the mean for the State, and even this mean is gradually falling owing to health legislation, and the greater attention which is being paid to sanitary precautions."

In migrating to New South Wales Europeans need have no fear of those malarial fevers and tropical diseases endemic in so many countries.

New South Wales has a welcome for healthy, energetic settlers. The conquest of the West is only beginning, and our geologists have pointed out that the soil of the great plains "consists almost entirely of alluvial deposits, which have in the course of ages been carried down from the tablelands by the rivers and spread over their surfaces." In other chapters it will be shown what this wide West will grow under correct conditions. The story of western America has largely been written; the story of western New South Wales awaits the pen of Progress. Men will grow rich in the writing of this story as they did in Kansas and Nebraska and California; wastes will be turned into fields; deserts will become gardens; villages will grow into towns, and towns into cities; and fortune and independence will wait upon those

who with prudence, industry, and foresight are going to write this glorious epic of the West. Already the urban population is too large; the country is aching for occupancy. A mighty area, large as a European kingdom, remains for closer settlement and intensive culture.

And it must be remembered that the settler in Australia will not be called upon nowadays to face the hardships and privations of pioneer conditions. Nor will he have to hibernate for many bleak and barren months of the year, his fields covered with snow, his stock housed and rugged, with all farming operations at a standstill and all the losses, dangers and discomforts of a long and wearing winter to make up for.

Here he can be up and doing, out and about, from daylight to dark, if he so wishes, every day in the year. Here there is seldom ice or snow, but clear, sunny skies, soft winds, and a healthy, invigorating climate, wherein all social and domestic pleasures are constantly possible, wherein one may exercise freely, eat heartily, sleep soundly, and find an outlet for one's energies—mental and physical—uncramped by climatic severities; and unhindered by oppressive laws.

There are, on semi-official calculations, something like twenty-five million acres of land in New South Wales which ought to be growing wheat. On alienated lands suitable for tillage, share farming is rapidly extending.

It has been shown that an estate which would return only £2,000 a year from wool will give £10,000 from wheat; beside leading to the employment of a much larger number of people. Share farming has been largely taken up by immigrants with only limited Australian experience and without capital; and has been the means of giving scores of them a good start on the road to independence.

During the last few years a vigorous policy of settlement has been pursued by succeeding governments, a policy which will become more and more active in the future. Land is rapidly being made available, not only for wheat-growing but for dairying, and kindred industries. Separator, factory, cold storage and rapid transit have placed Australian dairy products upon the London market, where they must find an increasing demand.

The areas on which farming may be made most successful will decrease in size; and the minimum acreages will be those where irrigation, as in the Murrumbidgee scheme, can be invoked to draw from soils of unequalled fertility the full measure of their possibilities.

Orchards, vineyards, bee farms, pig farms, fat sheep farms, ostrich farms, market gardens, poultry farms—each succeeding year, these and twenty other specialized primary industries, are



Burrinjuck Township, Murrumbidgee Storage Area

being developed all over the State by young settlers; but the field of operations will not reach its limit in a hundred years.

For immigrants without experience, who are willing to wait and learn, there will be as good chances as for the native-born. After all, with State agricultural bureaus, modern text-books, periodicals, daily newspapers which devote regular pages to the man on the land, and the constant experience of one's neighbors, there is little difficulty in the novice of ordinary intelligence acquiring the knowledge and practice which bring success.

Australia welcomes the skilled farmer with capital, or the expert agricultural laborer, who is prepared to work in harmony with her established industrial conditions, but she is pleased to have the prospective settler of smaller means or none at all, providing he brings to her shores a healthy body and a normal mind. The higher his ambition the higher his value, as a citizen of the Commonwealth.

It is not to the cities that he should turn on arrival, for there competition is keener and his chances less, but to the wide fields of enterprise and independence that await him everywhere throughout rural Australia if he is only industrious, patient and wise.

The Government of New South Wales, realizing that facilities for an increased rural population must be found, are constantly opening up new lands and building new railways.

In addition to this fixed policy of development the State has taken the question of irrigation settlement practically in hand, and at Burrenjuck constructed the second-greatest water storage in the world, which is now serving the Murrumbidgee Irrigation Area, of which details will be found elsewhere in this volume.

The Act provides, in cases of resumption, for the payment of full compensation to the owners; the amount of which is decided by a legally-constituted Land Court. Apart from Government resumptions, owing to Federal and State land

taxes, and also to the increasing value of and demand for agricultural areas, original holders are everywhere pursuing a policy of subdivision.

During the last few years some magnificent station properties have been cut up into farms and sold on long and easy terms to agriculturists. The average prices realized for these lands—usually within reasonable distance of local markets and metropolitan transport—have been from £3 to £10 an acre.

day. They fenced and cleared and grubbed and waited; the newcomers must be prepared to do the same. It is an even chance, which Time can convert into a certainty.

The settler enjoys a healthy, interesting life. He can rely on a living almost from the start and look forward with confidence to future independence.

Under the Closer Settlement (promotion) Act, he can invoke the financial assistance of the Go-



The Burrinjuck Dam, Murrumbidgee River

Meanwhile, the value of such subdivided areas, owing to contiguous settlement, improvement, and the rapid expansion in primary production all over the State, is a steadily increasing one. Land bought a few years ago on the Richmond River for £3 has been resold since for £30 to £45 an acre. So, from a speculative point of view, investments in broad acres in New South Wales can be recommended.

There are still, on the North Coast, large areas of Crown Lands, suitable for dairy farming, which are being thrown open from time to time.

These lands are somewhat removed from already established settlements; but they hold the same openings for the pioneers of to-day as the settled districts held for the pioneers of yester-

vernment Savings Bank to assist him in the development and improvement of his farm. The Crown Lands Department in Sydney officially supplies information to intending settlers. Certain Crown lands of the State are to be acquired under various titles and conditions; such as Homestead Farm, Crown Lease, Residential Conditional Purchase, and Suburban Holding. It is wise for would-be settlers from other States or from abroad to get into direct touch with the Lands Department first. The Railway Commissioners issue a special season ticket to land seekers on the certificate of the Superintendent of the Government Immigration Bureau, Sydney. The cost of the ticket is £3 10s. od. second-class and £5 5s. od. first-class and is available over all lines for 14 days.



Sutherland Dock, Sydney

"For convenience of administration, the State is subdivided into many Land Board Districts, in which are appointed various Crown Land Agents, from whom forms of application are obtainable, and with whom they must be lodged on certain specified days. These applications are dealt with by local governing bodies, designated Land Boards, who inquire into and report upon the bona-fides of each applicant.

"The question of capital values is also referred to them for report, which is subsequently submitted for confirmation to the ministerial head of the Lands Department. The Department issues pamphlets and plans which explain in simple language the necessary formulæ for taking up available country.

"The local Crown Land Agents will be found ready to afford any information sought on the spot, while the Central Inquiry and Information Bureau at the Head Office in Sydney lays itself out to supply all possible detail as to cli-

matic conditions, nature of soil, class of timber, etc., and all other facts which might be of service."

As regards markets for her products, New South Wales, like the rest of Australia, is experiencing no difficulty. For her wool, coal, butter, meat, wheat, tallow, timber, wines, hides, leather, and minerals, there is ever a growing demand. Europe, America and Japan compete for her wool clip, the export value of which in the 12 months ended 30th. June, 1916, was nearly thirteen and three-quarter millions sterling. During that year the total exports of New South Wales reached nearly forty-one millions, while the imports stood at a little less than thirty-three and a half millions.

The year 1913 closed in general prosperity. There had been record attendances at the State-schools, record harvests, record cane cheques in the North, an enormous increase in port improvements, buildings and general public activities.

The policy which New South Wales is following cannot fail to bring enormous expansion, for the natural wealth of the State has been recognised and the right methods adopted for its realisation. Public works were necessary; a vigorous policy of public works was adopted. There might be a small bookkeeping shortage for one twelve months; but practical gains were far more than technical losses. Every pound spent in port improvement, in railway building, in water conservation was a pound in the bank of national asset, bringing constant and increasing interest. Money borrowed on the London market at $4\frac{1}{2}$ per cent., and put into national investments, such as these, can possibly be made to return eight and ten per cent. It is different with money borrowed for the purposes of war; thus for the soundest financial reasons, New South Wales stocks continue to attract European investors.

But sound finance without a backbone of natural resources will not give the most patriotic of communities a field for expansion. New South Wales could afford to be more prodigal in expenditure than any other country of similar area.

She has enormous reserves of potential wealth, which are as yet untouched.

Take, for example, her timber resources, which, despite all criticism, are being scientifically developed and universally safeguarded by a vigilant Forestry Department.

The Director of Forests, Mr. R. D. Hay, supplied some interesting information to the Dominions Royal Commission:—

The timber resources of the State comprise hardwoods and soft or brush woods, the proportion being approximately two-thirds and one-third respectively, and the forests are mainly located in the coastal and central territorial divisions of the State. The hardwoods of commercial value comprise twenty-two species, and the brush and soft woods about twenty-one.

Only of latter years has the value of our Australian timbers been realized. It would be a difficult matter to estimate what the forests of New South Wales are worth, and as a national asset they would probably balance the public debt and



Hetton Colliery, Newcastle

leave a surplus large enough to build a transcontinental railway.

A British forestry commission has recommended that nine million acres of land in the Kingdom should be planted with trees, which would ultimately form a national asset worth, approximately £560,000,000. Her fifteen million acres of wooded lands, as given by Mr. Hay, ought to be worth quite as much as that to New South Wales. . . .

mildness of our coasts, fishermen are not liable to be continually half frozen at their work in winter as they are in European and North American waters.

"The surface waters off this coast teem with fishes of various species, and many of these could be caught in huge numbers by the Purse-seine, notably pilchard and mackerel.

"Most of the ocean bottom lying within the 200-fathom line is suitable for trawling.



Hauling Timber, North Coast

Along 907 miles of ocean coastline there exists an unexploited marine wealth which cannot be even approximated.

Mr. David A. Stead, Naturalist to the Government Fisheries Department of New South Wales, has, for many years, been collecting valuable information on the edible fishes and marine products of this coast. He is the author of several pamphlets and treatises on the subject, and may be accepted as a thoroughly reliable authority.

In his *Facts About the Fisheries of New South Wales*, Mr. Stead points out that, owing to the

"In addition to this, New South Wales has a great Western River System which is of enormous value from a fisheries standpoint. It is rich in fish life, and produces the famous Murray Cod. Many thousands of miles of river, lagoon, and billabong are well supplied with excellent food fishes.

"In the Eastern streams of New South Wales are to be found that magnificent game fish—the freshwater perch or Australian bass. The present annual market supply might be set down at 16 million pounds weight of fish.

"Most of the edible fishes of New South Wales are well suited for canning."

"New South Wales has a known fish fauna of about 550 species, nearly all of which are edible, and at least 250 varieties are of a *practically commercial nature*.

"As regards our present fisheries, in many cases only the fringe of the vast shoals is touched or drawn upon. Often the fisherman is practically obliged, in his own interests, to refrain from sending what he might, for fear



Marbled Flathead

of creating a glut in the market. With the better opening up of avenues for fish distribution, an enormous impetus will be given to fish catching."

Prawns, lobsters, crayfish, and oysters are abundant on the coast of New South Wales, and might be canned in any quantity.

Porpoises, whales—the black, hump-back, sulphur bottom, finback and pike whale—all find a habitat on the coast. Sponges, kelp, commercial seaweeds—300 known species—and other marine products and by-products are to be obtained along the Eastern shores.

How little we Australians know of the wealth at our doors is exemplified by the fact that Spanish mackerel, one of the highest-priced and valued food fishes of American markets, until quite recently, was allowed to pass up and down the coasts of New South Wales in countless shoals, without any attempt being made to popularize it as a local article of diet. Not until 1907, when Mr. Stead pointed out the existence of shoals of southern tunny, did the Australian angler even know that the greatest fighting fish of the Seven Seas was to be had on the coast. The same authority has frequently drawn attention to the presence of prodigious shoals of pilchards, which still remain a neglected fish, as far as Australians are concerned.

It may be predicted that, before many years, a great development will take place in Australian fisheries generally. A vast marine food supply, such as we possess, will not only be exploited for home consumption, but for export, particularly to Asian markets. We have fish as well as meat to feed the millions. But the fisheries of New South Wales are another national asset the nature and value of which are yet imperfectly understood.

The State initiated a scheme of some magnitude for the development of deep-sea fisheries. In 1915 Mr. Stead—who had been despatched by the Holman Government to Europe and America on a commission of piscatorial enquiry and for the purpose of acquiring deep-sea fishing vessels for the exploitation primarily of the trawl-fisheries on the coast of New South Wales—returned to Sydney, bringing with him three modern steel trawlers. These were started on the work of trawling soon after their arrival, and although the initial work was largely exploratory they have demonstrated great possibilities in the use of the otter trawl in these waters. Hundreds of tons of fish have already been brought as cheap food to the people of New South Wales.

During their first fourteen months' work—of a pioneering, exploratory, and experimental nature—the three State steam-trawlers brought into the Sydney food market no less than 2,504,000 lb. weight of choice deep-sea fish. This great bulk of fish has been captured by the State's ships and sold to the public at an infinitesimal cost to the taxpayers. It is expected that the State trawlers ultimately will cost the taxpayer nothing.

With this scheme, the Government has pioneered the way in the matter of the State as fish-

retailer. Five fish depots have been opened in various districts of Sydney for the sale of State-caught fish. As the work of the industry develops, other retail depots are to be opened in the cities of Sydney and Newcastle, and throughout the country districts. The full scheme will make available vast quantities of a cheap and wholesome food. At these State fish-shops the people are able to buy fish at prices averaging half those

Amongst the fishes captured by the State trawlers are snapper, whiting, flathead, leather-jacket, john dory, boar fish, morwong, barracouta, ling, gurnard, nannygai, silver dory, sawfish, skate, cucumber fish.

Though magnificent trawling-grounds have been discovered at various places along the coast, only the beginning of the necessary exploration work has been undertaken. Perhaps the best



The Beach, Newcastle

which have prevailed in Sydney. The State fish-depots make no less than 71,000 sales a month. Two of the depots serve over 1,000 customers a day each.

The industry is being expanded by the building of a fleet of fishing-vessels, the construction of a large fish-carrying vessel for the transport of fish from coastal receiving-depots to great distributing centres; and by the establishment of a chain of coastal receiving-depots for dealing with the inshore fishermen's catches.

ground of all, so far discovered, is that stretching away southwards from off Botany Heads to a point a few miles eastward of Coalcliff. Another wonderful trawling-ground lies immediately eastward of the North Head of Port Jackson. Of the more distant grounds so far located (1916) the best is that lying off Twofold Bay and Disaster Bay.

Great individual catches have been made by the State trawlers. In many cases the catch per fishing hour has exceeded that of the catches made

by steam-trawlers in the prolific North Sea grounds.

The handling of the inshore and estuarine fishermen's catches would mean the gradual abolition of the middleman—officially regarded as superfluous.

The placing of central receiving-depots at various points along the coastline will ensure the saving of many tons of food which would otherwise

In addition to freshwater and marine species the eastern rivers and lakes of New South Wales are being stocked with trout and other exotic fishes, which acclimatize without difficulty, and are already a yearly joy and profit to the angler

* * * *

Running down the Eastern Division of New South Wales from Singleton to Wollongong is



Harpoon Practice, East Coast.

be destroyed throughout the year, and must largely increase the output.

In the last few years the whaling industry of New South Wales has also been rediscovered. A modern whaling concern operating three steam whaling-vessels, and working in the vicinity of Jervis Bay, has captured over 350 whales in one season, yielding a great quantity of oil and whalebone. One sperm whale taken in the Tasman Sea yielded an immense lump of ambergris, which brought in London no less than £12,000.

It is expected that the New South Wales coast will become the home of a firmly-established industry on a large scale in connection with whaling operations.

The only other whaling carried on in New South Wales for many years has been that interesting industry at Twofold Bay, where the large cetaceans known as "killers," or "killer whales," operating in conjunction with the human whalers, have been responsible for the establishment of a small industry dealing with from eight to ten whales per annum.

an enormous proven coal-field, which extends in width from the coastline to Lithgow in the west. Maitland, Newcastle, Sydney and Wollongong are all built over this continuous coal bed of inestimable value.

Mr. E. F. Pittman, the Government Geologist, calculated that, at a moderate estimate, there are 115,346,000,000 tons of high-class coal available for mining in the State.

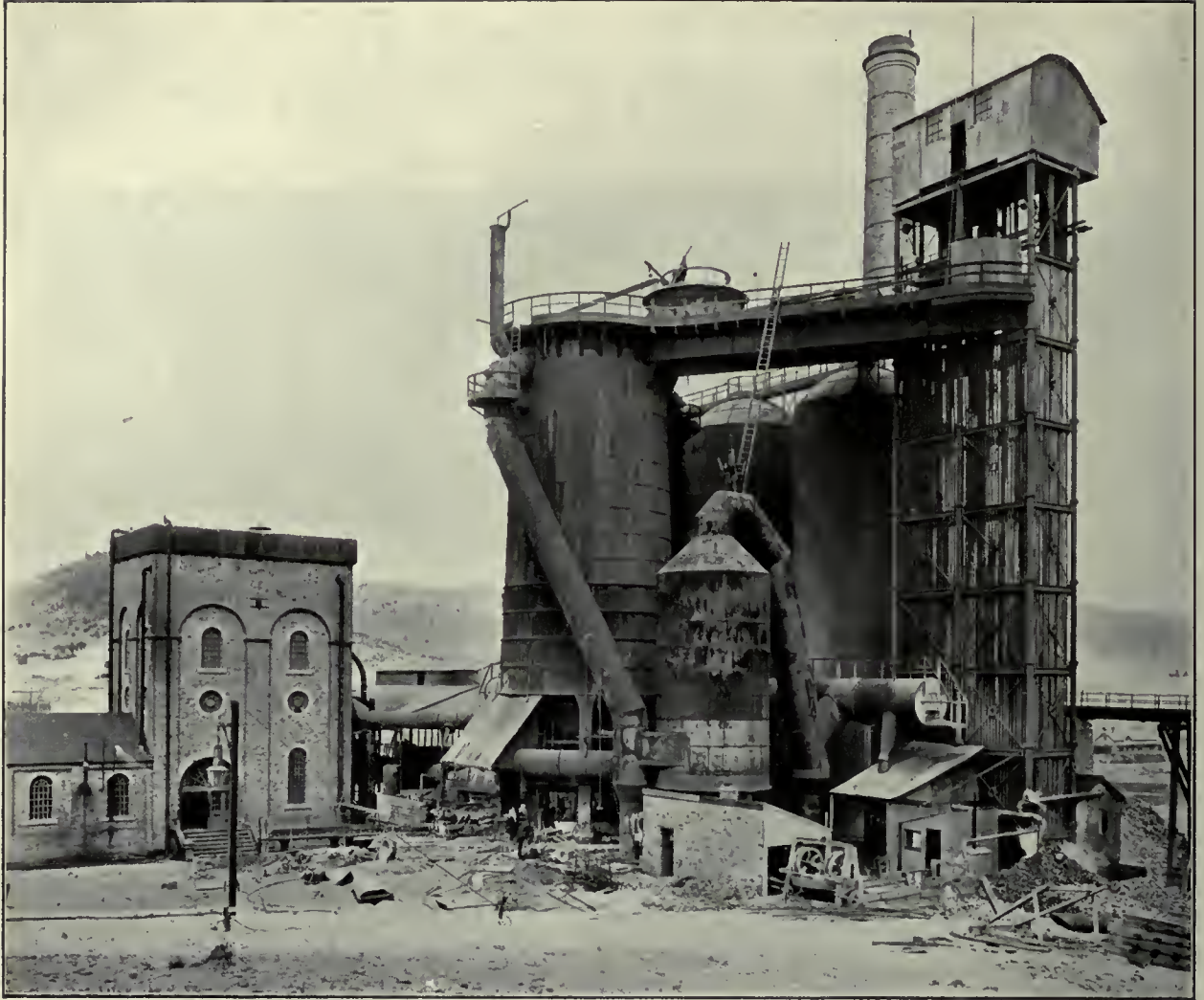
The development of Australia may have been directly due to the finding of payable gold in New South Wales in 1851, but the future progress of the Commonwealth is more likely to depend upon iron and coal. It is comforting therefore to learn that the Mother State possesses an abundance of both.

Slowly but surely the evolution of an Australian iron and steel industry is taking place.

With unlimited coal, iron ore, and limestone within reasonable distances, with public sentiment and political policy as a constant pressure, the establishment of the iron manufacturing industry on a firm basis is steadily going on.



The Battery, Sachs' Molybdenum Mine, Kingsgate



Blast Furnace, Lithgow

At Carcoar and Cadia, less than 100 miles from Lithgow, the deposits of iron ores have been estimated at over forty million tons; ten million tons of which are declared to be of the highest quality.

Altogether New South Wales has something like seven millions of money values in mining plant, smelters, and mining machinery; which capital outlay has been considerably increased by the establishment of the Broken Hill Company's iron and steel reduction works at Newcastle.

Although gold is known to exist over a field six hundred to seven hundred miles in extent, and although it has been extensively and profitably worked for more than half a century, capital investments in other mineral production seem to be increasing while the interest in gold mining has, at least temporarily, declined. Yet it is possible that to the sixty odd million pounds worth of gold which New South Wales has produced since 1851, there will be added another fifty or sixty millions during the next half-century.

In eleven years (1900-1910) the old alluvial deposits of Araluen, worked over on the modern dredge system, yielded another half million, and, with improved processes and automatic machinery, low grade values which would have been unprofitable a few years back, can now be converted into dividend-producers.

The chief reason for decline in this particular branch of mineral production is that, during the last ten years, other things have been found to pay as well or better than gold mining in New South Wales.

Silver and lead, tin, copper, antimony, platinum, bismuth, molybdenum, scheelite, wolfram, kerosene shale, diamonds, gem stones, alunite, asbestos, arsenic, and various other commercial minerals, exist in unknown quantities, and are all being profitably worked at different places.

The copper lodes contain ores of a very much higher grade than those of many well-known mines worked in other parts of the world,

Between the years 1858 and 1912, the value of the copper produced in the State totalled £11,784,102.

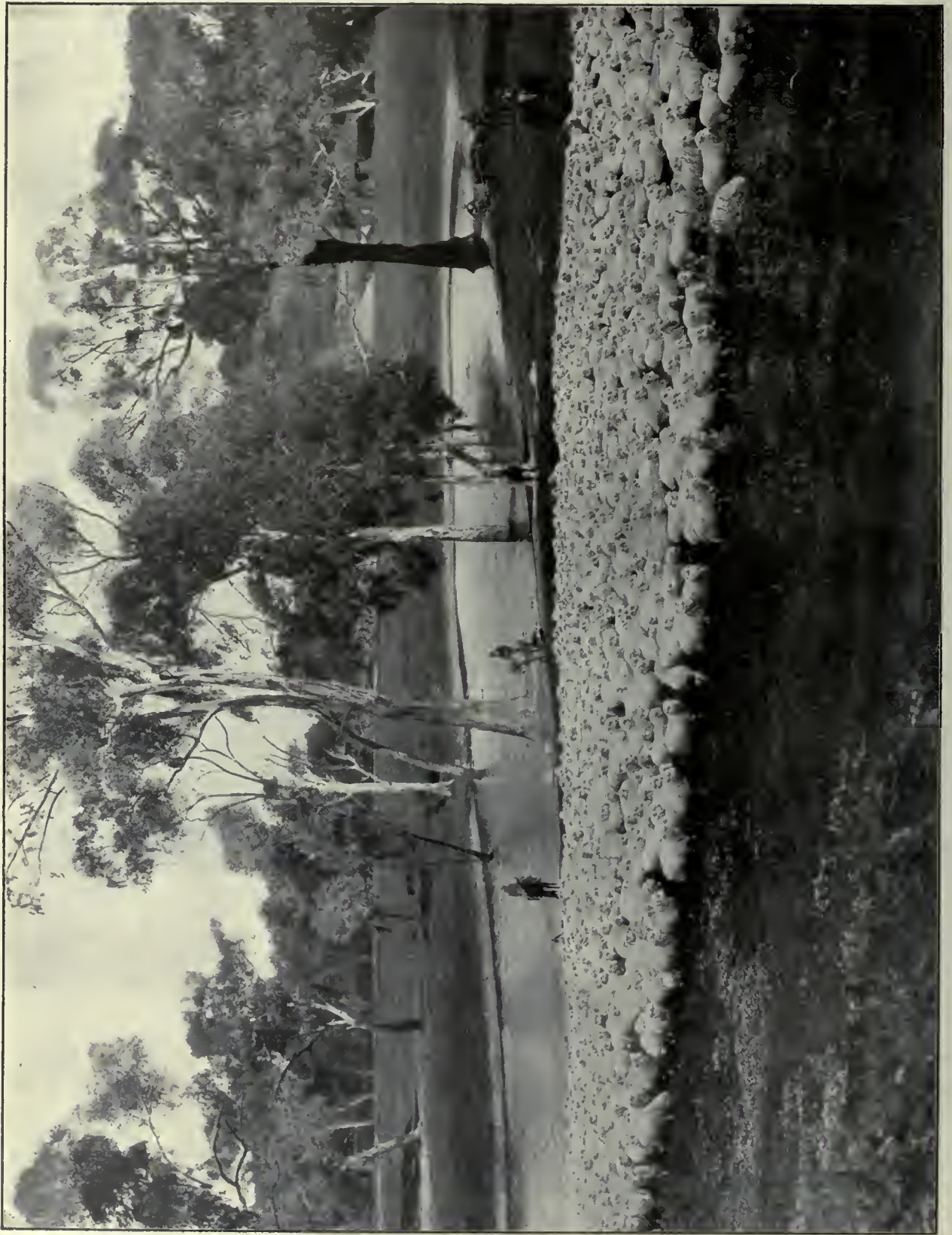
Between 1872 and 1912 the total tin production was worth £9,327,609. Lode and alluvial tin are both distributed over a large area.

In marbles and clays, New South Wales pos-

sesses deposits of immense future importance. The production of precious opal in this State has already totalled well over a million pounds, but in days to come those beautiful colored marbles, declared by experts to be the finest in the world, will probably be regarded as a greater national asset.



Copper Mine, Cobar



Flock of Sheep in the Riverina



Crossing a Creek

TRADE AND PRODUCTION.

FOUR days' steaming from Port Darwin is the island of Java; less in area than the State of Victoria, and supporting a population of 35 millions of people.

Farther north, lies Japan with forty millions, and China with four hundred millions. Between these spreads Malaysia, holding nigh on ten millions more—while the great Indian Empire, with its 300 millions, occupies the near North-West. These countries are much closer to Australia than Europe or America.

During the last thirty years, radical changes have taken place in the Asiatic attitude towards Occidental civilization and habits. As a result, there is an increasing demand for products, which, previously, were a negligible quantity in the import trade of Eastern Asia.

Australia—which may become the greatest wool, wheat, and meat producing country in the world—must greatly benefit from this hungry clamor of the North to be better clothed and fed.

Another cursory glance at official statistics shows how the Asian trade is growing.

In 1900 the total value of exports from New South Wales to India and Ceylon was no more than £174,296. In 1912 it had reached £2,894,035.

The export trade to the Straits Settlements in 1900 was only £39,898. In 1912 it came to £401,481.

The trade with Japan has been a steadily increasing quantity. It expanded from £133,989 in 1900 to £966,798 for 1912!

All the world is coming into competition as buyers for the goods that Australia has to sell. We need have no fear of over-production; our only anxiety is under-population. The Commonwealth, with 1.47 persons to the square mile, is still the most sparsely populated of all the civilized countries of the world. Europe, with 114 to the square mile, could spare us a few millions from her over-crowded centres, to mutual advantage.

We could increase the army of Australian producers to a hundred millions, and still have room to spare for millions more on the fertile fields of our splendid Island Continent.

In the development of manufacturing and agriculture, Australia will, during the next fifty years, require a much larger population than the natural increase is likely to give her. The Federal Statistician, Mr. G. H. Knibbs, has calculated that with the present rate of increase, the Commonwealth would have 8,534,000 people at the end of 1950.

The demand for Australia's raw products alone will necessitate a more rapid peopling of this great Continent. Australia has certainties to offer settlers from abroad. More wool will have to be grown, and more foodstuffs produced.

For butter, and wheat, mutton, and fruit, and wine, there is no close season. Millions of broad acres, on which these and a thousand other commercial products can be grown, are waiting on the Commonwealth for the labor which will reduce their potential wealth to actual money.

Elsewhere, humanity is crying for opportunities. Here, opportunities are crying for human-

combined (under the system of mixed farming, which prevails in many districts) with wheat-growing, pig-raising, dairying and orcharding.

The system of mixed farming is based on local conditions. A scientific rotation of crops and stock is its essential principle. It aims at getting the highest possible amount of profit out of the soil.



Loading Wheat at a Country Station

ity. It should be the object of wise statesmanship to reduce these distortions to proportion, and between shortage and surplus, to bring about an equable balance.

Let us examine some of these openings which New South Wales offers to primary producers from any country in Europe or North America.

New South Wales is the great sheep-breeding centre of Australia, and the leader of the world in the production of fine merino wool.

While the bulk of the sheep shorn are at present run on big stations, the tendency is for smaller holders to go in for woolgrowing. It is

For farmers who have been trained in the more strenuous agricultural schools of Europe and North America, mixed farming in New South Wales offers what may be described as a royal road to fortune.

Intensive culture on reduced areas under approved methods of cultivation is greatly needed to prevent the waste and exhaustion of soils which have taken place in some agricultural districts.

Mixed farming areas visited by the writer, during 1912-13, were showing a high percentage of profits everywhere that good management existed. Woolgrowing has long been brought to



A Cherry Tree, Bathurst Experiment Farm

a state of perfection in Australia; but sheep-farming—the raising of mutton and lamb for export, is yet practically in its infancy. A cross-bred sheep has, so far, proved the most profitable.

The method on smaller farms is to run these sheep on stubble and cultivation fields not in crop. The sheep clean and fertilize the paddocks—which supply them with a better interim pasture than untilled country. They rid the wheat fields of plants which are of no service to the crop, and fill an economic function as gleaners after harvest.

The nett season return from 500 crossbreds under these conditions in wool and mutton may be anything up to £500; not, in itself, a bad annual income for a small farmer.

With no difficulty in turning every pound of Australian butter, every ounce of wool, every quarter of mutton into golden sovereigns; with soil and climate all in his favor, the Australian mixed farmer occupies a unique position among international agriculturists.

Australia has no peasant class. The farm worker of to-day may be the proprietary farmer of to-morrow. Nowhere on the face of the earth is there a country so prosperous, or one which holds such widespread opportunities.

Fruits of all kinds can be grown to perfection in New South Wales. The varieties which the mixed farmer will cultivate depend on his district. On the Richmond River he will probably grow bananas; at Wentworth oranges; in Monaro, apples or pears.

Fruit-growing as an exclusive occupation is making many Australian fortunes; but along the higher tablelands, where the best mixed farming country is found, good crops of English fruits can be gathered with certainty every year.

On the lower slopes, up to an elevation of 1,500 feet, peaches, passion-fruit, plums and grapes give great harvests. After many years of experiment in jam-making and fruit-preserving, Australia now turns out immense quantities of the very best product, which has practically displaced the imported article, and is rapidly forcing its way into markets of the outside world.

The West also, is pre-eminently adapted for the production of dried fruits.

During its long, cloudless summers, the fruit can be properly ripened and dried. Raisins, sultanas, currants, apricots, figs, and peaches—nowhere, outside Australia, can these be grown and handled under more favorable conditions. Already wholesome Australian dried fruit, free from dirt and impurities, practically monopolizes the home market, and is a growing export.

The Government of the State has given much attention to fruit-growing in its various experimental orchards. Data, so collected, is available for the benefit of orchardists, or those who meditate the establishment of an orchard.

The young vigneron also will find not only fields for his labors but a considerable experience and much Government experiment to guide him. Although wine growing has not extended as rapidly as some contemporary industries, New

South Wales has some splendid vineyards, and produces large quantities of excellent wines.

For many years it has been current prophecy that Australia is destined to become the greatest wine-producing country in the world. M. Blunno, viticultural expert, has declared that since the establishment of this industry in New South Wales, the supply of wine has never been greater than the demand. Ten acres of vineyard make a comfortable living for a family; yet the total area under cultivation might be multiplied by fifty.

on large areas is estimated at £10 to £15 an acre per annum. Smaller vineyards, with family labor, return more. Family experience has a particular value in this industry. There are thousands of wide Australian slopes yet to green with vineyards, and room for hundreds of prosperous homes. Families from the wine districts of Europe will find field and scope for their energies and experience. As in other branches of industry, immigrants without capital, who are willing to work, will not have to wait long for their chance to become proprietors.



Wine-Grapes: Thompson's Seedless, Yanco

Australians themselves are not a wine-drinking people; but there is a growing local demand and their wine increases in foreign favor, as fast as its quality is realized abroad. It has been, for commercial reasons, a difficult industry to pioneer. Still, the total export for the State in 1913 was 50,776 gallons.

With modern ploughs and subsoilers, the cost of preparing vine lands in New South Wales is between £9 and £10 an acre. All out, a vineyard may be put in bearing in this State for about £25 an acre. With proper attention, its life can then be estimated at a period of forty years. The product, of course, has an increasing value, inasmuch as matured wines, all the world over, command a higher price. The profit to the vigneron

The industrious Italian, the intelligent Frenchman will enjoy liberty, leisure, and opportunity, as hundreds of their countrymen have already done here. There is no prejudice against the foreigner who is willing to accommodate himself to Australian conditions. He will find neither legal, nor social, nor commercial distinction raised against him on the score of his nationality. Australia opens wide her doors to these worthy citizens, and gives them warm welcome and hearty encouragement. The experience won by four generations of pioneers is theirs to profit by. The best traditions of British justice and free citizenship prevail under the flag of the Commonwealth. In New South Wales a vigi-



Wyandottes, Hooper's Farm, Epping

lant administration has seen to it that assistance and instruction to settlers are readily available.

The splendid work of a modern agricultural department, whose experts are in constant touch with the experiments of other States and countries, has established a storehouse of knowledge by which every settler is free to profit. One of the functions filled by the Department is the care and supervision of vineyards and the supply to growers of phylloxera-resisting stocks, which are propagated on the Government Viticultural Stations at Narara and Mirrool.

The by-products, wine-lees and wine-stone, have been very largely wasted by Australian vigneron, mainly because they have found wine-making sufficiently profitable without adding to it a secondary industry. During the last few years a revolution has taken place in the equipment of the larger establishments. The most scientific methods of fermentation have been introduced, turbinage of white musts adopted and labor-saving machinery installed. As a result, wine-making has been made a still more profitable industry, and the quality of the Australian product generally improved.

As in Europe, the Australian wine varies with soil and climate. The rich, red, dry wines of Albury and Corowa vineyards have long gratified many a fastidious English palate. These districts also produce excellent Ports, Sherries and Muscats. From the Hunter River vineyards the most famous Sauterne, Chablis, Hock, and Claret have come. Here some of the first experiments in wine-growing were carried out; here, too, is some of the most picturesque country in Australia,

The cooler climate of New England produces wines corresponding to those grown in the colder vine districts of Europe—all of the finest flavor and quality in their class.

Wine Grapes, successfully grown in New South Wales include Syrah, Malbeck, Cabernet, Verdot, Lambrusquat, Espar Mammolo, San Giovese, Pinot Noir, Aleatico, Franketal—for the red wines.

Among the white wines are Tokay, Riesling, Verdelho, Pedro Ximenes, Marsanne, Muscat, de Frontignac, Pinot Blanc, Gouais, Blanquette and Chasselas.

The cultivation of table grapes has been found profitable in New South Wales, especially when carried out within reasonable distance of the centres of population. The average crop is about three tons to the acre, and the quality of the fruit equal to anything that the sun ripens anywhere.

There is a field in this State for the distillation of export wines and brandies which has not yet been exploited. Not anywhere in Europe are conditions more favorable to the growth of the most profitable varieties of grapes. Nowhere could a wine-producing population live and labor under happier surroundings. Ultimately the wines of New South Wales must become as famous and as popular the world over as the choicest vintages of Southern Europe. In fact, it is more than suspected that much of the wine which is now sold to consumers under foreign labels is really exported Australian. Under the circumstances, the wine drinker does not suffer—except in pocket. His remedy is to demand genuine Australian vintages and save the difference in price.



A New South Wales Bee Farm

Among what might be termed auxiliary industries, the prospective farmer in New South Wales will find poultry-raising and bee-keeping practicable and possible. Poultry-raising as a speciality is too often a source of disappointment; but, as an adjunct to the farm, it becomes a source of profit. In order to increase the farmer's revenue the Agricultural Department of New South Wales provides cold storage for eggs at a nominal charge; and the Railway Department has established a specially cheap transport for this particular product. A grower 500 miles away can land the eggs from his farm in Sydney at a carriage of about one penny a dozen; and if there is a glut in the market, they can be stored at low cost until prices go up.

It is officially claimed that the finest frozen chickens received in London have come from New South Wales. There should be an enormous market in England for Australian poultry.

* * * *

From a most interesting chapter on Bee-keeping in the *New South Wales Guide for Immigrants and Settlers*, we will select a few extracts. The article was contributed to that excellent pub-

lication by Mr. W. Hessel Hall, M.A., who wisely advocates bee-keeping as an aid to settlement on the mountain lands of the Mother State.

Mr. Hall, growing wearied of the cities, and being, as his writings indicate, a man with a fine poetic appreciation of the open life, began with a small apiary and gradually extended operations as he acquired practical knowledge.

"A page out of my own experience," says Mr. Hall, after an informative talk on "Bees," "may best give the necessary information:—

"First, knowing nothing of bees, I bought one hive—wicked hybrids—near relatives of the wasp in temper. To learn how to handle these fiends I bought 'Root's A.B.C. of Bee-culture,' and soon learned a good deal about bees. Several black swarms were given to me by friends. Next I purchased a good Italian queen, and breeding young queens from her replaced the wicked hybrids and blacks. When I had seven strong colonies I removed to another district, taking my hives 200 miles by rail. In the new district I bought a couple of stray swarms for a few shillings each, cut several nests out of hollow trees, and despite the loss of many fine swarms at swarming time



A Dairy Herd at Gloucester

through inexperience and failure to cut the queen's wings, in two years raised the total to thirty colonies. Then removing to the barren stony ridge—then in a state of nature—on which the writer's home now stands, he trusted to the bees and to what he could grow on the stony land for a living for himself, wife, and four young children. Obtaining the best strains of leather-coloured Italian blood, breeding, culling, selecting, he has now as fine a lot of thoroughbred queens and bees as can be found anywhere. By dint of clearing, trenching, draining, manuring, and even sifting, the barren hill has been turned into a most fertile garden. For years he made his own hives out of the ubiquitous kerosene case, till the labour of harvesting the increased yields left no time for such work. So by ten years' hard work—earning before he ate—he has built up a home in which he is satisfied to end his days. The same opportunities, and much better, are open to thousands of others.

"In concluding this chapter, the writer would say that he is not a Government official, and has not written for hire. The life is one that he has lived, and is living still. . . . He is writing in hope of benefiting the State by helping to solve the problem of settling the people on the land, and in the hope of helping others from the Old World, or those in his own land who desire to escape from city life to the healthful life of the mountains. The settler who has a stout heart and possesses industry and grit need not fear failure. He will not make a fortune, but room and work for every child, and a home and a living he may have. As a reward he will live a life most varied and interesting—too busy to be dull—the years will slip by. He will call no man master. He will have busy times and times of leisure. In place of the monotony and confinement of city labour he will have work most varied, according to the time of the year,—clearing, splitting, fencing, building, with material from his own land, beginning, if need be, with a sheet of bark or slab hut, and ending with as good a house as his skill or means can construct. Hive-making, queen-rearing, uncapping, extracting, soldering, marketing, ploughing, or digging, trenching, draining, planting, reaping, mowing, harvesting, pruning, grafting, budding, picking fruit, packing; all these and others go to make up the life of the mountain home. Though not rich, the settler, like the writer, may have many good things from his own labour—peas, beans, pumpkins, marrows, cabbage, cauliflower, turnips, parsnips, and other vegetables from his own garden in plenty. Honey and honey-

comb in variety and abundance, milk, cream, butter, eggs, and bacon of his own curing. From his few trees, peaches, plums, nectarines, apricots, apples, passion-fruit, oranges—more than he can eat; strawberries and cream for all till they can eat no more; the choicest of grapes in abundance—things that the richest cannot buy so fresh and good. His children grow up hardy, deep-chested, and innocent, taller and stronger by far than their parents, may follow in their father's steps, or in after time in other callings rise to eminence in the land. To the men and women who fear God, seek knowledge, and are patient in industry, all these things are possible 'on the mountain lands.'"

In addition to his University degree, Mr. Hall has graduated with high honors in the School of Scientific Application. As a successful apiarist, rather than a University graduate, we attach importance to his pronouncements.

"One of the most valuable assets of any State," says Mr. Hall, "is to be found in its mountain lands, and in the hardy and healthy men and women they nourish. In New South Wales this class of country has been undervalued by settlers in the past, and still remains in the hands of the State. These broken lands extend in a broad belt running north and south right through the State, with an elevation varying from a few hundred feet on the foothills to several thousand feet on the higher ranges. Included in this area is a considerable extent of tableland with an English climate—the richer portions of which are already occupied by settlers engaged in farming and pastoral pursuits; but the immense extent of broken country embraced in the mountain area is practically unoccupied.

"Even the poorest tracts contain innumerable sites where a home may be made and a family reared, within easy distance of the seaboard, and amidst the wholesomest, healthiest, and most independent conditions to be found anywhere on earth; provided only that the settler is content with a simple way of living, and to produce mainly for the food requirements of himself and family—relying on the sale of honey, timber, and in time on fruit-growing and dried fruits, for the ready money to procure the necessaries and small luxuries which he cannot produce for himself.

"The whole of the mountainous region above described, together with isolated patches on the seaboard, and in various other parts of the State, is clothed with the native forest and indigenous undergrowth—these, so far as the near future is concerned, constitute its real wealth.

"Those not familiar with this region can form no conception of the enormous quantities of honey produced by the native forest trees and flowering shrubs every year. Occasionally the yield takes the form of 'manna,' the honey or sweet sap exuding from small punctures made in the bark of the trees by the sap-feeding cicada, or dripping from the leaves till the ground is covered as with a light fall of snow, with small white lumps of granulated manna honey. This form of honey production, however, is the exception, and not the rule. The usual thing is for the honey to be secreted in the form of nectar in the flowers. The members of the eucalyptus family have a little cup in the centre of the flower in which the honey is formed. Under favourable weather conditions, especially in close thundery weather, the secretion is very abundant, and the honey can be distinctly seen shining in the bottom of the flower-cups. Before the introduction of the honey-bee much of the honey secreted must have gone to waste. Some was gathered by the native bee (*Trigona carbonaria*), a little creature about the size of the house-fly, building a resinous comb in which it stores the honey. English bees that have gone wild in the bush are now plentiful, and from their nests in hollow trees the settler may obtain a good deal of the stock necessary to start an apiary. During the great honey-flows which come almost every year, and sometimes many times in one year, the honey supply is so abundant that much of it, even now, must needs go to waste for want of bees to gather it. In one of these flows about 130 colonies in the writer's apiary last season brought in two tons of surplus honey in a little over a week."

Australia is veritably "a land flowing with milk and honey," and not the least of her riches is the possession of settlers like Mr. W. Hessel Hall, who have realized that their southern motherland holds a heritage of health and happiness, such as he has elected to enjoy in his frugal Blue Mountain home.

All along that belt of mountain country, such homes can be happily established. The writer of *Australia Unlimited*, who has spent the greater number of his own years in the Bush, knows what perfect health and splendid spirits this free life in the open brings.

If the Man on the Land cultivates a love of the beautiful in nature his years will never know monotony. The clear Australian morning, with its carol of birds, its cool winds and freshening dews, uplifts his spirit and fills him with a mighty strength, and he sees the sun rise above the odorous forest into a sky of cloudless blue. His day's pleasant tasks accomplished, he sees the sun sink again behind the forest in a splendor beyond words. After his evening meal is over, he sits upon his porch mayhap with a softened bush, arrayed in silver, before him. The procession of the seasons brings him interest and delight. The warm spring rain is good to hear upon the roofs of iron or shingle. Summer gives him reddened fruit and ripened sheaves. In Autumn he counts his gains and meditates his future plans. Winter reinvigorates him with colder winds and cleansing frosts. No day throughout the year need be without its interest, its efforts, and its joys.



Trevitt's Seedling Apple, Yanco.



“Hog-Raising and Bacon-Curing Increase the Income of the Man on the Land”

For the man of more ambitious mould, there are greater chances and wider fields of endeavour. If he possess the genius of organization, if he can handle big projects, the Commonwealth is yet broad and young. Thousands of personal histories might be cited in every Australian State, of men who “started off scratch,” and have won out. Men who came into the battle of life with no silver spoon, no heritage of broad acres or bank accounts, have gained riches in every walk of life. There is not a country town nor an agricultural or mining district in Australia without illustrious examples of success achieved by individual merit and industry alone. Our municipalities, our Parliaments, our Chambers of Commerce and Manufacture, can boast a long roll of such honorable names.

In commerce and production New South Wales, like her sister States, holds ever-widening domains. The Pastoral Section of this book will give examples of many who have engaged in that staple industry, and the results of their enterprise.

The dairy farming industry has already had passing reference. The horizon of its expansion lies beyond the most prophetic vision. It is practically illimitable. The total export of butter from New South Wales in 1913 was close on a million English sovereigns in value. Some day it will probably be twenty millions. Australian dairymen are now turning out highest grade butter and competing successfully with expert Danes. For some years the northern coast of New South Wales has been almost exclusively a dairy farming proposition; but dairying on irrigated farms has yet to come, and there are thousands of suitable dairy farms still locked up within large areas, and devoted to less payable purposes. Systematic inspection by expert officers, a general supervision of the dairy indus-

try, sympathetic treatment, special education, the supply of thoroughbred stock, have long been part of the administrative policy of the State. Great improvements have been effected in transport, carriage, storage and shipment.

The modern dairying industry in New South Wales has very largely been developed on co-operative lines. As a result, districts have been rapidly enriched by full profits going into the hands of the producers. The prosperity of the Coast has been phenomenal. Everywhere one travels, from the Tweed to Twofold Bay, one finds co-operative factories, with their local groups of suppliers, large and small, and the almost universal story is one of success.

Side by side with dairy farming, hog raising and bacon curing increase the income of the Man on the Land. Most of the bacon factories are now co-operatively controlled.

Domestic animals throughout Australia are singularly free from disease. Sunlight and sweet pasture, and a dry air undoubtedly account for this.

The advantages to the farmer are unequalled in any other part of the world. Genuine Australian products may be freely accepted abroad as being wholesome and clean. Unfortunately, Australian products have sometimes been adulterated by unscrupulous foreign traders, and inferior foodstuffs which never saw Australia, freely passed off on the English public, under the disguise of an Australian brand.

Our products have for years been subjected to a heavy handicap. It speaks well for their quality that, despite all disadvantages, they have slowly but surely come right to the front. . . . Combined pig and dairy farming in New South Wales is nowadays a highly-profitable occupation. Here again people from Northern Europe will find excellent openings. It should be remembered



Harvesting at Iandra, Grenfell District

that dairying can be carried on throughout the year in Australia. There are no long, cold winters wherein domestic cattle must be housed and hand-fed; and none of those climatic disadvantages which make the persistent labors of a dairy farmer still more strenuous in other countries.

As far north as the Atherton Tableland—which is a long, elevated plateau, right in the tropics, still covered for the most part with dense jungle—the dairy cow and the bacon hog are doing perfectly well. With a climate better beyond comparison than that of Denmark, larger areas of land, greater varieties of animal foods, and rapid transport to the same markets, Australia has come into successful competition with the most scientific farmers in Europe.

Economic and sanitary feeding, and a steady improvement of breeds, have made the modern hog quite a cleanly creature by comparison with the pig of tradition. As a gleaner on the wheat farms, an absorber of skim milk in the dairy sections, he has economic uses. Foodstuffs, which would otherwise go to waste, are converted by the curious chemistry of nature into marketable meat. Our living areas being always on the liberal scale, the domestic hog gets plenty of grubbing room. He has the advantages of sunlight, and abundance of food and exercise. The climate is congenial to him. In some places wild pigs have become very numerous. Like the buffalo, horse, and kine, these animals find Australian conditions conducive to rapid development. On the frontiers of our civilization herds of wild horses, East Indian buffalo, wild pigs and cattle still roam in their thousands.

The future may demonstrate that silk, flax, and cotton can all be commercially produced in New South Wales. For the cultivation of flax and linseed there will undoubtedly be an opening; but while proved industries are profitable, there is a difficulty in establishing new ones.

Tobacco and cigar leaf of splendid quality are grown in this State in small quantities. Ultimately Australia should produce enough for her own consumption and a large balance for export. Great Britain alone imports tobacco, raw and manufactured, to the value of five million pounds sterling per annum. Australia's own little tobacco bill amounts to over half a million a year. Large quantities of tobacco are manufactured in Australia from imported and local leaf. A visit to Dixon's and Cameron's factories in Sydney, and Cameron's and others in Melbourne, discloses the fact that particular attention is paid to the health and well-being of the operatives engaged. It is indeed doubtful if tobacco-workers in any other part of the world are working under such sanitary conditions or receiving a higher rate of wages.

Under the Federal Bounties Act of 1907 a bonus of 2d. a lb. was paid on locally-grown cigar leaf—high grade. The period set down for the payment of this bounty was five years from the passing of the Act. In 1914-15 £349 had been paid under this schedule—representing a total production of 41,891 lb. . . .

* * * *

The reader of this section must keep in mind that, although the oldest of the States, New South Wales has, during a comparatively recent period, come into the world's field as an exporting country. The year 1897 was the first in her history when production exceeded consumption.

Out of a probable 25 to 30 millions of acres suitable for wheat-growing, New South Wales in 1913 had, according to the *Statistical Bulletin*, just 2,231,514 acres under crop. Her total for all crops, wheat, maize, oats, cane, hay, vines and potatoes, was much short of four million acres. Wheat-growing in Australia is a proved proposition that need give the farmer little anxiety. He has but to keep his eyes open, profit by the experience already gained by others, conduct his farm on the lines of an ordinary business, and, in any established wheat district within reasonable reach of transport, he may look forward with certainty to a competency in a few seasons. *There is no country on earth to-day which can offer the same possibilities*, and no country in which the necessary interval spent in developing those possibilities into certainties can be more healthily or pleasantly lightened and brightened by the man on the land. Australia can challenge the world in this respect. She is destined to be the granary of the world, and the men who get here *now* with the necessary capital will stand to profit most—they and their children!

In British markets, *Australian wheat has the highest value*. As far back as 1904 it commanded $\frac{1}{3}$ a quarter more than Argentine, 6d. higher than Canadian, and 3/- higher than English grain. Constant experiment and accumulating experience are certain to increase the quality, not only of wheat, but of all Australian products. We are essentially a progressive people, and our Governments lead the way in the endeavour to elevate national averages. The wealth which older nations have wasted in war has in our case been applied to development in the arts of peace. Our militarism—now the most comprehensive citizen-soldier system in the world—has been organized not for conquest, but for defence.

That New South Wales can produce her wheat more cheaply than any other country testifies to the fact that neither soil, climate, nor method is deficient.

During the last twenty years the method has been practically revolutionized. In this reference the name of the late William Farrer, of the State Agricultural Department, stands in the same relationship to Australian agriculture as that of Berthelot to France.

From the year 1790, when James Ruse, the first Australian farmer, began to crudely till his plot of ground at Parramatta, down to the present time, no man has deserved better of his country than William Farrer.

Farrer possessed the two first qualities of genius, inspiration and patience. His original mind perceived that in agriculture, as in other branches of industry, the business of New South Wales was to establish precedents rather than to follow them. For years he devoted himself to the breeding of special wheats, which would be more adaptable to the conditions of Australia than those previously cultivated. As the result of his long labours, he produced half-a-dozen new types of wheat—drought-resisting and rust-proof—which revolutionized the industry, brought millions of acres within profitable possibility, opened up widening avenues of export, and enriched whole districts.

Let us hope that a life as noble as that of William Farrer will long be held up as an example to Young Australia; that his name will be written in letters as golden as the harvests he has created.

With twenty to thirty millions of acres to come under wheat, with an increasing production in butter, wool, and other commodities, with rapid developments taking place in manufactures, construction, and national enterprise, the future progress of New South Wales is generally assured. The total value of production per head of population is already higher than in any other country. The average export of New South Wales is only exceeded in Belgium, which is, or was before the war, a clearing-house for Europe.

It is not possible to exhaustively detail all the industrial, commercial, or financial openings which the Mother State presents, nor to elaborate the many-sided aspects of her primary industries; but it could be shown that she is capable of supporting a prosperous and contented population quite equal in numbers to that of Germany. In the new era of accelerated progress and increasing prosperity, upon which the Commonwealth has undoubtedly entered, she is destined to take a leading part.



Harvesters at Work



Botanic Gardens, Farm Cove, Sydney



Open Boat Sailing on Sydney Harbor

SYDNEY HARBOR AT NIGHT.

FROM the Botanic Gardens comes a heavy odour of magnolia flowers. A sound of tramping feet is heard down darkened avenues of Moreton Bay fig-trees. Occasional shadows of flying foxes flit across a moon just risen above their spreading branches.

It has been a warm day. The city is cooling down. On balconies and verandahs white dresses show in the moonlight. Laughter and the voices of children echo from gardens facing the sea.

At Circular Quay electric trams are dropping their passengers. There is a large proportion of lovers. On white nights like these the Harbor calls its votaries by thousands.

The prosperous fruit vendor by the Quay dreams of Venice and Naples as he watches the lights reflected in the waters. It is better here—as much beauty and infinitely more money. He blows cigarette clouds. He is content.

Alongside the outer wharves liners are berthed, leviathans of Orient and P. and O., lean Messageries, broad-beamed Nippon Yusen Kaisha, and clean white Royal Packet Dutchmen.

Further along the waterside, cargo vessels, tramps, interstate steamers, traders, sailers (growing fewer), wheat-ships, wool-ships, cattle-ships, are crowded.

Federal Shire, White Star, Aberdeen, American,—house flags of a hundred companies will break from their peaks at sunrise and a babel of polyglot speech arise.

Night and day it is one of the busiest ports in the world. Its trade is increasing by leaps and bounds. Each succeeding year the tonnage is heavier, the volume of import and export greater.

During thirteen years the port has undergone a revolution under the Sydney Harbor Trust. No less than seven millions of money have been spent in improvement of the harbor and foreshores.

A summary of the Harbor Trust's operations gives the following facts, which may be of interest to shipmen and merchants of the Seven Seas:—

Sydney is the fifth port of the Empire, its maritime trade being exceeded only by that of four ports in the United Kingdom—London, Liverpool, the Tyne, and Cardiff. The number of vessels entering the port during the year ended June 30, 1914, was 10,142, with an aggregate tonnage of 9,437,310. This shows an increase over the previous twelve months of 469 vessels and 723,248 tons. During the last ten years the tonnage has been more than doubled, the figures for 1902-3 being 5,960 vessels, and a tonnage of 4,160,757. The tonnage of goods imported during the year was 5,081,270, showing an increase of 221,182 tons over the figures for the preceding year, the value of the oversea and interstate and State imports being £53,613,030, and the value of oversea exports £31,105,773.

If the ghosts of these unwilling colonists who mourned by Circular Quay a hundred years ago, that Australia would never pay England for settlement, could read these figures they would surely tremble with annoyance at being convicted as the silliest prophets in history.

"Exclusive of the numerous ferry wharfs and the multitudinous jetties used for private purposes, there are in Sydney Harbor 55,000 feet of wharfage in actual use for shipping, and another 12,000 feet under construction.

"The principal wharfs are leased by the trust to the various shipping companies, a reserve of open wharf accommodation being maintained for the convenience of vessels visiting the port casually. Most of the wharfs have good shed accommodation, and the latest are being fitted with up-to-date mechanical appliances for handling cargo. Great improvements have been carried out in Woolloomooloo Bay, the chief of these being a new jetty running 1,140 feet down the centre of the bay. The jetty is 208 feet wide, and has a covered concrete roadway 53 feet in width down the centre, with double-decked sheds on either side. The cost of the jetty is in the neighbourhood of £200,000. Owing to the great increase in the ferry traffic, some of the big liners that used to berth at Circular Quay have had to find accommodation elsewhere. Seven berths are still available for shipping there, giving a total length of 3,654 feet. A large proportion of the trade of the port is done in Darling Harbor, where there are 91 berths available, and all in constant use. The Pyrmont jetties are fitted with steam cranes and electric coal elevators. These jetties are used chiefly for loading coal, coke, frozen meat, and stock. Horses and cattle are shipped from here to the East in fairly large numbers, and last year 142,410,146lb. of frozen and preserved meats was sent away from the port. Wheat for export is transferred to ships from the Darling Harbor wharfs by electric conveyors, capable of loading 12,000 tons a day into seven vessels. Provision is being made in Jones' Bay for extra berths for the use of the largest oversea vessels, and at Johnstone's Bay and at other places improvements are being carried out.

"The scheme laid down by the Commissions to meet the pressing needs of increasing trade and the larger modern vessels embraces the remodeling of Darling Harbor, and an extensive wharfage scheme in Johnstone's, Blackwattle, and Rozelle Bays, which are in the heart of the extending city. The scheme will probably take ten years to complete. The new wharf frontage will be about 42,000 feet, and give accommodation for 71 600-foot vessels, or a fewer number

of larger ships. The cost of this work, including the resumption of the foreshores beyond the present limits of the Trust's domain, will probably be £6,500,000."

* * * *

These are facts! But what care the happy couples coming arm in arm to the ferry-boats? What care the pleasure-seekers of Sydney, flocking joyously to the Circular Quay?

If sorrow or poverty has a dwelling anywhere in this harbor city, neither ventures abroad on nights like this.

Watchers on South Head see an orbed moon rising out of the Pacific an hour ago: the most beautiful harbor in the world is now a sheet of silver dotted with golden lights.

Between North and South Sydney rapid ferries churn continuously to and fro. The service is kept up during the twenty-four hours of day and night; for North and South Sydney face one another like Brooklyn and New York. There is much talk of joining them by bridge or tunnel.

Across the gangways of a fine double-ended steamer, built to meet a chance roll between the Heads, a constant stream of passengers is pouring. From stem to stern this Manly ferry is ablaze with electric light. Her long, clean decks are crowded above and below.

A gong sounds, and she glides swiftly into the stream, the band on the upper deck playing the latest comic opera music, or the baritone singer repeating for the hundredth time the favourite ballads of the day.

Tired business men put down their newspapers and take off their hats, to benefit by the harbor breeze that Sydney loves so well. Amorous youth draws closer together; smokers pull lazily at their cigars. No healthy human being can surely be unhappy amid such surroundings. The "melancholy Australian" is conspicuous by his absence. A close scrutiny of these passengers fails to locate a single misanthrope.

They are a bright-featured, smiling crowd, with good physical development, and universally well dressed. Smart girls, athletic youths, robust men and women—one sees among them the cheerfulness and well-being that result from pleasant conditions and contented lives. Unprejudiced world-travellers have remarked the general air of prosperity which distinguishes an Australian crowd and contrasted it with the haggard, underdeveloped assemblages in countries where climate and condition press upon the masses to a degree which Australians luckily are unable to realize.

The observer who enjoys a run to Manly by moonlight will return impressed.



Surf-Bathing at Manly

Settling himself to comfortable enjoyment, he sees the twinkling shore-lights marking familiar marine suburbs.

Populous North Sydney presents a hillward illumination of street lamps merging into the lights of Neutral Bay, Cremorne, and Mosman, each with an efficient ferry service of its own.

On the south side, Elizabeth Bay, Double Bay, Rose Bay follow one another with decreasing radiance. Rapidly moving lights on the dark hills beyond mark the electric trams *en route* to Vaucluse and Watson's Bay, served also by frequent ferries. From the cliffs over Watson's Bay the South Head lighthouse sweeps the night with broad revolving beams, visible for twenty-five miles.

On the south side again he picks up Athol Gardens and Chowder, and rounding Middle Head sees the scattered lights of Balmoral, while before him glows gaily the gaslit Corso and all the brightness of Manly-by-the-Sea.

Passing the moonlit gateway of the Heads, with a darker line of ocean behind it, he feels for a few moments the slow heave of the great

Pacific. Then the double-ended steamer glides into a fine pier, and he is at liberty to go ashore and amuse himself.

The marine suburb, Manly, has overrun a neck of land separating the Harbor from the Pacific. A glorious arc of golden sand forms its ocean frontage, which has become one of the most popular surf-bathing resorts around Sydney.

During the last decade surf-bathing has grown generally popular. The results among a rising generation are brown, healthy bodies and a brighter outlook on life. Youths no longer congregate at street corners. They are to be seen on the beaches enjoying the surf, finding a vent for surplus vitality in healthy exercises among invigorating sea-breezes.

Manly is proud of its progress. It is doubtless the fairest and brightest seaside resort on the shores of the Pacific. As a residential suburb its popularity has led at times to a house famine, and the values of its real estate are a steadily-ascending quantity.

The stranger will stroll quietly down the Corso. Along a busy avenue leading from pier

to ocean beach, people are walking, bare-headed for the most part. Many are either going to or returning from a cooling-off in those slowly breaking waters, from which one emerges as from a Fountain of Youth. The chronic surfers are happy beings. Great health is within them, and the deepening brownness of the skin a constant delight. One can pick out "beach girls" from their paler sisters, who lessen in numbers each year, for this surf-bathing is likely to become as popular in Sydney as it is in Polynesia.

Having found the Esplanade, our stranger will also find an easy-chair provided by a progressive municipality. If not minded to enjoy the exhilarating exercise of a surf bath, he may sit and watch the bathers splashing in the moonlit surf.

Let him realize that all around this wondrous harbor, and on many ocean beaches adjacent, night is musical with the laughter of a pleasure loving and prosperous community.

Amusement is cheap in Sydney; a paternal Government makes every popular resort accessible by train and electric car service, and entrepreneurs lose no opportunity to increase the

dividends of picture shows and other popular entertainments.

The harbor itself is a perpetual attraction. A progressive Harbor Trust neglects neither the useful nor the beautiful in its administration. The government of the harbor is more difficult than the government of a province, but as we have seen, it is satisfactorily carried out nowadays.

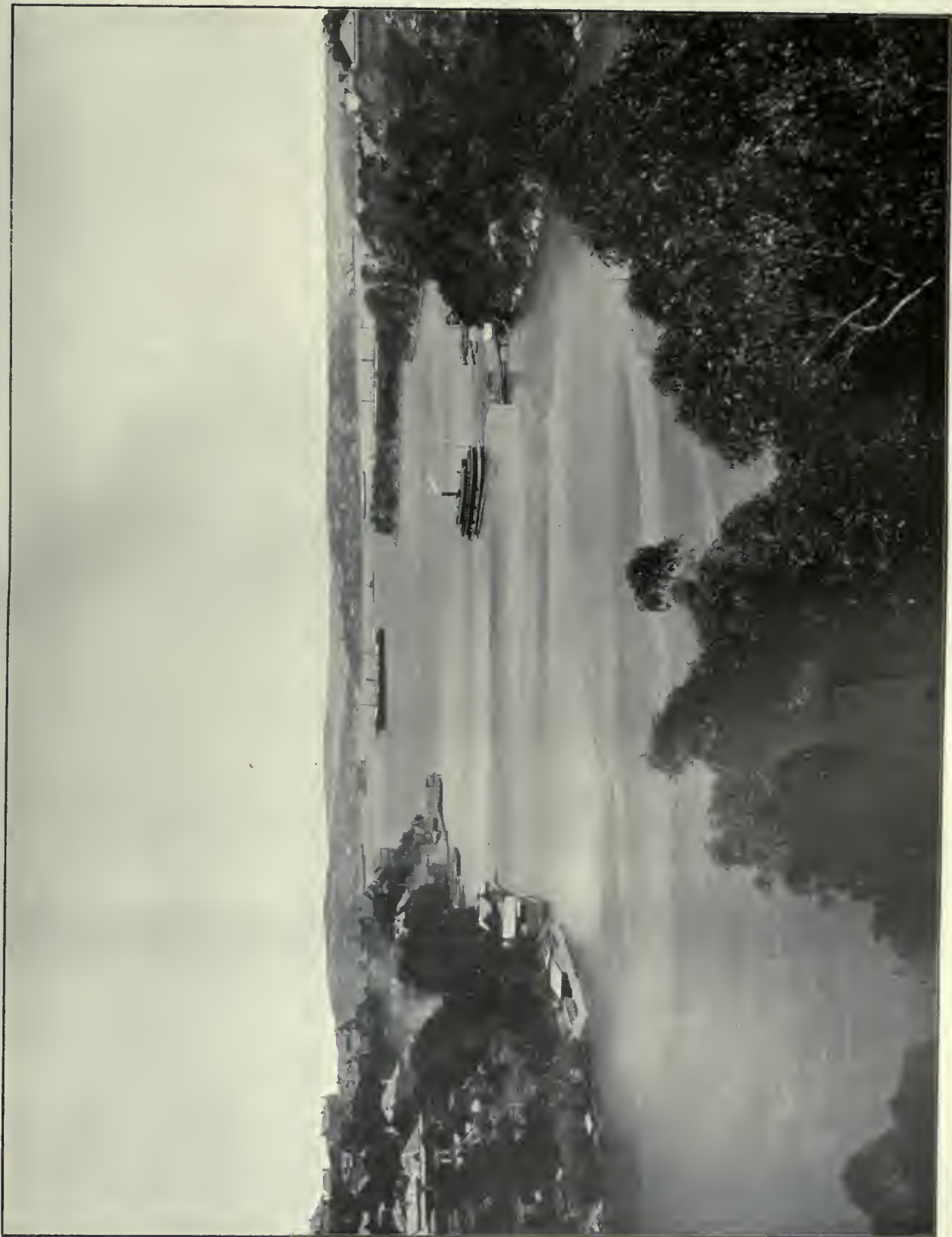
Hulls of commerce move in ordered procession up and down its sunlit waters. At night its silver pathways are crossed and recrossed by hundreds of small crafts. The tired ships come home: the brave ships go out with black smoke-plumes trailing, red and green eyes steadily glaring; but there is no confusion and little noise.

With electric-lit ferry steamers trailing in tortuous courses like fiery caterpillars, blazing quays, colored lamps, harbor lights, and lights of shipping, the harbor, seen from a distance on moonless nights, is even more wonderful.

During summer months Sydney holds constant marine carnival. The nights on the harbor are not the least of its attractions.



Yachting on Sydney Harbor



Mosman Bay, Sydney

NORTH SYDNEY AND BEYOND.

THE City of Sydney grows around the foreshores of Port Jackson like a branching tree on hothouse soil. Its advance in building has been greater during the last decade than that of any modern city. During that period old Sydney has practically disappeared, and a new town sprung into existence. Contours have altered, old landmarks have gone, new suburbs have been called into being and whole areas remodelled and improved.

In buildings of all kinds Sydney spent £6,250,000 in 1912, and well over seven millions in 1913.

On either side the Harbor this rapid growth has gone on. The extraordinary spread of the northern suburbs really meant the creation of another city. At first purely residential, this city of the north side has developed a business section—largely retail—and an activity of its own.

It has a suburban railway system connecting with the Northern Trunk Line at Hornsby and terminating at Milson's Point ferry: so that one may go right around Sydney by train, out by Strathfield Junction, Ryde, Pennant Hills, and back through Pymble, Killara, and Lindfield to the North Shore wharf.

Its connecting ferries give access to the metropolis at thirty different points along that glorious foreshore which extends from the Spit to Parramatta. It has its electric tram system, extending from Curl Curl to Chatswood, connecting up Manly, Mosman, Neutral Bay, Milson's Point, and the Lane Cove.

It enjoys the possession of Middle Harbor and Lane Cove River, two most picturesque assets; and its western slopes extend to the banks of the Parramatta River.

Height and position, with hills overlooking the Harbor, make North Sydney desirable as a site for healthy, breezy homes. Beyond its business streets it is largely a garden city, where the villas and cottages of the great Australian middle classes stand prettily among trees and blooms.

It is a good day's outing to make that loop around Sydney—especially in Spring, when the suburban gardens vie with one another in their displays of choice and beautiful flowers.

One has a choice of transport, but the way by road and car is certainly most enjoyable.

We will undertake another of these little jaunts which leave visitors with pleasant pictures to bear away in memory when they leave Sydney.

Our way is by the old Parramatta Road, where coaches and bullock-drays toiled in our grandfathers' days. It is crowded now with electric cars and automobiles. We take the turn-off to Gladesville and cross the Parramatta river by a long iron swing-bridge.

Comfortable villas, whose green lawns slope gently to the waterside, blue and silver bays, orchards, sparkling reaches, with a low-funnelled ferry flitting backwards and forwards to the landing-places, red tiles amid green foliage, patches of eucalyptus and a road winding around the inlets—flash past like pictures on a screen.

Hunter's Hill, standing between the Parramatta and Lane Cove rivers, presents its gardens. As we cross the heights along the road to Pymble



In George Street, Sydney

these flower gardens give place to orchards smothered in pink and white blossom. The air is heavy with scent of flowers. As we look back through openings in patches of tall, straight bush timber we get charming panoramic views of Sydney. We can pick out familiar suburbs and, beyond the crowded parts of the metropolis, behold sapphire seas and emerald fields. To the westward stand the mountains, blue ramparts indefinitely outlined through a soft haze.

The road to Pennant Hills is just a succession of picturesque ups and downs through forest and clearing and the rapidly-extending suburbs of the North Shore line.

At Pennant Hills we touch the edges of the old Parramatta orange-groves, somewhat fallen back these last few years.

This is a romantic country, full of old Colonial homes surrounded by delightful gardens, where grey old men and women sit in easy chairs, with historic tales to tell.

Here wild roses bloom along weather-stained fences, and English oaks make green contrast with less vivid Australian foliage.

Years ago Parramatta oranges were considered the finest in Australia; but the opening of inland districts for citrus culture has put them in the shade.

We turn northward again from Pennant Hills into the sandstone country beyond Hornsby and enter the Kuring-gai Chase, dedicated as a

National Park for North Sydney in 1894, and embracing 35,300 acres.

Kuring-gai Chase has a full frontage to both sides of Cowan Creek, from the head of tidal water to its outlet in the Hawkesbury River, and it runs eastward to Pittwater.

The Park has been left largely in its native state save for the cutting of roads over steep hills and across steeper gullies to points of interest.

The track into Cowan follows a sandstone gorge, which, in its primitive ruggedness, will give the stranger an idea of the Lower Hawkesbury country.

As it winds along the face of the gorge, falling rapidly lower, the landlocked waters of Cowan come into view. They make an ideal fishing and boating resort.

The N.S.W. Government Tourist Bureau is responsible for the statement that—

“Both in Cowan Creek and Pittwater, fish of all kinds are plentiful—snapper, black bream, whiting, flathead, and flounder are to be caught, and in fine weather, by taking the launch from Pittwater, an excellent day’s sport is obtainable on the deep-sea fishing-grounds off Barrenjoey. The Cowan Creek oysters have a firmly-established reputation amongst the visitors to the “Chase.”



Kuring-Gai Chase



Hawkesbury River at Newport

This testimonial applies pretty generally to the Hawkesbury, which has been the base for many a joyous fishing camp.

The Hawkesbury rock oyster has a flavor which would have inspired a Roman bard. Fried, curried, stewed, devilled or raw, this eternally popular shell-fish retains its hold on the taste of a fickle public. Politicians may come and go, governments may change, star artistes dim and fade—but the Hawkesbury oyster still clings firmly to the favor of festive Sydney.

Fishing, house-boating and scenery attract many people to Kuring-gai Chase.

All Australian Governments in the matter of national sport and amusements diffuse a spirit similar to that which animated Cheeryble Brothers. The N.S.W. Government, as befits the oldest and richest State, is specially paternal in its attitude. So we find the Tourist Bureau arranging cheap fares and facilities for pleasure-seekers to visit all parts of picturesque New South Wales.

One need never be at a loss in Sydney, for an inexpensive day's outing—the difficulty is to make a choice among the long list of delightful trips on offer.

To exploit all the attractions of Kuring-gai Chase would require a fortnight at least.

We leave Cowan with placid, land-locked waters o'ershadowed by hills, and climb again to the opposite summit of Bobbin Head.

The indented bays and long, winding, salt-water arms of Cowan fading away behind us, we turn out of the Wahroonga Park and pick up the Newport Road.

This carries us over some broken sandstone, until, reaching the top of Foley's Hill, we see beneath us the blue reaches of romantic Pittwater spreading north to Broken Bay and Newport, while Rocklily, Narrabeen and Curl Curl follow one another down the coast to Manly and Port Jackson.

It is a delicious bit of hazy coast with beach and foreland and shallow lagoon to vary its beauty.

Here Youth and Pleasure may dawdle the halcyon hours away. Soft Pacific breezes, golden sands, good hotels, a shade of sheoaks and the cool surf bring much summer patronage to this series of seaside places. The pleasant road takes us across the mouth of Narrabeen Lagoon and through Curl Curl to Manly. It is a lotos land where one might sit facing the bluest of seas and dream forever, were it not for the thorn of duties unfulfilled.

From Manly to the Spit, and thence to MacMahon's Point by the ferry, and we are still in dream country. Each fresh hilltop brings into view some new panorama, with little marine corners and backgrounds. We get glimpses of the harbor and the ocean, a stretch of city roofs, the red tiles of residential suburbs, green squares of public parks, an outline of some prominent building in miniature, or a familiar tower or spire. From the heights of North Sydney we command the great Southern city, which glows in the glory of a sunset which is beyond Art.

Mosman, Cremorne, Neutral, throw each a picture on the screen as we glide along towards the punt at MacMahon's Point.

The perversity of human affairs will naturally cause us to get to the wharf just as the ferry is starting out into the stream.

We fill in the wait by watching dusk creeping over the town. As the electric switches summon their currents from scores of dynamos, the ferry steamers are lit in quick flashes, their grey masses changing from inchoate shapes in an instant to illuminated moving hulls. They glow like mushrooms suddenly displaying their phosphorescent lights through darkness.

An interstate steamer of ten thousand tons leaves her berth and swings into the fairway. Her siren hoots horrid warnings at lesser craft that dare to cross her path.

A yacht-nosed China steamer creeps cautiously up stream, leaving behind her a whiff of Asiatic cookery.

The spires, and stacks, and domes of the greatest city in the South are slowly fading into curling smoke and overhanging haze.



Tea Gardens, Como



The Empire Falls, Blue Mountains



A Trout Stream in the Australian Alps

PICTURESQUE NEW SOUTH WALES.

THE exile to New South Wales of a hundred and twenty years ago wearied under a loneliness as intense as the future navigator of space may some day feel when his ether-ship is wrecked on a distant planet from which there is no recall.

He perceived no beauty in a land which from Gabo to the Tweed is wooing the tourist to-day with a thousand siren songs.

To the eternal greenness of Australian trees a century of settlement has added the charm of alternate cultivation and pasture. Foliage and flowers of Europe flourish in village and clearing, cereals of Europe ripen in the paddocks. In various climates, north and south, along this glorious coastland, suitable agricultural products and fruits have been introduced from all over the world.

It is pleasant to see the peach-blossoms in young orchards, with dark forest-clad hills behind them.

It is pleasant to watch sugar-cane waving on the black flats of Richmond River. To view beyond them Australian hills with patches of jungle, still holding wild figs and ripened cabbage-palm fruit for flock pigeons as they fly south in early summer.

Pleasant is the fertile Hunter Valley with its historic recollections.

Pleasant, too, are the green maize fields of Cambewarra, and the lucerne paddocks of Bega in the south.

From Sydney, beautiful modern Sydney, home of progress, pleasure and hospitality, stranger, tourist, holiday-maker or student can label his luggage for hundreds of places of interest near and far.

Let us put care and statistics equally aside, and go on a short preliminary journey:—

Sir and Madam,—We have brought to the door of your excellent Sydney hotel a comfortable motor-car.

Strapped to the footboard is a corpulent hamper. It contains a chicken fattened at Prospect Hill; ham cured on the South Coast; bread made from Cootamundra wheat; fruit from Parramatta orchards, and, if you are not an abstainer, a bottle of good red wine from the vineyards of the Hunter River.

The contents of our basket will reflect no discredit on the Mother State. They are all of first quality and flavor.

The summer morning is cloudless. Skies and seas are both wearing sunlit blue robes. With the softest of south winds blowing in our faces we will depart by the Illawarra road.

In the neighbourhood of Cook's River we will see some old-fashioned homes, dating back to days when the gentlemen of Sydney wore shoe-buckles and slipped loaded pistols into their holsters ere they went a-riding along this old highway.

A fleeting flash of blue waters—that is Botany Bay, where Cook landed one historic autumn afternoon from his cat-built bark of 368 tons.

A large flat rock under the jetty at Kurnell is pointed out as the exact spot where the Commander first put his foot on Australian soil.

We leave the Botany Bay resorts, Brighton-le-Sands, Sans Souci and Sandringham; on the left hand, and run down by a well-travelled road to Tom Ugly's Point, where a punt conveys us across George's River, an arm of Botany Bay.

Further up is Como, where the Illawarra railway crosses this picturesque saltwater estuary.

Everywhere around Sydney delightful little marine resorts throw out appealing vistas of wave and sand. No city in the world, mayhap, can offer so many natural attractions. The wonder is that Sydney people are so energetic with such



Fairy Dell Falls, Blue Mountains

The New South Wales Government has a reserve of 248 acres around the landing-place, which is dedicated to the people for all time.

It is a good place for school picnics, where young Australia, tired of play, can lounge on grassy slopes with the wide Pacific before them, and dream of national destiny.

The Government Tourist Bureau at Challis House, Sydney, has a standing offer before teachers to arrange trips for school children at all times in parties of 50 or more. On these occasions special trams are provided *via* Botany or La Perouse, and special steamers convey the children across the Bay.

constant lotos-calls in their ears, so many alluring pictures before their eyes.

All punts in New South Wales are Government, and free. Undelayed by any collector of tolls we roll on over a gravelly road bordered by heath, tea-tree, and wattle. We pass Sutherland, whence a tramway conveys surf-bathers and fishermen to Cronulla, a bathing beach lying like a silver half moon slightly south of Cape Solander.

We will remember that Cook called the north headland of Botany Bay, Cape Banks, and the south headland Cape Solander, after the two prominent scientists who accompanied him in the



The Weeping Rock, Wentworth Falls, Blue Mountains



The Waratah

“cat bark” *Endeavour*—long since gone to her grave in the mud of Newport, Rhode Island, U.S.A.

From Loftus a branch line of the Illawarra railway runs down to National Park.

Sydney is rich in parks. She has the beautiful Centennial right at her doors, Kuring-gai Chase on the north side of the metropolis, and National Park on the south. These three cover

the largest areas, but there are scores of smaller parks, gardens, and reserves scattered through city and suburbs.

The National Park is 18 miles from town. It has an area of 36,300 acres, with a frontage to the Pacific Ocean of $7\frac{1}{2}$ miles—a liberal provision for the health and pleasure of Sydney people. It is mostly plateau, 300 to 500 feet high, indented by the waters of Port Hacking, full of rugged natural beauty, deep glens, rocky gorges, caverns, cascades, green fernery, palm trees and native vegetation.

Those wild flowers which grow in such abundance along this coast, and particularly in the sandstone belt between Woy Woy and Waterfall, here englamor the flowering months of the year with color.

In Spring the delicate *Tecoma australis* hangs out its purple-tipped ivory bells among masses of its own green leaves, with which it has arched and hooded other native trees and shrubs.

It vies with the starry clematis for supremacy among the climbing vines of the Bush.

Here white flannel flowers, with green centres, blooming in crevasses of the rocks, remind Alpine travellers of the edelweiss. Labillardiere, the famous French botanist, found the flannel flower growing on the eastern coast early in the nineteenth century, and labelled it *Actinotus Helianthi*. It belongs to the Umbelliferae, and despite popular belief, is not closely allied to the true edelweiss.

Occasionally the hill tops blaze with scarlet native tulip, and that regal *Telopea speciosissima*, the Waratah, national flower of New South Wales; now cultivated in gardens, and freely depicted in wood and iron, pottery, stained glass and stone by patriotic Australian designers.



Flannel Flowers



In National Park, near Sydney

In marshy places, from August to March, the "Christmas bells" (*Blandfordia nobilis*) droop scarlet and golden bugles from slender, sappy stems.

Along the banks of creeks scarlet banksias toss in the wind their silky plumes like "pompoms" in the shakos of marching grenadiers.

Many varieties of *Acacia* pour out from golden treasures their bounteous perfumes.

work and worry in various pleasant amusements. Port Hacking River is also one of the many good fishing grounds along the eastern coast.

The road onward from National Park through Heathcote and Waterfall is for a time uninteresting. Once or twice it opens a vista of hazy hills and distant sea.

Then comes Helensburgh, a busy little town centred round a colliery.



Bulli Pass, Illawarra District

In this National Park one also finds the yellow heath-leaved *Dillwynia*, the graceful *Epacris longiflora* (the crimson and white native fuchsia so dear to lovers of Australian wildflowers), the honey flower (*Lambertia formosa*), the pink *Boronia pinnata*, the darker colored *Boronia serulata*, popularly known as the "Native Rose," and, lending scarlet contrast to the white-flowered eucalypti, the dainty Christmas Bush so beloved of sunny Sydney.

In the National Park are rest houses for visitors, boatsheds and a Government accommodation house, much patronized by week-enders who can fill their lungs with air doubly sweetened by odoriferous forest and open sea, while they forget

One of the greatest coal fields in the world is tapped here. It extends from Newcastle to Wollongong. Sydney is built over it, and all the towns between.

The railway line goes down by cliff and cutting and tunnel through Stanwell Park—a seaside corner of great beauty, with green waving palms and golden beaches—and Otford.

Beyond Otford the railway traveller is treated to one of those transformation scenes in which Australian Nature achieves effect by sudden contrast.

The train emerges from the darkness of the last long, tedious tunnel; swings round a sharp curve, and discloses a magnificent panorama of



Christmas Bells

cliff and sea on one hand, with the jungle-covered ramparts of Illawarra mountains towering up on the other.

These ranges guard the richness of the South Coast; they stand like a wall between it and the rest of the State.

The next stage of our car journey from Helensburgh, across the fringe of a sandstone plateau, brings us to Bulli Pass.

In an instant the whole scene before us has undergone a magical change. We have been travelling over a rather barren country for some miles, covered with marsh and stunted eucalyptus.

As the car stops we find the land falling away a full five hundred feet. We are looking down now upon a sunlit coastland rolling out in indescribable beauty as far as our eyes can see.

Over the edge of the precipice, right beneath us, is a sub-tropical jungle, vividly green except where a flame tree thrusts its lighted torch through arches of matted vines.

This "brush" at the foot of the Bulli Pass once extended far to the southward, an unbroken forest of beautiful vegetation; but the land was too rich to remain a forest for long—except along the mountain sides, it has been cleared and converted into pastures.

There is a peculiar romantic air over Illawarra. Standing here on the edge of the mountain wall, we look down upon a land of seeming enchantment.

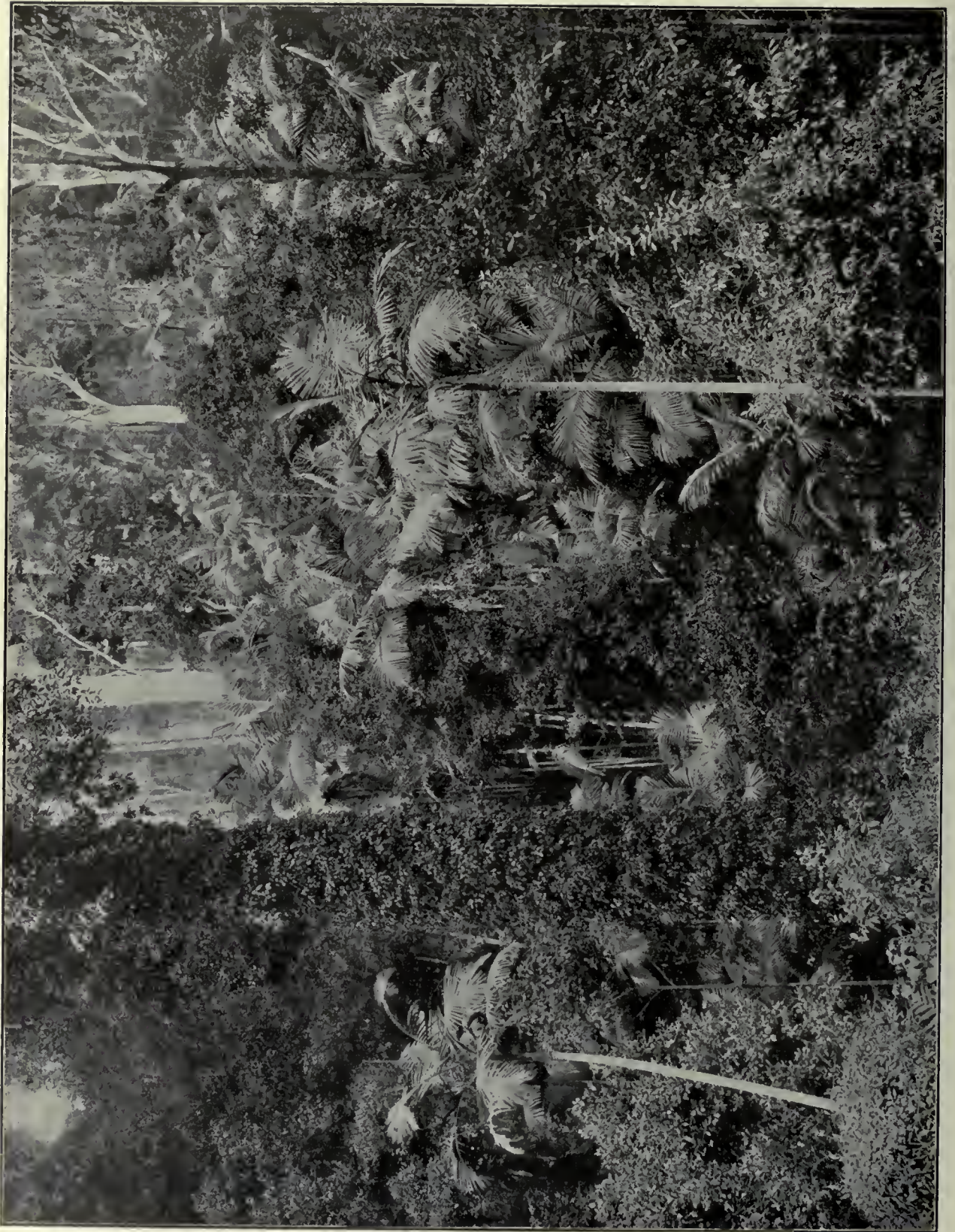
It is as still as a picture; so filled with the happiness of a good dream, so flooded with translucent sunlight that it brings to your heart a sense of eternal well-being. Nor doubt nor dread are with you. Your soul has been sprayed by a jet from some heavenly fountain; surely there is neither death nor sorrow in the world, nor any ending but beauty and content eternal!

Over all the world you cannot look down upon a fairer land than that which lies in emerald and azure at your feet.

Yonder spreads the noble Pacific, that Cook and Carteret sailed, that Balbao saluted triumphant from his peak in Darien.

Chapters from its splendid story run through your mind, the Easter Islanders building their colossi, the sweep of the war canoes, the smoke of gunpowder darkening the sky line where Captain Tom Cavendish is pounding the sides of the Manila galleon; Pizarro bearing south to Peru; Torres at the helm, Tasman pacing his high Dutch poop; the old wooden clippers bearing up for Sydney town—all the romance of trade and discovery. In the curves of golden beaches, lazy Pacific rollers are breaking—too far away to hear the sound of white surf. Down a green strip of coast—mountains on one side, and ocean on the other—the little coal towns follow one another; groups of toy houses in squares they seem from this height and distance.

Below Wollongong, Lake Illawarra glistens, and beyond that the green farms of Kiama.



Bangalow Palms

We can picnic in a comfortable shade with all this before us.

Below the Lookout the road dips steeply into the jungle—a mountain road overhung by tree-fern and vine.

Half-way down is a magnificent Illawarra fig tree festooned with creepers, climbing ferns, and epiphytal orchids.

The jungles are carpeted with maiden-hair ferns and mosses; sweet with the odour of mountain musk.

Our homeward journey takes us past the Loddon Falls, by another road, and on to the quaint little village of Appin, where briar roses and alders grow around shingled houses of the old colonial time.

When coaches ran overland from Campbelltown to Bulli, sixty or seventy years ago, Appin was a place of importance. Now it is only among the aged cypress trees in the little Appin cemetery

that we can find memorials of the Old Colonial Days that are no more.

From Appin to Campbelltown is by another romantic road, through long avenues of straight young eucalypti, by many an old farm house, over many a hill top from whose summit one sees—behind a foreground of green pastures—the Blue Mountains in the distance.

At Campbelltown the Appin road junctions with the southern road that took the overlanders to Melbourne when the Victorian diggings broke out. Many a good man went down that road with his swag on his back, and came back on the box seats of Cobb and Co.'s coaches—his fortune made.

It is a road with historic memories. By it we run smoothly into the sleepy town of Liverpool, over Prospect Creek by one of Governor Macquarie's stone bridges, through Bankstown and the western suburbs back to town.



A Mountain Road



MOUNT KOSCIUSKO.

THE geologist says Mount Kosciusko is the oldest mountain in the world; that it was at one time twice as high as it is now; that it presents features of interest entirely apart from the rules and regulations of the Alpine Club.

The N.S.W. Immigration and Tourist Bureau—a national institution where officials are trained in the virtues of patience and courtesy—regards Mount Kosciusko as one of its leading attractions.

Government has spared no expense in making it comfortably accessible for both summer and winter visitors.

Like many other things, evolution of Alpine sport in Monaro has been a slow process.

Most people still believe that Australia is a universally hot country. They cannot realize that ice-skating, ski-running, tobogganing, and the snow sports of the Northern Hemisphere, are possible over some hundreds of square miles of this Continent.

Mount Kosciusko (7,328 feet) is the highest point in the Commonwealth; but it is only a hump in a mighty chain. At a distance it appears, to the casual eye, no higher than the mountains which surround it.

Beginning in low hills not far from the Gulf of Carpentaria, this great dividing chain runs across three States, growing in height and bulk as it comes southward.

Like the trunks and roots of a colossal tree, its greatest strength is at its base.

Let us go down to Monaro and have a look at the oldest mountain in the world. Its ancient head was whitened with snows of immemorial winters (or burned with the fierce heat of tropical summers) before Cotopaxi or Popocatepetl were born. The giant summits of Europe were squalling volcanic babies long after it had reached mountain adolescence. In seniority it ranks older than Caucasus, Andes or Alps.

With white head bowed beneath a burden of unthinkable Time, it commands the respect due to the patriarch peak of a planet on which man is but a recent occurrence.

* * * *

Under the arched roof of the finest railway depot yet constructed in the Southern Hemisphere, at one of the many long platforms, a heavy engine is just coupling to its train of cars. It is 8.15 of a winter's evening, and the Cooma Express is timed to leave Sydney's Central Station in ten minutes.

The passengers carry heavy overcoats, rugs, and furs; their long night's journey will be for the most part through snow-covered mountains. The carriages are all amply provided with foot-warmers, the sleeping-berths with extra rugs.

The train is bearing a team of Monaro footballers home, and a team of Sydney tennis players is going down to compete with Cooma. Other passengers are carrying golf sticks and guncases.

Again the "Melancholy Australian" is nowhere visible. Mayhap he is away somewhere reading about the "weird expectancy" of the Bush.

As the train pulls out there are cheers, good-byes, and a chorus. The best thing is to get to bed early. The chronic traveller will sleep comfortably in his berth and waken fresh for morning tea. On rising, he finds the water in the ewers at the end of the car quite icy. The train is

breezy motor journey towards the higher mountains.

He will, perchance, leave Cooma with the fog blotting out its rather picturesque surroundings, and see nothing of interest until his car tops the first rise southward of the town.

Then noiselessly, magically, the car glides out of the fog into brilliant sunlight, and there breaks before his vision a scene he is not likely to forget.



Picnic on the Snowy River

running through a thick fog. Cooma is wrapped in a grey blanket, so he betakes himself to the fire on reaching his hotel.

They give you good thick steaks in Cooma, hot buttered toast, fresh eggs, and tea with cream. It is a town of nearly 3,000 people, the capital of a well-watered mountain country mostly held in large pastoral areas. The soils are black and fertile. They grow rye, oats, lucerne and European fruits to perfection. Monaro sheep, horses and cattle are among the best in Australia.

Having laid in a good breakfast, the Kosciusko tripper wraps himself in a heavy overcoat, covers his ears carefully, rolls his travelling rug tightly around his knees and prepares himself for a cool

As if some genius had drawn a curtain aside and disclosed an enchanted picture, he sees the road winding ahead through a landscape of rocky hills and grassy plains crossed by running streams.

In the far distance, the spotless ranges—which claim his vision most—stand all dazzling white with snow. Against the cloudless skies he sees them rising and falling—an ivory sea from which arise in clearest contours, white peaks, like islands of alabaster.

There lies the Australian Birthplace of the Snows; there stand the Frozen Mountains where the winding Murray and the beautiful Snowy Rivers have their chill beginnings. The Murray,



Jindabyne, on the Snowy River

daughter of snows, who, having wedded herself to the waters of the sun, pours out her flood at last into the Southern Ocean; the Snowy which sweeps through the fastnesses of Eastern Gippsland and springs to meet her lord the Pacific across the sands at Marlo Bar.

This coming in a second out of dense fog into cloudless sunlight, takes the traveller's breath away. If he hails from warmer latitudes and this is his first sight of snow-capped mountains, the sensation will be all the more vivid for its suddenness.

Whether the opening out of this wonderful view is sudden or comes with due preparation, it cannot fail to impress and delight all those who are fortunate enough to make this journey in winter.

The road onward to the Creel is full of pleasing pictures.

The plains of Monaro, strewn in places with granite boulders stained by Time, are swept by clean, cold, health-giving winds.

The people one meets are finely developed. The tall daughters of Monaro are renowned for their fresh complexions and splendid figures, and the riders of Monaro are celebrated for their daring horsemanship. They are, in fact, a race of mountaineers of the very finest type.

On green herbage by snow-fed creeks, shaggy cattle are grazing. Willow and poplar are familiar features of the landscape. From old shingle-roofs stone chimneys carry off the smoke of fierce house-fires made up of logs piled in tremendous fireplaces below.

The air of winter is nippy even at midday, when the sun is shining. The summer nights are cool, and frosts occur at unexpected times.

The road passes through the village of Jindabyne, across the rapid Snowy, and over the singing Thredbo to the Creel.

Here the traveller is refreshed with a good hot meal, and, leaving the black alluvial flats and lower slopes of Monaro Mountains behind, begins to climb by wooded hills and ridges towards that distant snow that he saw shimmering on the skyline many miles away.

In summer the Creel is a biding-place for trout fishermen. In these snow-fed rivers the speckled and brown trout increase and multiply with a rapidity unknown to their native waters in the Northern Hemisphere.

It is a curious fact that the blessings and pests of other lands spread beyond all precedent in Australia.

In winter the motor services end at the Creel. Passengers are conveyed over the remaining nine miles to the Hotel Kosciusko by coach.

The road is constantly up-hill by an easy gradient.

Slowly climbing towards the Roof of Australia the traveller looks down at certain points to see the road by which he travelled from Cooma winding away over river and plain behind him. The vegetation begins to alter in character. Black wattles and snow gums appear, the trees are stunted, there is more dead timber, and now comes the snow.

First there are small light patches, lingering in shady places, on the trunks of prostrate eucalypti.

As the track ascends to higher altitudes, these patches grow larger and more frequent. Springs of water oozing out through the earth are surrounded by thin ice and small stalactites.

Gradually the whole forest grows whiter, whiter still, until at last the coach reaches a point where every tree and bush is mantled. The entire landscape has been transformed. Frequent creeks splash their steep courses through

rearèd driver holding his reins firmly in mittened hands.

The last dwelling on the road is a Government camp, where provisions and stimulants are kept for travellers in case of accident. This leaves the Hotel Kosciusko and Betts Camp (half-way between it and the summit) to house the only inhabitants of all this vast winter region. The rest is primal Nature and perhaps a solitary



Ski-Runners at Hotel Kosciusko

arches of glittering ice: long icicles depend from the bushes by which they are overhung, sheets of ice gleam around the snow-covered boulders of their winding beds, ice crystals cling to the sedges—the ways of these mountain waters have become crystalline and cold!

Snow dazzles unaccustomed eyes with its sunlit brilliance. The rocky hillsides are covered, save for a few damp patches here and there; the treeless ranges beyond are robed in immaculate white.

The road itself is covered over now with half-frozen and re-frozen snow. Mountain-bred horses place their feet carefully, a mountain-

“hatters” camp. Summer for a few brief months will cover the snow-covered slopes of these mountains with beautiful wild flowers and convert the gullies and flats into pastures. Sheepmen will bring up their flocks to fatten on the summer feed and, for a season, the summit of Kosciusko will be accessible to tourists in motors.

But now, and for months to come, the mountain and the mountains beyond it away to the Victorian Alps stand silent, white, and lone. An adventurer on snow shoes may make a dash for the summit of Kosciusko, using Betts Camp as his base, but the great white hills that surround it.

and extend beyond it to the southward, will sleep under uncrumpled sheets until December suns awaken them.

The last mile or more of road is marked out by tall posts to prevent coaches and travellers from floundering into snow drifts. A gang of men is kept to clear the track with snow ploughs after sudden falls.



A Dog Sled, Kosciusko

At length, feeling colder than he has ever felt before, perchance, the traveller sees the welcome chimneys, roofs and gables of the two-storied Hotel Kosciusko with its lakelet frozen over at the foot of the slope, and the mountain hunching up behind it.

The Government of New South Wales has spent many thousands here. The chateau—as it should be called—is splendidly appointed, and its capable manager, overlord as he is of a little isolated world in the snow—rules his dominion capably and well. The chef is a genius, the hotel service is excellently organised, the establishment heated throughout by steam, the rooms electrically lit and supplied with hot and cold water; the lounge, billiard, dining, smoking, music and ball rooms equal those of the best Alpine hotels.

Six thousand feet above sea level, surrounded by brooding mountains older than the Himalayas, the guest may now settle down comfortably to the

enjoyments which a paternal management has in store for him.

Resting after his sixteen hours of travel from Sydney, he looks out from a world of new and modern appointment upon a world old when Alpine Europe was hardly settled on its bases.

Sixteen miles further on, the wrinkled forehead of Kosciusko is bared to catch the last beams of a wintry sun. Below him, on the frozen lakelet, skaters, aglow with pleasant exercise, are edging appetites for dinner.

The chateau is built of Monaro granite. In this climate the fireplace assumes a greater importance than in other parts of Australia. The fireplaces of the chateau are arched with rough-hewn blocks of solid stone. During the long frozen months, their red hearths will devour huge reserves of firewood heaped outside.

From Toowoomba, in Queensland, to Walthalla, in Victoria, the wood pile is a prominent feature of mountain homes.

These People of the Snows are hardy and happy looking. Nowhere is the air purer or more exhilarating. Summer and winter alike it is a veritable source of energy, a constant stimulation that carries no reaction.

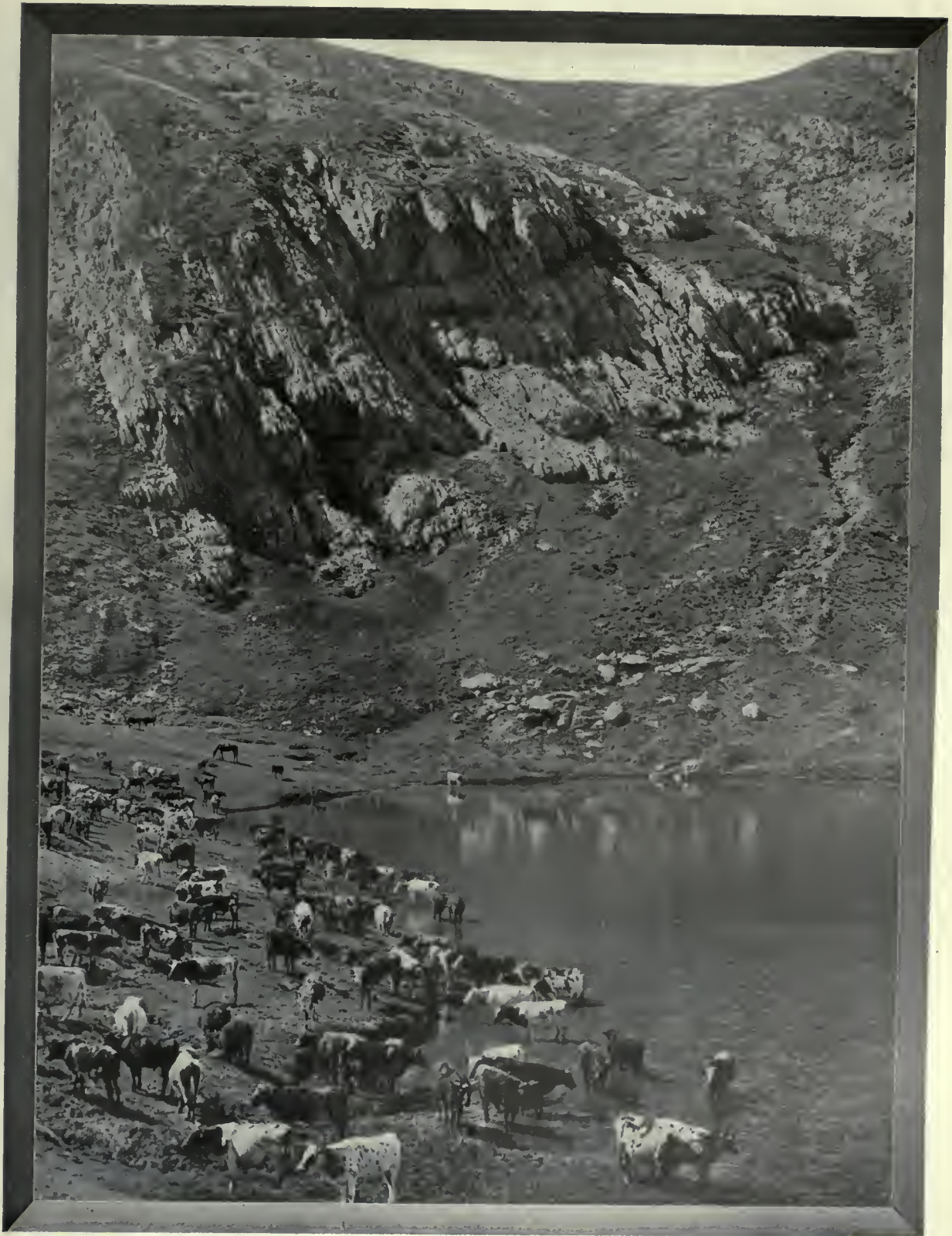
Over the little valley in which the Hotel Kosciusko stands there is a hill which the manager has called "Alpine View."

With a pair of gum boots on his feet and an alpenstock in his hand, the visitor is counselled to make the ascent after breakfast.

From a natural platform on the tall granite rock that crowns this hill, the view will be full repayment for his morning climb.

He looks over the valley and sees the vestal ranges sleeping for the winter in long, white nightgowns descending to their feet. He sees the humpbacked mountains of which Kosciusko itself is the highest point. Behind him is the evergreen forest, every tree and bush drooping under its canopy of snow. Dazzling white snow-drifts fill the crevices of the rocks; beneath him, lipped with ice, the creeks wind among their snow-covered boulders, bestowing farewell kisses on these paternal granites before they depart from their birthplaces to the warmer embraces of Gippsland and the Riverine.

There is gold in these creeks. After the spring rains come and meet the snows, an occasional fossicker follows up the streams. They tell you of a hermit who has lived for years in a gully some four miles back from the hotel. Now and again he comes in with his "dust," and takes out a pack-horse laden with provisions. He is content with the ranges for his companions; and the living he makes suffices for him, as for many another solitary throughout the great Australian Bush.



Club Lake, Snowy Mountains

It is safe to say that a majority of native-born Australians have never seen snow. For this reason Kosciusko appeals more strongly to those initiates who behold here the Bush transfigured and supremely beautiful.

For the first time they see those peculiar grey clouds in skies which seem to draw nearer to the earth. Magpies carol in the tree-tops, their sweet melancholy notes heralding a coming change. Then the first driving flakes come floating down through the forest and dancing across the open spaces like white feathers driven by the wind.

The air thickens. The neophyte watches the noiseless flakes descending in myriads, gradually altering the shapes of trees, blotting out the nakedness of the earth and slowly transforming a commonplace everyday landscape into a world of wonder and delight.

Australian snow scenes are especially beautiful from the fact that our forests are evergreen. The bleakness of the European snowscape is absent. The world of Nature takes on a new and delicate beauty, all ruggedness is toned down and the whole effect is delicate and fairylike.

To most people the chief attraction of Mount Kosciusko will be its novel winter amusements.

At the luxurious hotel they may spend a holiday in modern comfort and indulge to the full in snow sports of all descriptions. Ice skating, tobogganing and ski-ing annually bring their devotees from great distances. The Australian need not visit Switzerland nor Scandinavia for these pleasures. He has his own snow season extending from May to September each year.

Ski-riding was freely practised in Monaro before it extended into Europe from the Scandinavian countries. Westward from Kosciusko is Kiandra, the highest town in Australia. It is cut off regularly during the winter, owing to the deep snows which surround it. The connecting roads can only be negotiated on ski. This first led to the development of ski-running; the establishment of a championship course, annual races, and finally an extension of the sport to Kosciusko, which is more accessible.

The skis used in this country are constructed of light and pliable mountain ash, one of our most useful timbers. The ski is a smooth narrow plank $3\frac{1}{2}$ inches to $4\frac{1}{2}$ inches wide, and from seven to nine feet long, about an inch thick in the middle thinning to half an inch at both ends. The front of the ski is turned up. The foot fits through a broad leather band laced over the centre, with the heel left free, or is strapped over the toes and the back of the heels.

Without doubt ski-running, once the art is acquired, ranks among the most pleasurable



The Summit of Mount Kosciusko
(The highest point in Australia)

and healthy sports in the world. One can invest it with considerable excitement also.

The amateur finds that his skis have a devilish habit of going just exactly where he doesn't want them to; but his falls are amusing even to himself, and he naturally escapes unhurt in the soft snow. If he is prepared to cut a few ludicrous capers at first, doesn't mind a few spills, and perseveres, the pleasure he can enjoy afterwards in flying over the polished surface of the earth at express speed, more than compensates for the initial falls and failures. Experts perform some incredible feats on ski. On the steep courses they can get up to automobile speed and negotiate 50-foot flying jumps with confidence and safety.

With ski the whole face of the country can be explored, as far as the explorer cares to go. In winter the summit of Mount Kosciusko may be reached by an expert in this way.

But, for the average tourist, the time for this interesting journey will be summer, when the ascent is made without personal exertion. The Blue Lake and a magnificent panorama of mountain scenery may then be viewed—under a clear sky—with all its sweeping hills and granite monoliths and mighty gorges.

In summer this mountain climate is the most invigorating in Australia. One's sojourn in a land of entrancing beauty and interest is made more pleasant by the splendid health and spirits which arise from the inhalation of dry, pure air impregnated with oxygen.

A summer trip to Kosciusko is a prescription which any patient finds easy to take. It has effected many a cure.



Crescent Head

THE NORTH COAST.

DURING the winter of 1913 the author of *Australia Unlimited* was working southward from Cairns to Stanthorpe via Townsville, Cloncurry, Winton, Longreach, Rockhampton, Roma, and other places on the Queensland map, taking notes for this book.

He had sampled the winter climates of Mount Kosciusko and Cairns, and found them somewhat different. He spent his last really cold day of the year at Stanthorpe—shook hands with the mining warden and his junior on a bleak mountain platform and boarded the Sydney express a little before sundown on a wintry afternoon in mid-September.

They give you a good meal in the busy refreshment room at Wallangarra, where you leave a comfortable Queensland car for an equally comfortable New South Wales car on a broader gauge line.

The sun had lighted the summits of the last Queensland hills with a wan golden light, but over the border in New South Wales the western skies were filled with a beautiful afterglow. On a pale green background of sky, reddish-black clouds were floating behind the silhouetted gums along the ridges. One of the passengers in the car said, *apropos* of this remarkable effect, which we were watching from the windows, that if a man wanted to enjoy life, artificial life, he should live in Vienna, but if he wanted to be a healthy

man, and live a long time, he must remain in Australia.

It was cold at Tenterfield. The big fireplace in the hotel, packed with blazing logs, reminded us that September and Spring are not synonymous all over the Commonwealth.

Maggies were carolling gaily when the sun rose next morning over that pretty old town, surrounded by its grey New England hills.

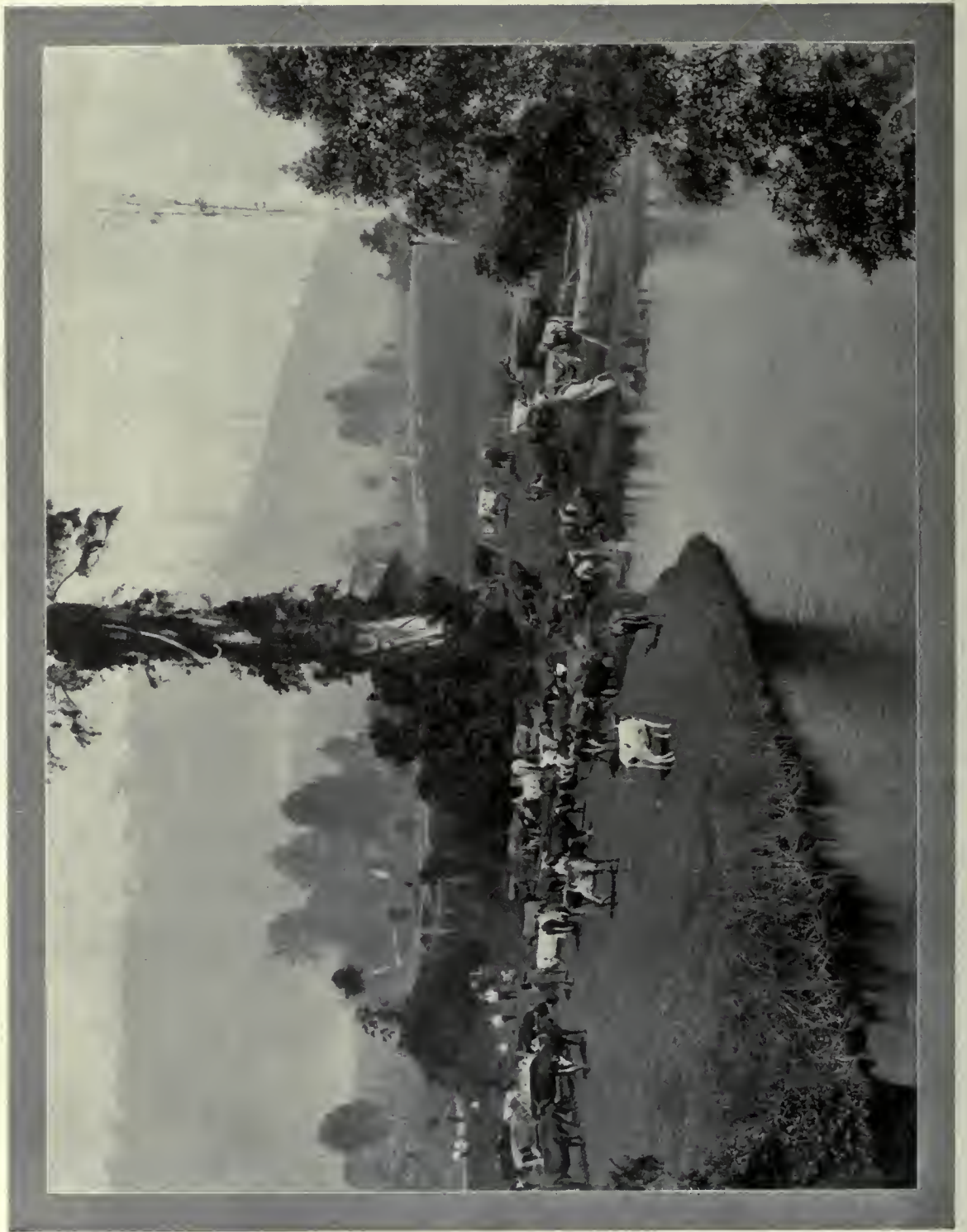
Weeping willows down by the sandy creek swung their drooping branches in response to a morning breeze that blew cold and fresh on the cheek.

Thin mists were clearing over the pine-tops, smoke ascended from the chimneys—it was a bracing day, when we took our seats in the old F.N., with the collars of our overcoats up round our ears and rugs over our knees.

We swung out cheerily on the main coach road to Lismore, passing fields of barley, potatoes, and other products of colder climates.

In and out of granite hills, where the fine coastal rivers of New South Wales have their beginnings in clear and rapid creeks—we went down to Drake, a cold little mining village. At Tabulam the country opens, and the road crosses the Clarence River by a fine bridge. The Clarence even here is a broad stream.

At Tabulam, before the door of an old-fashioned inn, motors going over the mountains



A Dairy Herd, North Coast District

and motors coming down from the tableland assemble these days for lunch. When the writer caravanned down from the Great Range thirteen years ago there were no motors, and the wearying coach journey from either Tenterfield to Lismore, or Glen Innes to Grafton, occupied a day and a night. The motor accomplishes it in five or six daylight hours. The motor is playing an important part in recent Australian development, and will play a still more important one in the future.

Fat dairy herds and green fields are the features of this prolific country, not one-half so prolific as it will be made in the future after farming men have learned the lesson that is coming to them.

You cannot keep taking everything out of land and not putting anything back. You cannot allow the breed of your stock to deteriorate. You must not sow one kind of fodder grass and expect it to last indefinitely. You must learn to rotate your crops.



A Boat Harbor on the Richmond River

Over beautiful foothills, crowned with tall hoop pine, we travelled into brush lands covered with scented shrubs and tropical jungle growths.

Now and again we passed long bullock-teams laden with smooth, barked pine-logs going to the sawmills at the foot of the ranges.

We had entered a perceptibly warmer atmosphere. Some miles westward from Casino, we struck the outer edges of the dairying districts. It was now typical North Coast. Lush grasses covered the fields, patches of uncleared jungle still remained along the creeks. Frequent swamps, edged with red water-weed, told of a heavy and regular rainfall.

Casino had grown in ten years to a busy little city. We crossed the North Coast railway line, which is being builded in sections to link up Sydney and Brisbane by a coastal route, and turned northward over rich basaltic hills and fine black flats towards Lismore.

We glided into Lismore at nightfall. Twenty years ago this city did not exist. To-day it is one of the brightest, most active and most progressive centres in the Commonwealth. It owes its increasing prosperity mainly to the dairying industry, and for this reason alone the North Coast will do well to carefully consider the best methods of improving and sustaining both pastures and herds.

Paspalum has spelled profits; but the future of paspalum on scrub country is a matter of doubt. Already the fields are becoming matted over with the roots of this valuable grass, and in consequence the rain does not penetrate the soil.

Lismore is a city in which its inhabitants take pardonable pride. It boasts fine buildings, broad streets, good hotels, public institutions, and leads the North Coast.

On the cleared hills beyond Lismore is Wollongbar, the Government Experimental Farm,

situated on typical Big Scrub land. We motored away on a balmy Spring morning towards Ballina, calling in at the farm for an hour or two *en route*.

At one time these enormous far-spreading northern scrubs were regarded as worthless country, except for the cedar which grew in them.

Hardly any productive part of Australia but has, at one time or another, been set down as good for nothing.

The Big Scrub lands are basaltic, red and chocolate, and lighter in color than the volcanic soil of the South Coast, except on the river flats, where black alluvials prevail.

Wollongbar, 273 acres in area, is one of several invaluable demonstration and training farms conducted by the New South Wales Department of Agriculture.

Among many interesting experimental plots at Wollongbar that producing Queensland cattle-cane came under observation. This species of sugar-cane grows 50 to 60 tons to the acre in these coastal districts, and is valuable as a winter feed for stock. It lasts six years.

The manager of Wollongbar opined that the paspalum fields, which have been the mainstay of North Coast dairymen for many years past, will have to be ploughed in the near future. This can be done for £2 an acre with bullocks. Chiefly owing to the falling-off of paspalum, pasture lands which have been sold for as much as £40 an acre can be bought at present for £25.

It should not cost more than £4 to £5 an acre to bring this land back to its original productive value by ploughing, manuring with bonedust, and re-sowing with couch-grass, which will keep the paspalum open when it re-appears.

The weight of opinion seems to be in favor of Rhodes grass as against paspalum for the North Coast in future.

The average dairy farm in the Big Scrub has been from 150 to 200 acres in area, which is far too big. Eighty acres of this country—from which it is possible to get three crops a year with manuring—is more than enough for a holding.

Any man who farms eighty acres of Big Scrub land thoroughly is sure of a handsome living, but genuine farming and land speculation are two different propositions.

Curiously, against established tradition, wheat does well on Wollongbar, and does not suffer from rust.

Experiments at this station have shown that black winter rye will be one of the best growths for the Big Scrub. It is a good cropper, and an effective milk producer, and the district seems to suit it.

Apart from its experiments in grasses and fodders, Wollongbar has accumulated valuable facts

concerning the growth of hemp, fibres, tropical fruits and various economic plants. It is a school of importance for students and dairy farmers who receive as well the benefit of its careful tests with Ayrshires, Jerseys, Guernseys and their crosses.

Leaving Wollongbar we rolled over a good macadamised road through one of the finest dairy districts in the world.

Westward, beyond a wide coastal sweep of hill and dale, loomed the distant ranges from which we had descended the day before.

Their grey granite heights and cold gorges were but a vanishing memory.

All around us glowed sunlit vistas of another land, warmer, more prolific, and pleasanter to the eye.

Here the green sugar-cane rustled, here the air was heavy with a scent of clover. Here the sun glistened on the backs of many a fine dairy herd knee-deep in pasture.

We crossed running creeks, where pittosporum bloomed. We surmounted hills and saw beneath us farm houses standing amid groves of bananas.

We skirted margins of swamps, where purple red-bills, sickle-beaked ibis, and white cranes stalked in search of food.

Spur-wing plover pittered on the flats. Covey quail piped in the long grass, and jacksnipe arrowed across the marshes.

By hill and dale, and pine and palm, we went down from Wollongbar to Wardell—a riverbank township surrounded by a grove of forest oaks—and waited there for the punt to convey us across the Richmond River.

A barge, deeply laden with sugar-cane, was being towed upstream by a noisy asthmatical river tug. The wind ruffled the surface of the river, and far off we could hear a noise of machinery where the juice of the cane was being expressed and converted into good Australian sugar at Broadwater mill.

The ancient puntman brought his craft slowly to the bank. The farmers' carts rattled off and we glided on.

On the opposite side we turned the car northwards in the direction of Woodburn. The road follows the river, and one could not but notice how the water-hyacinth, that bugbear of tropical streams, was spreading on the Richmond.

Large areas of land were still under sugar-cane, despite the profits that dairy-farming has brought northern settlers. It was cutting season. Gangs of white labourers were slashing the jointed stalks with their murderous-looking cane-knives, and heavy draught-horses were drawing trucks laden with cane along the tramlines



A Holiday on Richmond River

that lead from the fields to loading-places on the river bank.

Yesterday it was Australia of the Snows. Today it is Australia of the Sugar Cane. It is always well, when people speak of the Australian climate, to ask which climate they mean!

New South Wales alone has several. The difference between Tenterfield and Woodburn is almost as great as that between Florida and New York.

As we applied thirstily for a cold drink in the bar of the Woodburn inn, where we pulled up for lunch, we might have reflected that ski-ing and ice-skating were still in full swing at Mount Kosciusko.

and potatoes, its excellent bacon and dairy produce.

A prosperous and hospitable population of 50,000 have found a field for their labors between Tabulam and the sea; but the Valley of the Clarence and the country surrounding it would support thousands more.

Some day the output of these coastal districts will mayhap be increased ten-fold under irrigation and intense culture; as it is, they contribute greatly to the wealth of New South Wales. "Timber, Butter, Maize, Gold and Wool"—that is the refrain these river waters sing as they roll towards the Pacific, through an Eldorado of their own.



In the Big Scrub, Richmond River

From Woodburn on the Richmond to Chatsworth on the Clarence, the road runs mainly through fine hardwood forests.

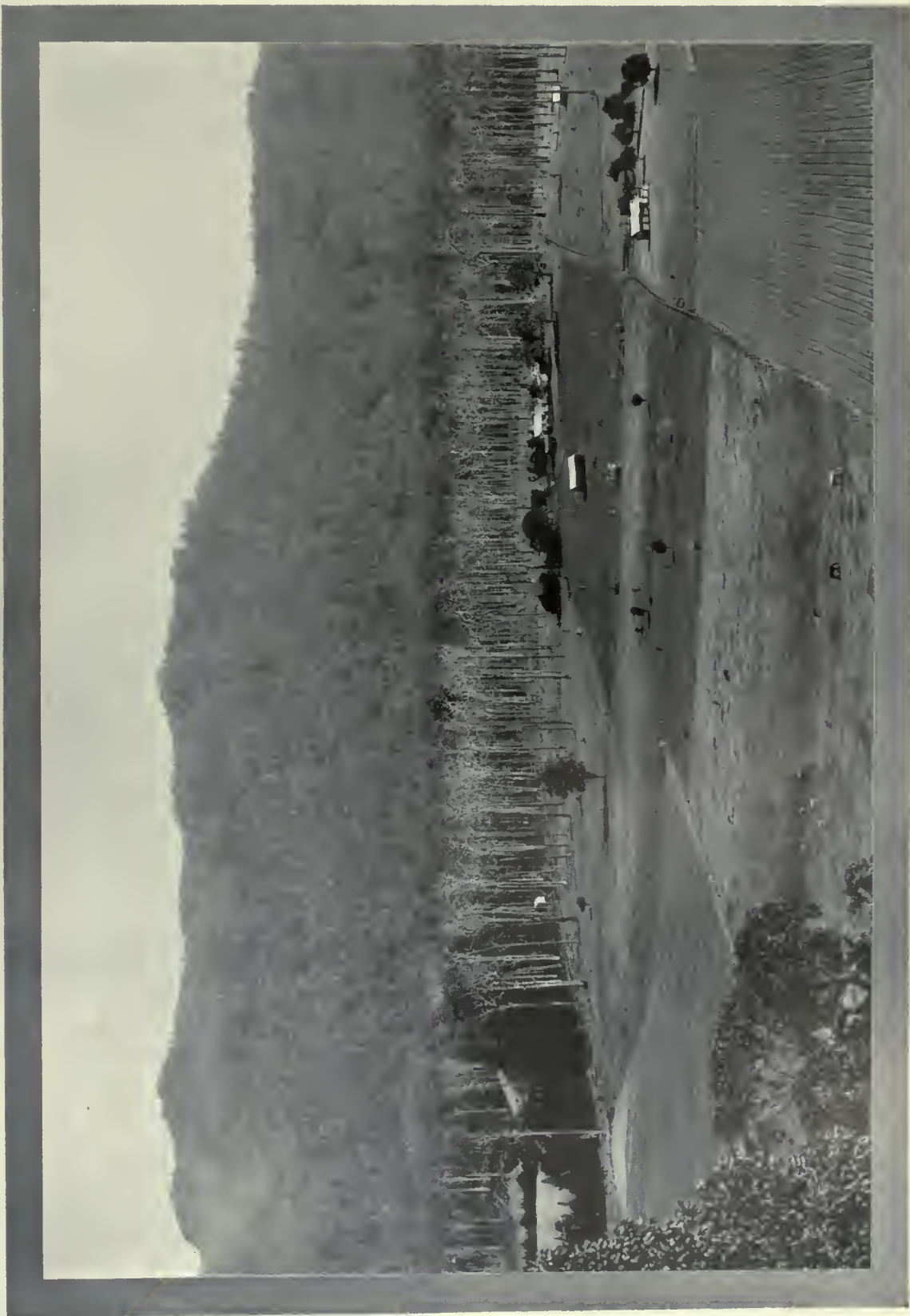
Half-way between these two places is New Italy, where an industrious and thrifty remnant of the Marquis de Rey's ill-starred New Ireland settlement have proved that the Italian makes a good Australian citizen.

From the summit of Marora Hill we looked down upon the Valley of the Clarence, rich and lovely, the home of agricultural wealth and abundance!

This broad majestic river spreads out its many arms and branches through a wide delta of ever-fertile alluvial soil. For more than half a century it has been celebrated for its maize, sugar

The Clarence district has a most interesting history. Its original settlers were largely composed of Scots and Germans, whose descendants are, for the most part, well-to-do farmers and business men.

The Teuton and the Gael have intermarried. Their progeny, born and raised in a land where the sugar cane and the banana flourish, appear to be a healthy type. They are naturally careful and conservative. The banks of Grafton are said to have a bigger average of fixed deposits than those of any other Australian town. Grafton itself is one of the most charming places in the world. Located on a bend in the great river, its broad streets planted with beautiful trees, its gardens ablaze with the flowers of tropical and



‘‘Won from the Jungle.’’ A Farm near Dorrigo

temperate climates, at certain seasons of the year it can only be described as an Eden, not lacking Eve, for it has been named, and fitly—"the City of Fine Trees and Fair Women."

The leafy avenues of Grafton in springtime are rendered glorious by purple jacaranda and golden silky-oak, while here and there a flame-tree blazes like a royal Richelieu among the darker bunya pines and sycamores.

"See Naples and die." Go to Grafton and live. But preferably go not in early summer, when the atmosphere is laden with promise of the rainy season—unless you are used to hot, moist climates.

But go to the Clarence sometime, any time, if you would behold a green gem blazing brightly in the tiara of settlement which this queenly coast so proudly wears.

Go to the Clarence! It is a land of romance, of beauty, of pleasure, and friendship and *laissez faire*. You will have boating and fishing and shooting and moonlight picnics; Scottish gatherings, Burns' nights and Bavarian festivities.

You will hear the skirl of bagpipes in the banana groves; you will eat American ices in Prince Street, and at the farm houses they will give you fresh milk and perhaps passion-fruit and cream.

At least one evening a week the town band will play in public and, perchance, you will attend the annual regatta on the river, or see the Friendly Societies' Demonstration. Most certainly you will go by steamer to Copmanhurst, and behold the upper reaches, and most surely you will go down the river to Ulmarra, where you can almost see the maize growing on flats of incredible richness; to Southgate, where the wharf will be ashine with polished milk-cans; to Lawrence, with water-hyacinth purpling the swamps on its outskirts; to Maclean, the centre of a river district of its own; to Brushgrove, surrounded by dairy farms; to Harwood, where the Colonial Sugar Company has a splendid mill; to Palmer's Island, where the sea-breeze grows fresher but the land is still lush and green; to Iluka, quaint fishing village, with a broad river frontage and an ocean beach across the sands, and finally to Yamba, the watering-place of the Clarence, where you may fish, surf-bathe and cull fat oysters from the training wall—if you wish.

If you are a sportsman you can spend many interesting hours along Carr's Creek, and Allipo Creek, and Alumny Creek, the Coldstream, the South Arm, the Broadwater, and by many other creeks, arms, branches and swamps within the delta of the Clarence.

You may go to Red Rock or Broome's Head for snapper, to Orara for quail, to Lionsville to see gold-mining; to the copper-mines of Cangai,

and to Yugalbar station to see the only Moorish castle in Australia.

Between Copmanhurst and Yamba, a distance of sixty or eighty miles, there are a hundred islands in the river. Many of these are under cultivation; but some have been reserved for recreation grounds, or other purposes.

From the uncleared islands one can get an idea of the magnificent vegetation that covered the banks of the Clarence when the first settlers came there seventy years ago. Grafton was then a cedar brush. Enormous banyans, nettle trees, rosewood tulips, myrtles, silky oaks, and all the growths of a superb jungle covered the site of the present city.

First fortunes were made out of cedar; later money was won and lost in sugar growing; but the permanent stability of the district was finally established on dairy farming.

A healthy rivalry exists between Lismore and Grafton. Lismore, much younger, but flushed with quick success, accuses Grafton of being non-progressive; but the old district is solid, if slow.

There is no poverty on the North, but increasing comfort and every prospect of a bigger future than its oldest inhabitants have yet realized.

Pioneering on the North Coast has never been attended with the doubt and difficulty which had to be met and overcome in less favoured parts of the Commonwealth.

In order that the district may learn more of its present and future possibilities, a paternal Government in Sydney some ten or twelve years ago established an experimental station on the higher lands a few miles north of the city.

As the writer had seen the beginnings of this Government farm in a modest clearing in forest and jungle, it was a decided pleasure to revisit it after a decade.

A marvellous transformation had taken place. Entering the gates of the farm, a magnificent field of *wheat* first met his astonished gaze! The Clarence had never appealed to him, or to the local inhabitants for that matter, as a wheat-growing country; yet, here was a fifty-acre block of "Thew"—a Farrerized wheat—high as the fence and level as a billiard table!

It just happened that the farm contained a patch of red soil on which the management had sown wheat—with results beyond expectation. There was £850 worth of wheaten chaff on that particular block. Higher up the river, the visitor remembered, around Yugalbar, were belts of similar country which will, no doubt, yield similar results.

Grafton Experimental Farm reflects all credit on the New South Wales Department of Agriculture. It would gladden the heart of any good Australian. For, perhaps more than any other

station, it is showing what a catholicity of climate Australia possesses. In what other part of the world do we find wheat and pineapples growing to perfection side by side?

After ten years, the writer of *Australia Unlimited* returned to a spot which he had known as forest and scrub, to find it teeming with production.

Of splendid sheep and pigs, fine dairy cows, and healthy poultry, the Farm has plenty.

But evolution applies to Australian settlement as to other things. The Clarence, young as it is, has had its cedar age, its maize period, its sugar epoch, and now it is enjoying a prosperous dairy farming era.

Its permanent future may be in irrigation with mixed farming, and intensive culture. But it will always be a prosperous, fertile, and beautiful district. . . .



Government Experimental Farm, Grafton

Lucerne, potatoes, maize, bananas, citrus fruits in their several areas, all proclaimed the Clarence to be a land eminently adapted for mixed farming.

Local landowners have not yet seen the necessity for intensive farming on smaller areas. They have gone on taking the same crops off their ground year after year.

But the time will come on the Coast when 50-acre farms will be considered quite large enough for individual holdings. On 50 acres, even under present easy-going conditions, a man may readily clear £250 a year.

We crossed the Clarence (nearly a mile wide at Grafton) by a crowded steam punt, and found South Grafton dusty and busy.

The building of the North Coast railway line was in progress, and all the resultant activities were finding expression in what was once rather a dull place. The city on the south side of the river promises to give Grafton proper a close run for supremacy in the future. Fine new buildings had been erected; the business places were constantly crowded; everybody seemed to be earning or making plenty of money. The "melancholy Australian" of tradition as usual was

not visible, nor did this scene present an air of "weird expectancy."

Comfort, prosperity, and content will be found on the North Coast. But the traveller will seek in vain for that "typical Australia," of which he has read so much.

As a souvenir of the Clarence, we bought a 60-lb. tin of "Ironbark" honey for 14/6, and strapped it to the footboard of the car.

There is a flavor about North Coast honey which will remain in one's memory for years.

From the summit of the hills overlooking the river, the road takes off to Nymboida, passing through much forest country. The Nymboida collects from the southern watershed of the Clarence, and is itself a noble river where it empties into the parent stream. It receives some of the fall from the Dorrigo tableland.

Beyond the Nymboida the road ascends into the Guy Fawkes, a plateau covered with great hardwood forests, containing much good farming and pastoral land also.

These districts all receive an abundant rainfall. They contain patches of stiff gravelly soils, but there are thousands of acres suitable for cultivation. In no other part of Australia does one find more beautiful forests or clearer streams. The waters of the Nymboida run swiftly over beds of smooth pebbles. Long green waterweeds sway at its edges. Around these silken streamers the platypus feeds.

The air of the Nymboida is cooler and drier than that of the coastland.

Hills rise steeply from the river, and surmounting them the traveller is presented with one of the finest Australian views.

Beneath him is the valley of the Nymboida, through which the river, with its strong mountain spirit, cleaves a wide passage.

The walled mountains of the Dividing Chain, with their high spurs and deep gorges loom in blue distances.

Very still and solemn are these mountains. Their lower heights are covered with dark pines, their sides are clothed with forests, at their feet the rivers toss and tumble like mountain children, shouting at their play.

In the gullies grow palms, tree-ferns and delicate ferns.

The musical tinkling of bellbirds, the purling of clear waters over moss and orchid, screams of parrots or the thud of marsupials, these are all the sounds that break their virgin stillness, except for the rare grating of a wheel along the main road, or the chatter of horsemen riding in company.

Along this Armidale road are fine uplands covered by hardwood forests, broken here and there by stretches of dense sub-tropical jungle,

growing in chocolate soil similar to that of the Tweed and Richmond.

If the traveller turns off the Armidale road at Tyringham, and takes an easterly course, he can go over *via* Perrott's Pinch into the Dorrigo.

It is eleven years and more since the writer drove a buggy and pair over Perrott's Pinch from Tyringham, but the memory of that adventure has not faded. They say the road has been improved: for the traveller's sake, we will hope so.

The few settlers who had taken up land in the Guy Fawkes prior to that time were doing reasonably well, growing potatoes, for which the country was specially suited.

I wrote then:—

"There is no doubt that the country of the Guy Fawkes is destined in the future to grow immense quantities of wheat, potatoes, and the valuable commercial products of a temperate climate. About Tyringham and higher up toward the New England tableland, cold-country fruits flourish and do well. The pastoral and grazing possibilities are also considerable. At the present time sheep-breeding is being tried on a small scale, and Lincolns and merinos are said to do well.

"The few settlers, who, with the old cattle stations, at present occupy the Guy Fawkes, find an outlet for their stock and produce at Armidale. On our way up the hills we met some bullock teams coming down to Grafton laden with potatoes. Much of the farm-truck which now goes to Armidale would, if Guy Fawkes and Dorrigo were connected by rail with Grafton, probably be shipped there. The immense possibilities of the Guy Fawkes and Dorrigo and much of the intervening country, could be reduced to approximate statistics. Suffice it to say that the country is yet almost virgin. A few isolated settlers are in a primitive way endeavouring to make a living, and are holding on to their selections in the hope of a future. Without railway communication it will be impossible to open up this country. The cost per team of haulage to the Clarence on a ton of Guy Fawkes potatoes is £1/5/-; the present market price of a ton of potatoes is £3 in Grafton. The profits to the grower can readily be calculated. Yet these people, so productive is the soil, so certain the seasons, and so favourable the climate, are able to live, and, in a way, are doing well. The Guy Fawkes was settled or partly settled from New England."

The edge of the Dorrigo Scrub is just thirteen miles east from Tyringham. Don Dorrigo is a plateau, averaging 2,500 feet in height, and varying in width from five miles to thirty, which, with its spurs, runs out from the main range near Guyra to Coramba, 30 miles south of Grafton. It



“The Farmer’s Friend”

is without doubt one of the finest belts of volcanic upland in New South Wales. Eleven years ago when the writer went down from Tyringham as a special commissioner, to report on this country, it was unoccupied except for a few pioneer selectors at Dorrigo and Little Plain, who were putting up a good fight against odds.

One could do nothing else than take up a brief for these settlers and their country—equally deserving of attention.

On the western descent into Dorrigo, from Tyringham, or on the seven miles climb, from the Bellingen on the eastern side, a descriptive pen might spill phrases until they piled into volumes.

The western slope of the plateau is singularly romantic and beautiful. In places the country opens out like a park, where well-trimmed forest oaks, purpled in their autumn dress, stand silhouetted in clumps against a background of the most vivid and peculiar green. This unusual greenness of the bald hills on the western approach to the Dorrigo is due to the presence of a certain indigenous herbage, which does not

appear to grow in any other part of the country. The Dorrigo rises in a series of abutting slopes, perfectly bare of trees, and vividly green. On the summit of these slopes runs a dark line of dense forest, through which lofty pine trees rear their ebon spires against a sky of blue.

Ascending over the Bald Hill, from Armidale side, as one draws near to the dark line of forest at the summit, it becomes more definite and understandable. The characteristics of the scrub show more clearly. It is like the approach to some tropical island whose rich vegetation seems to grow up out of the seas as one nears it.

The traveller will stand at last before the entrance to a dark avenue of tangled tropical growths, broken by tall pines, and looking back to the westward see the blue ranges piled away to sunset. So dense and tall is the Dorrigo forest, that, although the sun may be swimming high in the heavens, one seems, on entering the scrub, to suddenly drop into the coolness and shadow of late afternoon. This wonderful Dorrigo scrub is destined in the near future to disappear before the utilitarian hand of civilization.

While the land was being cleared for first settlement, great logs of valuable rosewood were constantly burnt off with other ornamental timbers. Australian rosewood is at the present time one of the most valuable timbers in the world. It is in demand by the builders of English railway carriages, and with judicious local enterprise, it would be in equal demand in America. For the enlightenment of readers, it may also be mentioned here that there are in the Dorrigo pine trees holding 9,000 feet of good saleable timber under the one bark, and that the selectors have wastefully burnt off this timber in order to clear their land for cultivation.

But lest any critic of Australian methods should find herein, as Sir Rider Haggard has recently done, argument for a charge of national waste, all sides of the question must be taken into consideration. In justice to the Australian settler, it must be remembered that the best timber forty or sixty miles from a railway is worth nothing; that uncleared forest land is valueless and unproductive, while land cleared of forest and devoted to agriculture is an increasing value to the individual and the State.

In 1902 I wrote of this country:—

“At the present moment the best part of the Dorrigo, the land which is destined one day to support a large and prosperous population, is locked up by Government in timber reserves. The attempt which is being made by the authorities to preserve a vast area of valuable forest is a commendable one, but while it keeps the timber standing as a public asset, it is a distinct loss to the State in another direction. The land of the

Dorrigo is of greater national value than the timber, but neither land nor timber with judicious management, need remain unremunerative—a dead waste. If the Government of the State were to gradually throw open the Dorrigo reserves for settlement, reserving the market timbers on each block, at the usual royalties, the whole difficulty might be overcome. There is not the slightest doubt that if this were done, sawmills would be erected, and an additional encouragement given to settlement. There is money in the Dorrigo, and it only needs a little business enterprise to exploit, for the general benefit of the community, one of the best strips of country in Australia.

“With an elevation of 2,500 feet, these lands, now covered with the most magnificent forest I have ever beheld in any part of the world, would become in a little time an agricultural Eden, supporting a large dairying and farming population. Away back from the unrecorded aeons of the past, the forces of Nature have been at work on the rich volcanic loam, enriching it with ages of vegetable decay. The very air of the scrub is heavy with the odor of exuberant fertility. On entering into the scrub for the first time, by one of the many tracks hewn through the dense forest by the axes of cedar-getters, I felt as one who stands at the entrance of some ancient cathedral reared by giants of architecture in mighty days of old.

“After a few steps, the coarse glare of day is shut out, and one walks as if in cathedral light, where scarcely a sound breaks the solemn stillness. Here and there, in patches of sunlight, the leaves of the tall scented lily gleam vividly green. Dark, glossy-leaved creepers cover the trunks of the trees. Above the pilasters of tall, graceful palms, quaintly marked like the pillars of an Eastern temple, hang tremulous leaves. Then come the great dark trunks of the pines, and looking up into their tremendous heights, one beholds their crowns white with hanging moss—veritable patriarchs of the forest, they wag their grey heads at Time.”

Shortly after, on the reiteration of these facts, the See Government began to throw open the Dorrigo for settlement. The Hon. Walter Bennett, then Minister for Forests, realized that the Dorrigo would be of a greater value to New South Wales as an agricultural district than it could ever remain as a forest reserve. The official objections to occupation having been overcome, the settlement of Don Dorrigo began.

The author's prophecy has been over-fulfilled. No district in Australia has gone ahead more rapidly than the Dorrigo during the last decade. Farm after farm has been won from the jungle, settler after settler has sprung from small

beginnings to independence, and everywhere there is progress. Nor have the forests been utterly wasted. Mills have been established and have sawn out millions of feet of hardwood and ornamental timber, much of which has found a port at Coff's Harbor, which in turn, from a mere village, has developed into one of the busiest and most populous centres of the whole North Coast.

Leaving the Armidale road—which has been responsible for this digression—our car took the dusty highway that dips out and falls over coastal hills and occasional flats towards Coramba. These North Coast hills are yet covered with forest. What their uses will be in the future is hard to say. At present it were well if they remained forest reserves.

The flats are fertile and for the most part occupied by selectors. It is a pleasant land to travel through at most seasons of the year. In Spring the forest oak is in flower and the eucalypts are crowned with bright young leaves, like woodland altars tipped with flame.

You will follow the road for some miles through an open forest in which tall straight pillars of spotted gum stand as supports to a vast green canopy. Then you will drop down to a level stretch of farmland with, maybe, a quaint old shingle-roofed homestead standing back from the roadway in a grove of ornamental trees, with a garden surrounded by weather-stained paling fences, over which roses are trailing. There will be cowsheds and barns at the back, ploughed paddocks sprouting green maize, a running stream with dairy cattle grazing along its banks.

These old selections and all they stand for of pioneer history are facing a new feature in the landscape—earthworks and bridges, ballasted track and steel rails; for the North Coast railway line is being carried along past their doors. The wattle and hickory which bloomed so profusely every spring-time along this northern road, have been rudely torn from their roots, clematis and tecoma cast aside, hills ruthlessly sliced and their tops and sides hauled away to make embankments, and now the solitude of Glenugie Peak is disturbed by whistles of ballast trains. Coach days are going, and days of railway carriage and motor-car have come.

South Grafton is already in touch with Glenreagh, which is not sleeping amongst its fertile flats and ringbarked clearings, but like Coramba, young and flourishing, has responded to the call of progress.

The road into Coff's Harbor from Coramba goes down by many a sharp curve, from hills covered with rich jungle, to the sea.

The growth of Coff's Harbor since the Dorrigo was opened has been remarkable. Once given the impetus which, from now on, it is likely

to receive, the whole State will go ahead at the same speed.

Coff's Harbor may be taken as an example of Australia's possibilities. The establishment of fine, modern timber mills followed the influx of settlers and in ten years a place which consisted of a hotel, a wharf, and a few scattered houses, has grown to a busy little city. Sensible administration induced settlement, and enterprise and natural resources did the rest.

When the tide of European migration turns southward, as it must inevitably do, it will be found that Australia can offer more opportunity for investment and labor alike than even the United States of America, which now carries twice the population of Britain. Australia is, in fact,

Between Bellingen and Nambucca stands one of the finest hardwood forests of the North; grey box and turpentine are its predominant timbers.

This valuable forest extends for thirty miles or so back from the coast, and then gives place to "apple-tree," and good open country, suitable, it is said, for closer settlement.

Without cutting into the forests of the North Coast—which, for the most part, cover land unsuitable for agriculture—there will be an enormous total area on which population can be settled with every prospect of success.

Just before sundown we glided into the green valley of the Macleay. New South Wales is seen here in a particularly happy mood. If a



On the Paterson River

a better America where men and women who are capable of intelligent effort can confidently look forward, with reasonable personal luck, to ultimate independence, achieved under the best living conditions in the world.

Every hour in our journey down coast this fact was brought home to us.

The country was so obviously rich, so capable of development, so responsive to treatment.

At the Bellingen everybody was doing well.

At Nambucca they were shipping their thousand boxes of butter a week.

At Macksville, a pretty little township on the banks of the Nambucca River, prosperity was evident, and so on from river to river for hundreds of miles.

stranger, who had gathered his impressions of Australia from the writings of men like Kendall, Gordon, and Clarke, were transported to the Macleay, he would feel as if he had gone to sleep in a desert and wakened in a flower garden. He would demand to know what spirit of perversity had caused an apparently sane people to accept foolish utterances as expressive of their joyous and beautiful country.

He would see a broad and navigable river flowing through an Eden of fertility. He would learn that on these river flats 80 to 90 bushels of maize to the acre are common, while they have actually produced as high as 130 bushels, and that their average yield, season after season, has been 40 to 50 bushels.

On land valued at £35 to £40 an acre, he would behold perennial crops of lucerne, giving substance to herds of milch-cows rivalling as wealth-producers the best dairy herds in Europe. On living areas (60 to 80 acres are sufficient) he would find not peasants but individual proprietors with modern equipment, good banking accounts, smart driving outfits—probably motor-cars.

He would be gratified to see co-operative butter and cheese factories giving the farmers the full profits of their industry. In fine he would see eight to ten thousand people enjoying a prosperity which left no room for failure, poverty or distress.

Kempsey lies in the centre of this prosperity, and partakes of it with the complacent air that comes of good fortune well assured.

Like other Australian towns, it is becoming modernised, but there still remain many old shingle-roofed houses of an earlier period. It is noticeable for its beautiful children and pretty young girls.

Kempsey leaves with the visitor a pleasing memory of flower gardens, handsome pine trees, green flats, clover, weeping willows, and contented-looking cows.

Tall banyans by the river bank remain as examples of a scrub which has long fallen beneath the settler's axe.

Morning on the Macleay would be a good subject for some painter who wished to depict the happy rural side of Australian life. In his picture he would show pink peach-blossom in the orchards, and cottages smothered in purple wistaria.

Being mere artist he might not express the clear carol of the magpie, the twittering of sparrows, the defiant crowing of roosters, or the lowing of cows. But if he were minded to extend his canvas a little he could throw in a background of wondrous blue hills, or, to invest his picture with character, he could paint in an apple-cheeked housemaid illuminated by clear early sunlight, sweeping out yesterday's dust from the doorway, a little bare-legged girl coaxing a cow along the footpath, and a sturdy householder vigorously cutting kindling wood in the near foreground. A homely subject, but one that would be a more sane and truthful expression of Australia than tragic canvases on which are depicted terror-stricken settlers fleeing before bush fires, or emaciated swagsmen in the last throes of thirst.

Between the Manning and Hastings Rivers there is another valuable belt of hardwood forest.

The main North Coast Road crosses the Hastings five miles above Port Macquarie.

Here is another fine river flowing through farmlands.

Port Macquarie, one of the State's earliest settlements, makes the seaport for this delightful district.

For him who wishes to read the Book of Old Colonial Days, and reconstruct in fancy the life and manners of Australia's first generation, a visit to Port Macquarie will be filled with interest.

It is a queer old town standing by the bluest of seas. Some of its buildings are a hundred years old, a great antiquity for an Australian house; its Norman church was erected about 1824, and, in a cypress-shaded cemetery overlooking the town, there are many ancient headstones.

Along the North Coast Road the Lisbon lemon grows wild, and crops freely. If the traveller prefers the homely squash to fresh milk or the liquors of the vine he may have it free of charge. Presumably it does not pay to cultivate the lemon along here, as the settler lets his trees alone and the birds carry the seeds hither and thither, so that there is no lack of lemons.

Citrus fruits and vines have both been adequately proved in the North, but, while other industries bring in greater profits and settlement is scattered and transport expensive, wine making and fruit growing will have to stand aside.

It is admitted that Australia can be the greatest wine-producing country in the world. The State of New South Wales has many fine payable vineyards and in days to come will have many more.

Between Port Macquarie and Camden Haven is a village called Kew. At a bush hotel our car pulled up for lunch. The railway-builders had reached thus far and erected their usual camps of calico and scrim.

Now here, if anywhere, was the site for one of those "typical" Australian short stories, beginning with a column of mournful word-painting about a dark forest full of "weird expectancy," a half column on flies, a half column on heat, and perhaps a column and a half of a fight around the bar of the wayside pub.

All the characters would be adorned with spade beards, wear red shirts, moleskin trousers and snake-buckle belts. They would speak a typical dialect, half cockney and half Western American. Their profanity would be expressed by dashes and asterisks in great profusion.

Unfortunately for the reputation of our alleged "descriptive Australian writers," none of the essentials for this purely imaginative story materialized.

In New South Wales the Licensing Act is strictly enforced. A disturbance at a hotel would mean a black mark against the proprietary; it might even lead to a cancellation of license. Consequently there are few disturbances at country inns. I have not witnessed a public-house



A New South Wales Pasture

fight since 1890, and I travel the Bush more than most people. There were no flies, and the weather was ideal. The North Coast is comparatively free from flies at all times. The few young men about the hotel were clean-shaven—beards are out of fashion in the Bush. They were dressed in ordinary modern clothing, spoke fair English, and used no bad language.

The meal, a shilling lunch, was served at a crowded table, to a good-mannered, good-tem-

But if he is going towards Camden Haven he should take a kit of fishing lines.

Or if he means to remain around Taree, on the Manning, let him take dancing shoes and a mandolin. He will find all these pleasant northern districts cheerfully sociable.

As evening falls there will be many cosy lamp-lit rooms and much piano-playing. It would be an interesting statistical item, and one worth publishing abroad, to compute the number of Austra-



Milking Machines, Manning River District

pered company. It consisted of soup, excellent Australian beef, abundant vegetables, and custard and pie.

The only complaint one might make was that the helpings were rather plentiful.

This is the Bush of Reality. It may be commonplace, but it betokens good, cheap conditions of living, personal comfort and security. The prospective citizen need have no fear that he will be subjected to the disagreeable experiences of some Australian heroes of romance. In migrating to the Mother State, the last item he need add to his outfit is a lethal weapon of any kind. Unless he is travelling into the far back country in summer, and not always then, he need not even provide himself with a waterbag.

lian houses that possess a piano. The average is probably the highest in the world. . . .

The Manning has fine fat black lands along its valley, and possesses good back country. For the Comboyne Scrub, like the Dorrigo, a future can safely be predicted. The Comboyne is a well-watered high land, with rich soils. It is yet mostly covered by tropical jungle, but, like all scrub land of the North, will be found suitable for dairying and mixed farming.

Taree, the principal centre for the Manning, is another "old colonial" town, its gabled houses and ancient gardens standing side by side with the dwellings of a modern day.

Wingham, on the North Coast railway line, is surrounded by lucerne and maize. Like most

places of any or doubtful importance throughout the Commonwealth, these northern townships have their green parks and recreation grounds where the "melancholy Australian" finds excuse for gathering in quest of amusement.

At Wingham, although it was September, we found the night air frosty. We rose with the sun to complete the last stages of a long journey. Our way had been over dusty roads where bullock teams were hauling logs to many mills. Across clear creeks and over shining rivers, through glades of palms and forests of hardwood, by farm, orchard, and township for many hundreds of miles we had seen nothing but natural beauty, permanent fertility and general prosperity.

Only one thing might be said of this great North Coast—it was not carrying enough people—and that can be said of Australia generally.

I looked across in the clear morning light to the blue peaks of the Great Dividing Range,—which I had crossed some weeks before as a low range of hills between Townsville and Cloncurry. They were the birthplace of many a river that finds an outlet in the Eastern Pacific between Cape Bowling Green and Hobson's Bay.

Through some mountain gap out yonder, this clear fast-flowing Manning River, too, came down to water the rich lands of Wingham and Taree and all the little towns and settlements that are growing along its fertile banks.

We travelled by a winding river road some 15 miles into picturesque hills and found that we had

taken a track which led to Armidale, impassable for cars beyond the point where we made our discovery.

Albeit we got a late breakfast of cheese and biscuits, the mistake was worth while, for the road, as far as we followed it, led us by river reaches and jungles and shining hills full of the morning's glory.

We got back on the main highway to Gloucester, which took us over more hills, and through pretty valleys, by citrus orchards, dairy farms and scrub and forest to Stroud, where this particular journey ended.

Stroud is another "old colonial" village, which the builders of the new railway left five miles from a station, as if they loathed to disturb that colonial air which it wears so happily.

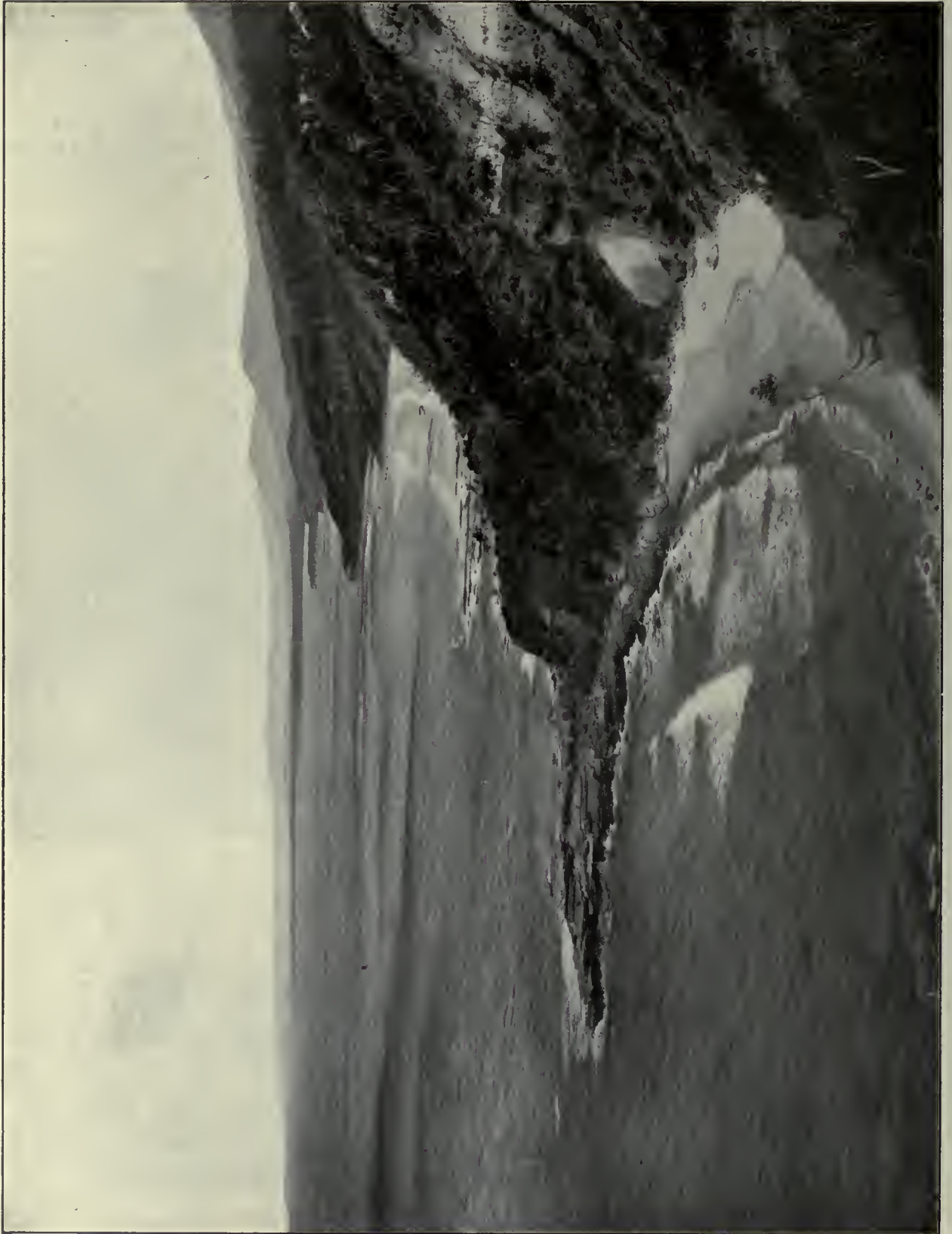
It seems a pity to modernize places like these, and yet the utilitarian eye perceives how such country can be made far more productive than it is now. Scientific fruit-growing, the cultivation of lucerne, irrigation, intensive farming,—the land cries out for these things—and it will not always cry in vain.

At Stroud we finished a car journey of 600 miles through the North Coast District of New South Wales, a journey which lay all the time over a demesne of intense fertility blessed by constant good seasons, abundant rainfall and a benign climate.

This Arcadia is capable of supporting a hundred times its present population, and yielding a hundred times its present wealth.



On the Manning, near Wingham



South Clifton

THE SOUTH COAST.

IF you would behold fertility allied to great beauty, if you are interested in Earlier Australia, if you are a lover of mountain, meadow, river and sea, of green pasture lands, of subtropical vegetation, pack your portmanteau, provide yourself with rod, gun, and camera, and go for a long holiday down the Southern Coast of New South Wales.

The manner of your journey rests with yourself. The roads are good, the inns comfortable; you may motor if you can afford it. You may drive, or bike, or travel by train. If you are of strenuous habit, you may walk and send your pack by the railway, but the true pedestrian's pack is mostly carried on his back.

Many years ago the writer, with an artist friend, packed an outfit into a village cart, and essayed to drive from Prospect to Eden. Later experience gained in driving a light caravan from Parramatta to Townsville convinced him that the village cart is a most unsuitable vehicle for an expedition of this kind.

The artist was Arthur Frederics, who drew the pictures for Jerome K. Jerome's ever popular book, "Three Men in a Boat." He claimed "Montmorenci," the dog of that famous work as his very own, and did not fail to draw—invidious comparisons between him and *our* dog.

But Frederics admitted that house-boating on the Thames was pale sport beside village-carting over the Bulli Pass without a brake.

Eighteen years of sunlight and shadow have come and gone since we undertook that memorable journey. Frederics went back to London at the finish—he had been anxious for an experience of the Bush before he left Australia—but its pleasant memories are with me yet.

Of my patient and industrious travelling companion I have heard nothing for many years, but if Time has spared him, and he should chance to read this, I know that from his cosy corner in the Savage Club he, too, will look back upon those days in Illawarra with no regret.

The joint resolutions which we made to write and limn a Delightful Book have faded into that over-populated Limbo where the ghosts of good literary and artistic resolutions are laid.

Our journey—which we had plotted for weeks with the enthusiasm somewhat of youth—began with a series of accidents.



Seal Rocks Lighthouse

I was to have met Frederics at Campbelltown. We had arranged that he should catch the morning train, and by making a daylight start from Bossley Park I reckoned to be there before him.

At that time my plant included an old black carriage horse, which had belonged to an undertaker, and was therefore regarded as sedate, reliable, and suitable for a journey of the kind. A horse with a serious upbringing, slow of habit, could be expected to breach a heavily-laden trap down steep pinches without brakes, and remain around a camp at night.

That and a steady day's pull were all that we required. I turned this supposed valuable adjunct to a quiet driving tour out to grass when the expedition was first arranged. The last week I brought him in and had him hardened with good Central Cumberland maize, grown in my own paddock—full of nutriment and free of weevils.

No horse ever had more considerate preparation for a holiday.

Before dawn on the appointed day I packed the cart with provisions, tent, fly, axe, ammunition,

fishing lines, and all the paraphernalia of camping out.

I departed just as "dawn's left hand was in the sky," and made the first three miles with all the joy of an excursion in my blood.

It was one of those glorious summer mornings that we get in sunny New South Wales, and the little orchards and vineyards along the Lansdowne Road were gemmed with dew.

At the foot of Cecil Hills there was a culvert. To my intense surprise the staid, respectable funeral animal that I was gaily driving stopped dead and refused to budge.

Nothing annoys like a "collar proud" horse. I laid the whip across his unregenerate loins, and he responded by kicking the dash-board in.

If one's maiden aunt had suddenly invited a bishop to a boxing contest, one's astonishment could not be greater than was mine.

The rest is too disgraceful to be detailed even after a long lapse of time. The black horse positively refused to move except in circles. He wound up a most uncouth gymnastic display by backing the village cart and its contents into the drain.

Time softens the harshest asperities of life. I like to believe now that a sense of propriety, born of the serious avocation which the animal had followed for so many previous years, militated against his being an accessory to what promised to be an entirely secular holiday.

But neither Australian resource nor German philosophy are proof against a horse finally determined to jib.

I might have consoled myself with a Schopenhauerean deduction that because all knowledge is relative neither of us had any actual existence—but that conclusion would not get the cart to Campbelltown.

So I threw myself on the mercy of a small farmer near-by, who availed himself of my necessity by charging me a sovereign to drive me with his own plough horse the remaining two miles to Liverpool, where I promptly wired to the unsuspecting artist to get off the Southern train.

We secured some of his baggage, and the rest went on to Campbelltown, accompanied by an irate conductor and an engineer who wanted to know what his train was being delayed for.

After a consultation of war at the nearest hotel we determined to hire a horse somewhere, and went out looking for one.

Liverpool is a quaint and ancient town which still clings to the leisurely traditions of Governor Macquarie's period.

On the banks of George's River it has dozed for a hundred years, and it resents all haste.

Nevertheless, in time we found an enterprising baker, who agreed to hire us a horse for the modest sum of two shillings a day.

I offered to exchange him the black horse and give him a pound to boot, but he would not trade.

We pulled out of Liverpool about midday with the baker's mare, who adapted herself to the village cart with refreshing docility; and so began one of life's happiest journeys.

At a shady creek on the old Southern Road we outspanned for lunch. The clouds of threatened disappointment were dispelled under a blue sky, and we jogged away light-heartedly along the red road that goes over hill and dale through Ingleburn and Minto to historic Campbelltown.

That night we pitched our tent in a clump of forest oak by the village of Appin. The grilled chops, cooked bushman-fashion on the coals, the billy tea, the little sundries of an open-air meal, and, above all, the pipes of aromatic tobacco smoked under the stars—the gipsy pleasures, which are free to everybody in this glorious country of ours, sent us to our rugs and blankets in a mood of tired contentment.

To waken refreshed after a long sleep, and hear the sounds of the Bush around you, to splash into a clear creek for your morning bath, and then to fall with good healthy appetite upon your open-air breakfast—these are among the delights of the Open Road.

One advantage of jogging along with your own cart or caravan, is that you are bound by neither time nor convention. You can make your day's journey one mile or twenty, as it pleases you.

On the south side of Appin the road crosses over a creek by a wooden bridge.

A little flat of green grass, shade, and clear running water, issued such a pleasant invitation that we pulled in for lunch.

Afterwards we lounged in the shade, smoking and listening to the cicadas shrilling their eternal love-songs through the forest. From midday till half-past four—unable, perhaps unwilling, to shake off the exquisite laziness of a hot summer's afternoon—two care-free travellers, a chestnut mare, and a black dog watched the sun's decline through sleepy eyelids.

Then the travellers decided that it was too late to go any further that day—rest after effort, or before it, is a fine thing; the South Coast was always there; one day did not matter.

The artist made a fine pretence of taking pencil notes of surrounding vegetation with sunset effects.

We camped under the bridge, as it looked like rain. Some belated horseman thundering overhead about midnight, wakened the artist out of a profound slumber. He seized the tomahawk and prepared to defend his unfinished sketches at

the cost of his life. Otherwise the bridge made a quiet open-air inn for one night's lodging at least.

The next night we camped on the Bulli Pass, with Illawarra, like the Promised Land, spread out below us. We got to the Lookout while it was yet early in the day, pitched our tent and watched the changing sunset lights across a still and beautiful Illawarra, as we ate our evening meal. Then the moon rose out of the waters to the eastward, and flooded mountain and coastland with silver.

Twinkling lights of Bulli and Corrimal and Wollongong lay far below us; the air was sweet with the scent of mountain musk. It was a memorable camp.

A steep macadamised road goes down the Bulli Pass. It has been cut along the edge of the mountain wall, holds several sharp turns, and must be negotiated at a reasonable pace.

Between the tree ferns, vines and palms one gets enchanting vistas of a beautiful hilly jungle falling away towards the sea, with bits of beach and meadow in the southern corners of the picture.

Frederics acted as a brake by holding on behind as I led the horse down the steeper pinches.

We stopped at every bend in the road to wipe the perspiration from our faces and admire the view.

Half-way down the mountain there is a cold spring bubbling up out of the rock alongside the road. It is surrounded by ferns and green damp moss. We had a smoke there.

Further on is a giant fig tree. We took the mare out and let her graze on a patch of rich buffalo grass, while we inspected this ancient banyan, one of the most beautiful trees in Australia.

The jungle was cool and shady. Staghorns, pheasants' nests, orchids, and climbing ferns decorated the boles of the trees; the ground was carpeted with luxuriant maiden-hair fern, mosses, and leaves. There were avenues of tree ferns, cabbage palms, and bangalows, and a running creek.

It was a good place to fool about in during the heat of the day. To get a correct perspective of the Illawarra one must not be in a hurry. These sixty miles of country between Coal Cliff and Shoalhaven are worth lingering over.

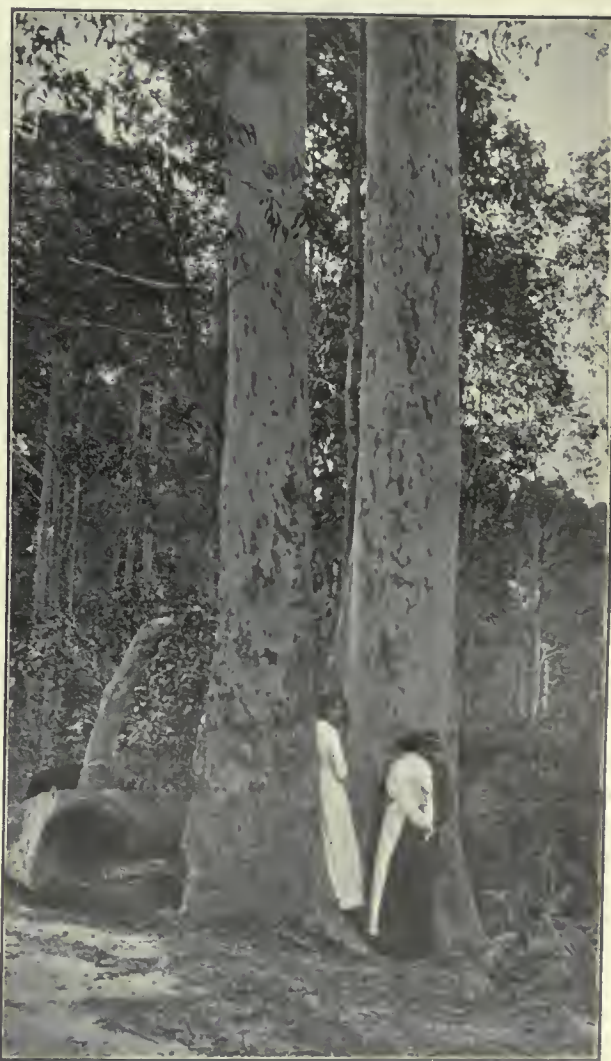
At Bulli we found an excellent hotel. Here is an Australian coal town, but it presents little of the ugliness associated with coal mining in other parts of the world.

There are plenty of green fields and gardens, and by its surroundings Bulli might be classed more as an agricultural than a mining centre.

As far back as 1863 the coal measures were tapped here. The output is of the highest quality,

and the southern fields, which are being worked at various points, cover an enormous area. During the last few years many important industrial works have been established at different Illawarra centres; great harbor improvements have been effected and a considerable influx of population has taken place.

With rich volcanic soils, and still more valuable coal beds, this beautiful Illawarra, long known



Water Trees, South Coast

as the "garden of New South Wales," is becoming one of the State's best mining, agricultural and manufacturing belts.

Between Sydney and Nowra, for 92 miles the railway traverses a green idyllic coastland. Beyond that the visitor finds another South Coast district readily accessible by motor car and coach, which will yield him rich treasures of sport and scenery if these be within his quest.

Towards this Southland we set out from Bulli in due course, trotting cheerfully along a good hard road through the villages of Woonona and

Bellambi, where the coal miners' youngsters grinned cheerfully at us as we passed by their cottages.

In the distance westward stood Mounts Kembla and Keira, and, often through the forest trees that overhung the roadway we caught glimpses of the Pacific, never bluer than along this coast of palm and vine.

The old colonial town of Wollongong, natural capital of Illawarra, gleamed before us, with the Tom Thumb Lagoon shining on its southern margins. Here Matthew Flinders landed on his courageous voyage down the coast, and from his little cockle-shell the lagoon got its name.

Once it was the haunt of wildfowl; as once the rushy flats beyond it towards Dapto were the haunts of quail. Even now one gets good shooting along this coast, and fishing grounds are everywhere from Gabo to the Tweed.

That night we slept at a farm at Spring Hill—full of youthful memories for one of the party. At old Spring Hill, emancipated from school, and later from a dull commercial office in Sydney, he would tick off each day of vacation or holiday with a sigh of regret.

Spring Hill was in sooth a paradise for youth. Those memorable days were spent in fishing at the mouth of the Thumb, tramping up quail on the rushy flats, waiting at dusk for wild duck in the swamps, watching the fig trees for flock pigeons, riding across to Kembla and Keira, camping by Lake Illawarra, indulging to the full the glorious activities of youth.

Many a black-backed flathead tautened a waiting line, many a stone plover rose through the tea-tree and fell, and many a plump brown quail went into the bag in those golden days. It is well for a man to carry memories of such days with him from youth to age. Their brightness makes amends for amber-colored days which closed in grey twilights of regret.

Driving by the margin of Lake Illawarra, we saw next day the Five Islands lying off the land, and thought again of Matthew Flinders pluckily navigating his little row-boat over new and uncharted seas.

Through the picturesque village of Dapto trotted the baker's chestnut mare. It was clear and cloudless weather, with cool sea-breezes to freshen the nights.

We had left the coal country behind, and were journeying now in leisurely stages through dairy districts, which follow the coast to Eden in the South. Lush lands these, growing clover, maize, and lucerne; well-watered with rippling creeks, by whose banks grow weeping willows and green, scented lilies with unassuming flowers that throw out an unexpected snare of perfume upon a scene where any dreaming poet might find inspiration for his Epicurean muse.

One English artist had already been convinced that Australia was not a land "where bright blossoms are scentless, and songless bright birds." He had at least inhaled the subtle fragrance of the scented lily, and heard the blue-cap sing.

From Albion Park we might have taken the road over the Macquarie Pass to Moss Vale, and enjoyed some of the finest scenery in picturesque New South Wales; but a different itinerary lay before us.

At Shellharbor we rested and lunched, enjoying the greenness and blueness of this delightful seaside village.

At Minnamurra River we outspanned and went a-fishing. For a summer holiday along this coast, take a good rod, an ample kit of lines, from silk twist to stout snapper, a variety of hooks (fly hook and shark hooks as well), spinners, catgut, and flies. An eminent authority asks—

What is he doing, the great god Pan,
Down in the reeds by the river?
Making a Poet out of a Man,
Down in the reeds by the river!

Any acknowledged god in the mythology might be competent to make a poet out of a man, but the question of making a fisherman out of the average citizen is quite another matter.

There are a limited number of people born to be "complete anglers," and the great majority must be content to be mere amateurs.

Anyone can catch fish, when fish are biting, but the inspired fisherman is he who can coax fish to his line when they are diffident or shy. He must, above all things, learn the mysteries of bait—which entails an understanding also of the habits of the finned divisions. Once he has mastered this, the rest will be with his patience, foresight and skill.

The wise fisherman will never be disappointed along the South Coast.

These points we discussed in subdued tones on a sedgy bank while a making tide brought in the feeding fish.

We talked of all the fish we might catch along the South Coast, from sand mullet in the lagoons to whales at Twofold Bay; of beach fishing for whiting with longest hand-lines; of rock fishing for groper and cod; of the sea salmon which came up coast in myriads at certain seasons, and are caught by many an enthusiastic beach fisherman and wasted; of red bream, squire, and schnapper, so plentiful on the reefs off shore; of the tunny, which is found at Montague Island; of purple scaled jew-fishes running up to a hundred pounds weight; of cunning black bream; hungry flathead which can best be attracted by a moving bait; of mullet amenable to dough, and garfish, surface swimmers which bite freely on occasions,



Dairying at Coolangatta

and all the various finned denizens of seas, estuaries, deeps, shallows, creeks, lagoons and rivers which we would land in wriggling multitudes before our trip was done. Imagination is a fine thing, and useful to a fisherman.

Later on, with the camp fry-pan sizzling over red coals, and our catch of whiting and flathead cleanly scaled and washed in salt water before us, we agreed that the life of the open is the real thing, and that the pale habits of cities were only ghosts of pleasure beside its flesh-and-blood realities. There were mosquitoes at Minnamurra, but we anointed our faces and hands with citronella, made a smoke at night and promised to fix up the mosquito-net when we camped next time.

It is a lovely bit of road between Shellharbour and Kiama. The railway cuttings show the basaltic nature of the country. In fact, Sydney draws a large proportion of its bluemetal from the famous quarries of Kiama.

Like all our volcanic soils, Illawarra, Cambewarra and Shoalhaven are perennially fertile and eminently adapted for dairy farming, and Kiama, a little over 70 miles from the metropolis, has long been a prosperous place.

The Blowhole, a subterranean syphon, which, in rough weather, dashes clouds of spray a great height into the air, has always been a popular attraction; but the clean little town itself, built along the edge of its bar harbor, and over the adjoining hills, facing the Pacific on one side, with the Saddleback Mountain behind it, and surrounded by its fertile district, is a holiday-maker's haven.

From here visitors can readily reach Jamberoo, one of the loveliest valleys in the world; where they will see rural Australia in all its poetic fertility, and quiet peace—an Australia as different from that drought-stricken country so lovingly depicted by ignorant traducers, as the downs of Devon differ from the desert of Gobi.

Six miles south of Kiama is Gerringong, a delightful little town where green meadows end in golden beaches. One comes away from Gerringong with an impression of sea breezes, sweetened by clover, rustling the leaves of tall cabbage palms, standing in fields of burning green. Purple hills lost in hazy distances, emerald slopes rolling down to meet the sea, silver creeks changing now and then to pools bordered by flowering meads, and an air of profound tranquillity—that is Gerringong.

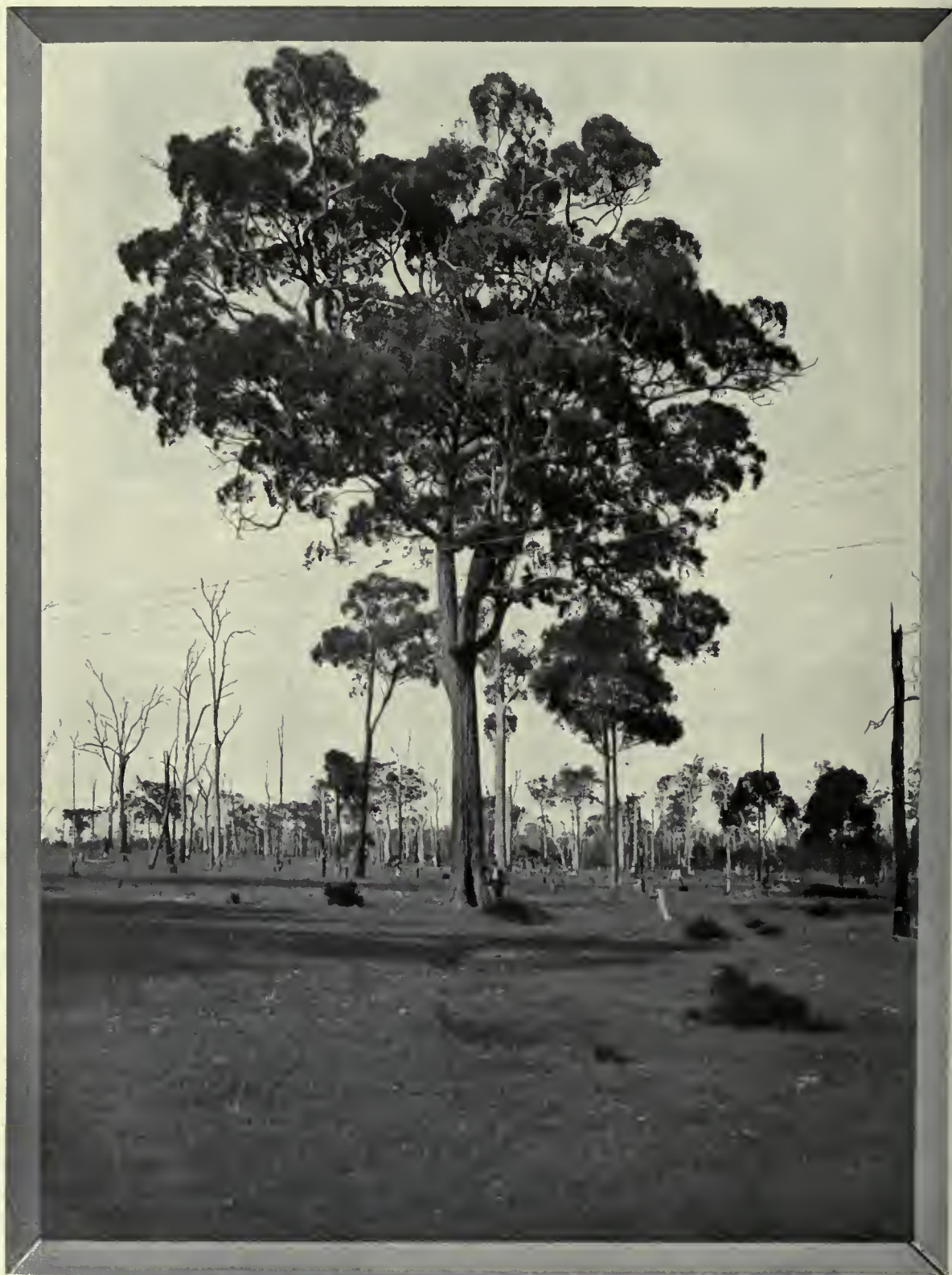
Berry, seven miles further south, wears a face of greater activity. It is the centre of the far-famed Coolangatta Estate, much of which has been sub-divided and sold as small dairy farms.

With beautiful country in between dotted all over by dairy farms, Nowra follows Berry along this southern littoral. Here, on the north bank of the Shoalhaven River, the railway ends.

Nowra, the capital of Shoalhaven, is a centre from which a wide area of picturesque New South Wales can be explored.

The road across Cambewarra Pass, like most of the passes along the Coast Range, is through a glory of palms, tree-ferns, and jungle growth.

The lookout near the turn-off to Kangaroo Valley claimed us for a day. We saw the



Ironbark Tree, Nowra

green Shoalhaven—spread below us like a great map—through all its variations of light and color, during the changing hours. Again the air was laden with mountain musk, and the whip-bird and his mate between them made the jungle echo with the sudden musical cracking of stock-whips.

This Cambewarra lookout gives you one of the most beautiful panoramic views in the States.

You see Berry in its green squares far away, with Broughton Creek winding like a silver eel out to sea. Beyond it Shellharbor and Gerrin-gong and Kiama. Below, reduced to miniature by distance, you can pick out Greenwell Point, Crookhaven and the broader waters of Jervis Bay. Behind you are the purple mountains, their slopes alternating with clearing and forest from which the Shoalhaven unwinds its 250 miles of ever-widening silver ribbon, until you catch the glitter of its tidal reaches by Nowra. The upper course of the Shoalhaven lies within a wild romantic land. Rising in the Jingera ranges, between Braidwood and Cooma, the young river winds through majestic gorges, its banks being sometimes cliffs 1,500 feet high; it sweeps through lonely valleys, precipitates itself over rocky heights, hides its clear pools under masses

of sub-tropical vegetation, and comes down at last to fertilize those green flats which gleam between the foothills and the sea.

South from Nowra the road enters a forest which has yielded much good hardwood.

Fifteen miles' jogging brought us to Jervis Bay, now the site of the Royal Naval College, and which will be the port for the Federal capital at Canberra.

Here we caught good red snapper and had some fair shooting. At St. George's Basin, a few miles south of the Bay, we found a great shallow saltwater haven with tidal creeks and abundant sport.

By the shores of this romantic basin we made more permanent camp and reluctantly spent our last days together, for my mate was bound to catch his English steamer, and I had to take the outfit home to Prospect.

Southward across the inlet were the blue hills of Wandandian and beyond them, southward still, the fertile districts of Milton and Ulladulla, but for the present they would have to call in vain. Not without regret the baker's mare was headed back to Nowra, where the artist caught the train to town, and the writer fished and hunted his way home again.



Eden



Pyrmont Bridge

OUT WEST.

THE Railway Depot at Sydney is ablaze with electric lights. Its author, the late Hon. E. W. O'Sullivan, then Minister for Public Works, intended that it should be the biggest railway station in the world. His prophetic eye surveyed the Future, and beheld the Mother State as she is destined to become. He foresaw that for many years the expanding railway traffic of a country bigger than Germany was likely to converge on Sydney, and endeavoured to provide for its expansion.

The result is a surprise to the most travelled stranger when he drops out of his sumptuous overland car and stands for the first time under the great arched roof of this mammoth depot.

All day and all night there is a constant coming in and going out of trains at the long platforms, a hurrying of crowds, a continuous procession of passengers past the ticket windows and through the gates.

Electric cars bring in their loads of people, drop them in the stone vestibule, pick up other loads of people and rush away to the city again. From other car systems incoming suburban travellers alight. Their vacant seats are eagerly

filled by outgoing passengers, and so the perpetual flow of humanity goes on.

Taxis, hansoms, motors, glide or rattle along to the receiving platforms, drop passengers and luggage and glide or rattle off with fresh fares.

Uniformed police keep order, uniformed railway servants attend to the requirements of the travelling public—everything spells organization and efficiency.

We are taking the reader upon another journey. We will travel West to-night over the mountains and out across the plains to the present rail-head at Condobolin, on the Lachlan River, over Oxley's "morass" and Sturt's "desert," and various other landmarks of the earliest explorers. We will find the "deserts" growing wheat, and the "morasses" producing wool. We will see with our own eyes how superficial and wrong some of these earliest explorers were in their conclusions.

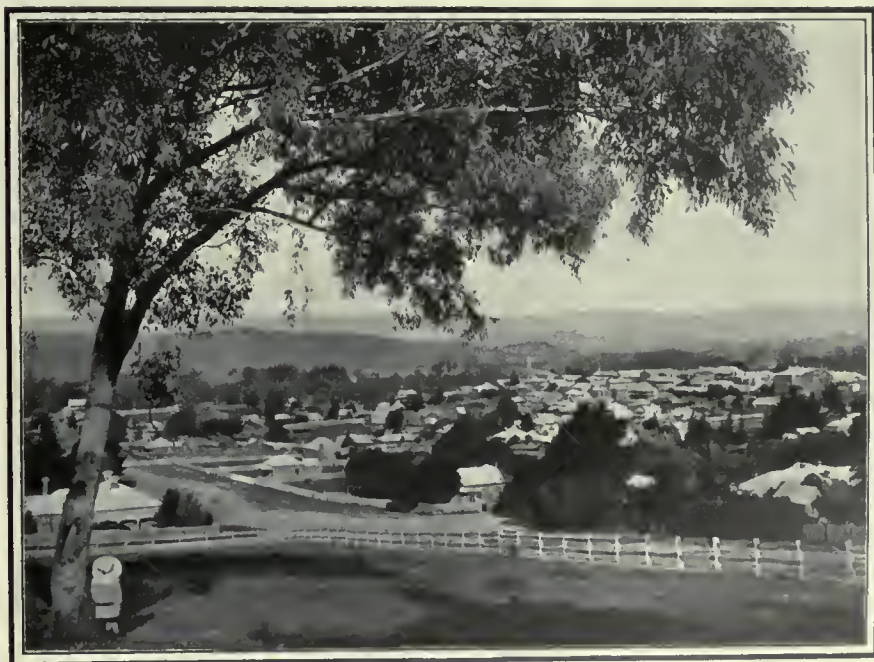
All New South Wales night trains are provided with comfortable sleeping carriages. Before we turn in, a polite car porter comes round with his card and lists the names of passengers who desire tea and toast at 6 a.m. next morning.

Our car companions are mostly Western men—sheep men and wheat farmers, you can tell them by their height and build—some commercials, “drummers” as our American friends call them, and a party of officials from the Department of Agriculture who are going out with their Minister to open a Government Experimental Farm at Condobolin.

The Minister had been a Western farmer himself, and the champion ploughman of his district, before he left the furrow for the forum. Being

New South Wales. Uncleared ridges are crowded with dark symmetrical cypress pines (*Callitris*).

This beautiful tree is botanically believed to be the oldest living representative of its order. It has a widespread range, is generally accepted as a sure guide to good wheat-growing soils, and produces timber, bark, oil and sandarac. White ants will not attack its wood, consequently it is invaluable for building purposes in districts infested by termites.



Tumut

what the newspaper men call “a whale for work,” he occupies the early hours of the evening dictating correspondence to his secretary in a compartment reserved for the journey.

The Western mail glides away from the crowded depot, and picks out her own track in some marvellous way from a complicated network of gleaming rails. Gaslit suburbs go by, with longer and longer intervals of darkness between them; Parramatta is passed, and our big Baldwin engine, with its fiery trail of carriages, begins to bore heavily into the night.

We rumble away by moonlit St. Mary's, roar across the Nepean bridge at Penrith, and start with grinding wheels and snorting funnel to attack Blue Mountain grades.

The car conductor, with cheerful “Good mornings,” is handing round tea and toast. We are rolling over the sunlit wheat lands of western

It is a curious fact that the cypress pine secretes manganese. Bertrand, the French agricultural chemist, applied manganese sulphate, at the rate of 50 kilos per hectare, to land on which wheat was sown, and obtained an increase in the total crop of 22.5 per cent.

Another experimenter, Katayama, of Japan, has shown that manganese has a stimulating effect on oats, barley, rice, and cereals generally. Using manganese sulphate to the soil in the proportion of 0.015 per cent., Katayama found the increase was 50 per cent. in the yield of straw and 24 per cent. in seed.

The chemical relations between Australian cypress pine and wheat are herein established: which supplies one reason for the fact that where cypress pine grows well, wheat will also grow well.

A reference to Messrs. Baker and Smith's work on Australian Conifers shows that the habitat of the cypress pines, white and black, comprises the greater part of Western New South Wales—outside of the Black Soil Plains!

The traveller, inhaling the smoke of burning cypress pine, so typical and reminiscent of the back country, may accept it as an incense to Ceres, ascending from many a woodland altar in the West.

another leaf in the Gospel of Work, will tread down the grass which their predecessors have cheerfully permitted to grow under their feet.

Already the New is overgrowing the Old. An extension of the wheat areas of the Central Division is rapidly going on. At present 2,560 acre blocks are regarded as good living areas in this division. If a farmer gets all that is possible to get off 2,560 acres, he will have nothing to complain of.



An Orchard at Wagga

As the train pulls up at wayside stations, this pleasant odour of pine is wafted through the carriage windows from the settlers' chimneys.

Australian settlement may be divided into four successive periods:—CATTLE, SHEEP, WHEAT, LUCERNE. Thirty-five years ago the West was cattle land, to-day the West is nearly all sheep and wheat. But the Director of Agriculture says, with a confident smile, that lucerne is going to thrive in places where its cultivation is still regarded as impossible.

On its way down to Condobolin, our train pulls up at Parkes for breakfast. This is an old Western mining township with some history.

Like Castlemaine and similar places in Victoria, it is tired and leisurely and lives largely on the traditions of more vigorous days. The generation that saw the gold rushes and their easy-going methods is not yet dead.

By and bye a younger generation, filled with modern energy and ideas, which has turned over

So rapid has been the increase in production that the railways have experienced great difficulties in providing transport, but the Government is now coming to the aid of the farmer, and will shortly install bulk storage on American models.

With ten million acres of good wheat lands available in one belt, the Government of New South Wales has wisely seen that adequate provision must be made for dealing with the enormous production of the future.

The Westerner considers that it does not pay to haul wheat more than 15 miles to a railway. Motor traction may extend this payable radius another five to twenty-five miles, but even then much railway building and extension will be necessary. But, as we have seen elsewhere, money expended in this direction will be the soundest of national investments.

Through flat "box" forest, interspersed with cypress pine and graceful evergreen wilgas, we

approach the Lachlan. Underneath the wilga on the sunniest day there is a patch of dense black shade. In time, Westerners will cultivate instead of cutting down their beautiful native trees.

As we roll across a level landscape our thoughts—like the white butterflies which breed in the "warrior bushes" out here and drift all over the country—go drifting to and fro. In fancy we can look beyond the present, and dimly see a future full of greater activities. All that these wide western districts need is railways and a wise settlement policy. There is room in the Central Division for millions of people. Between the Macintyre and the Murray what untold possibilities await development. There are 56,000,000 acres in this Central Division.

From the Black Soil Plains of the far North-West to the red lands of Corowa in the South, it forms the heart of the State. The railway crosses its entire width only twice—from Werris Creek across to Walgett, and from Dubbo, on the way to Bourke.

Lines with great Australian distances between them have been pushed out some of the way. Narrabri to Moree (this line is in course of extension to Mungindi on the Queensland border), Burren Junction to Collarenebri, Dubbo to Coonamble, Parkes to Condobolin, Temora to Wyalong and Barellan, Narromine to Peak Hill, Junee to Narrandera, Hay, and Berri-rigan, Wagga to Lockhart and Urana, Koorawatha to Grenfell, these cross lines all cut into the Central Division, but there will be many a loop and extension before the whole country is adequately rail-roaded. With a progressive Government in Sydney these things will be done quickly. Railways will be constructed where they are justifiable, lands thrown open for settlement, and every assistance and encouragement afforded to settlers.

Beyond the Central Division lies the Western Division with all its splendid story yet unwritten, and before the Central Division stands the Eastern Division—62 million acres—with coasts and ranges and plains holding countless riches yet unwon.

We arrive at Condobolin in time for lunch. a Western lunch, in which roast turkey is a staple dish.

The district is alive to the Ministerial visit. It has the usual deputations waiting with the usual budget of requirements; but, before all things, it will be sociable and hospitable. Whether the Minister grants any or all of its requests, it is going to give him a banquet at night, followed by a dance and social. An "expectancy" which is anything but "weird," hangs over this part of the Bush.

Poverty in Central New South Wales would be as hard to find as snow in Tophet; so everybody can come out well-dressed, well-fed, well-mounted.

After lunch a procession of motor cars, buggies, coaches, sulkies, and horsemen, with the Minister and Mayor ahead, starts away towards the site of the farm.

The Farm is on the far outskirts of the town. In its virgin state it is flat, dull, uninteresting-looking; but, as our friend, Mr. Valder, the Under-Secretary and Director of Agriculture, will explain to you, the sites for



Bloodwood Trees

Government Demonstration Farms are not chosen for their scenic beauty. They are intended to demonstrate, for the benefit of the general public, what the soils and climates of particular districts are capable of producing under correct treatments.

It is the business of the farm management to discover correct local data, and work for the best results. If a farm proves that certain soil, regarded perhaps as poor or useless, will grow some particular thing to profit, then the farm is fulfilling its object.

There are several of these farms in New South Wales, and the service they have rendered to the State cannot be over-estimated.

The Minister for Agriculture, after turning the first furrow, mounts a motor lorry, and tells



Good Wheat Land

the assemblage some of these things. He points out to them that, as district settlers, the new station will directly benefit them: for that reason they should do all they can to make it a success. He invites farmers who are anxious to make experiments, and farmers who are in difficulties, to wait upon the manager of the Farm, whose function it will be to make their troubles his own. He predicts a great agricultural future for the Lachlan, and assures them of his Government's sympathy in their pioneer efforts.

All of which is distinctly pleasing and illustrates the better side of democratic government.

The Director of Agriculture follows. He speaks to the farmers in a hopeful, encouraging way, urges them to avail themselves of the knowledge which the department has gradually acquired in its continual experiments with Australian seeds and soils and stocks, and hints of future possibilities. The Director is an optimist because he knows that, although agricultural production is only in its infancy out here, the West will write history in this direction during the next 50 years. He knows that the great State, of which he is a modest but capable and highly important official, is increasing her output by millions of pounds every decade; that within a few years lands which were once regarded as next door to worthless, will be worth ten and twenty pounds an acre: that in the ordinary course of human events steady workers and wise investors need fear no failure in New South Wales. Having seen how the State Government looks after the interests of

farmers, we rejoin the dusty procession going back to town.

While the Ministerial party is preparing for the evening function, we will look around a young city, which the author dimly remembers forty years ago as a rendezvous for native tribes at tomahawk and blanket time, and an outpost of law and order.

Here was the old bush school where he first imbibed the rudiments. A duststorm came along one day and blew the roof over the playground.

Here is the Lachlan, wherein a playmate was drowned one sad summer's morning long ago. The historic Lachlan, flowing very slowly between high banks, winds across rich pasture lands. The shadows of the red gums are mirrored with photographic reality in its clear quiet waters.

The river seems to have shrunken since the eyes of a bush child, long years ago, watched its shadows while his elders fished for "cod" in the deep holes. A youth looking for green frogs on the bank says that the fish are just as partial to that particular bait as ever.

The so-called Lachlan "cod" is of fine flavour, one of the best fresh-water fishes in the world. So plentiful in those early days were these huge Murray perch that the people of Condobolin fed their pigs on the surplus.

There are a few wistful-looking blacks left out of the tribes who used to assemble here for their Government blankets and tomahawks when the writer knew Condobolin.

The town has a municipal water supply now. In our time the house blackfellow brought the daily drinking water from the river in two buckets, swung from a yoke on his shoulders.

A kerosene lamp outside a rough public-house, a dusty road with perhaps a dozen dwellings, police station and court-house—that was the Condobolin of memory. In *this* Condobolin the hotels are electric-lighted, the dusty road is a fine, broad main street, with asphalt pavements, and all the old landmarks are submerged under waves of progress.

The future of Lachlan-side is certain. Nearly every acre of the Middle West will grow wheat to pay. Much of it will produce lucerne and other profitable crops. Crosscountry railway lines will come in time, population will come, progress, civilization, prosperity, cities, towns, villages, farms, homes, gardens, factories, industries—they will all be part of the future of the West. The type will improve under climate and conditions eminently suitable for the physical and mental development of Europeans.

These new countries want the best that Europe has to spare; but they have proved their value in converting some of the worst into some of the best. There is something expansive in the very air of our glorious Commonwealth that makes for the highest physical and mental development possible to the European races.

To-night a representative of the Government and his party are to receive the hospitality of the West. See how these "melancholy" Australians rise to the occasion! Observe the banquet tables laid out on the long balcony of the hotel, which has been screened off from the street, and decorated with flowers and greenery. Such flowers! English roses as fine as any that grow in rural Britain; great red gladioli, and all the plunder of Western gardens—the room is a blaze of colour and electric light. Gone are the kerosene lamps and guttering candles of youthful days. Gone are the elastic-sided boots, the wide-bottomed trousers, the spurs, the crimean shirts, and all the pioneer crudities. Decorous-looking, clean-shaven citizens in evening dress occupy the chairs, with the Minister and Mayor and aldermen at the head of the table.

The menu would reflect no discredit on a first-class European or American hotel. "The wild and woolly West" forsooth! The refined and luxurious West, if one prefers facts to foolish literary fiction. Here is the real West, here in this room creditably represented at a social function which includes locally-grown asparagus and green peas. Here is the true West and the true atmosphere and sentiment of it.

Listen to the after-dinner speeches of the local citizens! Are they bewailing their hard lot?

Are they complaining of poverty or neglect, or drought or disaster? Decidedly not. They are putting forward their local requirements, mayhap with a little kindly satire and some dry humor; but through it all there is a robust spirit, a sturdy sense of citizenship, and a keen pride in their district. They honor the toast of the King, they drink modestly to Parliament, their own Parliament, and they pay the Minister and his Department the courtesy which is their due. They are not all supporters of the party in office; but it is a social function and political opinions are put aside. This is democracy in our Commonwealth under the Crown.

Glance around this table! You have heard that Australians in general, Westerners in particular, are an unsober people. No criticism was ever further from truth. The Minister is a total abstainer, his staff and ninety per cent. of the assemblage are the same.

At an early hour the meeting rises steadily to its feet and adjourns to the social hall down street. In Australia women have an equal voice with men in the selection of Parliamentary representatives. There is no suffragette trouble. The Parliaments of the Commonwealth, State and Federal, are left to men, but the women of the country help to select their lawmakers and their influence in politics is considered good.

So the Minister, as a matter of course, attends the social and will, later on, by request, deliver a short address. Meanwhile, in the presence of robust women and handsome girls in evening frocks, we may gather an impression of Australian country womanhood. The impression cannot be other than favorable. It will be another testimony to climate and conditions. These daughters of the West are capable and strong. With a well-lit hall, good music, good singing, and a good floor for enthusiastic dancers—the evening passes pleasantly.

The concertina is relegated to the further back-blocks; the rude functions of the past have given place to a refined sociability; the Bush has taken on a more modern garb. Friendliness has not vanished, freedom is still the atmosphere, but our Bush world is correct, conventional, and a firm stickler for behaviour, sobriety, and good form.

It is to this freedom and security and to such conditions and chances that Australia to-day is inviting citizens from Europe and America. They need have no fear, in bringing their women and children to the Australian States, that they are risking either health or safety.

Australia offers present prosperity for an unlimited number of industrious people and continental opportunities for coming generations. . . .

On a cloudless, sunny morning with just a nip of frost in the crystal air which makes mere



Old Police Station, Lake Cargellico

breathing a delight, we bowl out noiselessly from Condobolin on a four hundred mile motor run across the plains.

Our road is level but not monotonous. Now and again it touches the bank of the Lachlan at one of its innumerable bends, passes through avenues of drooping branches, breaks out into the open, where the salt-bush grows; crosses immense squares of treeless plain; and enters again into belts of timber, where straight cypress pines find rootage in rich, red loam.

The swamp-lands are covered with succulent herbage; dry now, but full of nutriment. We note that the sheep on these dry pastures are in excellent condition, which leads to a dissertation on silos and the storage of fodder, on systems which are going to solve some final problems of settlement all over the Commonwealth.

The Minister tells how, the previous winter, he went a long journey into the North-West, and how, on Tucka Tucka Station, on the borders of Queensland, he saw lucerne hay which had been eighteen years in stack fed to stock, the animals accepting it with relish.

On Sir Samuel McCaughey's station at Yanco, lucerne hay has kept perfectly for eight years. It is obvious that the losses of early days through unexpected variations of season will not be repeated in the future. Sufficient water and feed can readily be provided to tide over a series of dry years, should they occur, and the ever-profitable pastoral industry will be extended far beyond its present limits.

But as we leave the Lachlan above Euabalong and motor through the red country towards Lake Cargellico, we see that the future of the Central West, away from its irrigation centres, will largely be wheat-growing, combined doubtless with mixed farming.

In 1913 New South Wales added 791,000 acres to her wheat area, and her present progress indicates at least a million acres a year increase for some years to come.

Lake Cargellico is a splendid sheet of fresh water, capable of supporting a thriving irrigation settlement when the railway extension from Wyalong brings producers into touch with markets.

It is wonderful what results have been achieved by industry, even at remote distances from transport. At Hillston the Minister receives another deputation. Hillston asks for a railway through Rankin Springs to Wyalong. One farmer relates the experiences of 25 years in that district. He has been growing wheat on 200 acres of land, and carting it 60 miles to the nearest railhead, and he admits that he has done well.

He fallows his land in July, gives six workings to the one ground, and his average crops of wheat are from 15 to 18 bushels per acre. Algerian oats give him ten bags to the acre.

Without doubt this wide belt will all be included in the profitable grain-growing areas of the Central Division. It is likely that the harvester will give place to the stripper and power winnower on big farms; and there will be an

improvement of methods, which will tend to more economical and effective production.

On leaving Hillston, after a night's rain, we turn East again. Cypress pine with occasional stretches of mallee, wilga, and yarran, proclaim that we are still travelling through wheatfields of the near future. The rain has made heavy going, and our car bogs twice in the deep red soil before we reach Rankin Springs.

Here the fatted turkey again awaits us. Rankin Springs is no more than a fine stone hotel standing in the heart of a great box forest; where it was erected 20 years ago in anticipation of a railway line—which never came.

The lands through which we have been ploughing our way all the afternoon, the lands around us here, and the lands before us, right through to Temora, are all of one unvarying standard of fertility.

Between Hillston and Rankin Springs we have found only one settler. Large sections are tentatively held under what are called in New South Wales "permissive occupancy" and "occupation licenses."

They range from 33,000 to 128,000 acres; but when the railway brings closer settlement in its train, they will doubtless be cut up by the Government into 1,500 or 2,000 acre blocks, on which families should have no difficulty in making an independence.

With the exception of the Lachlan Range, a low line of hills which crosses from the Lachlan to the Murrumbidgee, it is all good. At Rankin Springs, besides our turkey, basted with cream, we are given locally-grown figs and potatoes of finest quality, in earnest of the future agricultural wealth that lies waiting in the soil.

In a hundred miles of journey we see but two habitations. From Rankin Springs to Wyalong we travel the best part of a day through sleeping lands, which need but one caressing touch from the hand of Progress to awake in smiling fields of grain.

As we approach the railway zone towards Wyalong the forest opens here and there into wheatfields. Boarding the train at Wyalong we find, as we go down towards Temora, that the clearings become general. The country is no bet-

ter, probably not as good, as that through which we have travelled for three days, but it is crossed by a railway; and a railway, anywhere through this Middle West, must bring settlement with it.

Night finds us at Cootamundra, in the heart of the wheat.

We look back over this rapidly recorded journey, and from the long film of nature pictures which have flashed rapidly before us, we retain some enduring impressions.

Beyond the winding river, and the long levels of brown flat lands; beyond the belts of cypress pine—standing silver grey or sombre green,—beyond the lakes and cowals dotted with wild-fowl, beyond the majestic stillness of the pregnant plains, one hears the ploughshares gliding through furrows of the future and the rattle of harvesters moving down ripened fields.

For untold ages Australian seasons have come and gone across the awaiting West. Spring, mayhap, has passed in rain-wet robes of splendour and scattered grass and flowers over a thousand miles.

Summer has followed, and interwoven her emerald carpets with frequent threads of gold.

For unrecorded centuries, before the white men came, these priceless pastures subsisted mobs of marsupials only; which the black man hunted when hunger impelled him. Never a shining ploughshare bit into the red earth of the plains, never a gardener's spade upturned the black soil by the rivers' banks.

Then came the early colonist, like an Asian patriarch, driving his sheep before him. The country was mapped out to him in wide grazing areas. He "squatted," improved, conserved and, with prudence and patience, brought the art of wool-growing to a perfection which it had never before attained. He has deserved credit and earned profit, and these, in all fairness, he must receive. Great areas of Australia will still remain to him, for these areas are more suitable for pastoral purposes than anything else. But as the pressure of population increases and good agricultural land becomes more valuable, the wise freeholder will turn his country into farms. Meanwhile, by an active railway and settlement policy the Government of this Mother State is hastening inevitable development "out West."



A Darling River Steamer

THE WESTERN DIVISION.

FROM WENTWORTH TO BOURKE.

THE State of New South Wales covers an area of 310,367 square miles, which is greater than that of any European country except Russia. The area of Germany is only 208,780 square miles, on which sixty-five millions of people exist.

The population of New South Wales is less than two millions. It could probably be multiplied to equal that of Germany without overcrowding. The natural resources of the State would be sufficient to sustain the increase in standards of Australian comfort.

For purposes of land administration New South Wales has been divided into three divisions—eastern, central and western.

The first division extends westward from the coastline and includes the Great Dividing Range. Its inland boundary runs north to south from about the intersection of the 151st meridian and 29th degree of latitude in an irregular line. It terminates at the Corowa district, on the Murray River.

Barraba, Tamworth, Wellington, Temora, and Junee lie just within the Eastern Division. The Central Division goes back as far as Condo-

bolin. The Western Division begins at Mungindi, follows the course of the Barwon for some distance, comes south to Euabalong, and takes along the Lachlan to the Victorian border. All the lands westward of this boundary line to the border lie within the third great division of the State.

This enormous territory has for many years past been under the jurisdiction of a body called "The Western Lands Board," appointed by Government.

With eighty-three millions of acres to supervise, the three Board members have grown accustomed to travelling. From Milparinka at the north-west corner, to Euabalong—in this division—as the crow flies, is a distance of 350 miles, and the crow would cross some wonderful plains in its flight.

Being yet a hinterland of New South Wales, held under pastoral lease, in trust for future settlers, a cursory glance over these farthest back-blocks will prepare us for a later consideration of more settled districts.

Across the heart of the Western Division runs the Darling River, which, having gathered its

waters from Queensland and northern New South Wales, carries them by a long winding channel to its junction with the Murray at Wentworth.

Wentworth is one of the most interesting places in the Commonwealth. Here, nearly a century ago, the brave but pessimistic explorer, Sturt, was met by a painted band of black warriors and narrowly escaped death.

As the meeting-place of our two longest inland rivers, it has a geographical importance. Sometimes when there has been little rain in Queensland, the waters of the Darling are delivered in a clear slow-running current. At other times they

emu has stretched a long neck to drink; many a red kangaroo has left his tracks in the mud.

Down this long western river paddle-wheels of steamers have churned, towing barges behind them deeply laden with wool. They have gone up against stream with cargoes of provisions and supplies.

At Wentworth, steamboat men from Echuca foregather with steamboat men from Bourke. At Wentworth, stockmen from west of the Darling talk horse with stockmen from Riverina.

Twenty to thirty years ago Wentworth was among the towns of Farthest Back. To-day modern influences are converting far-back Went-



The Junction of the Murray and the Darling

sweep down like a river of milk to join the clearer stream of the Murray, snow-fed at its birthplace in the Australian Alps.

The Darling brings to Wentworth the uncertain contributions of the Warrego and Paroo from the far West. It has received the Culgoa, bearing its tribute from western Queensland, the Namoi with its rich solutions gathered over the Black Soil Plains, the occasional surface flow of a flooded Castlereagh, the mysterious Macquarie and the romantic Bogan.

On its banks campfires of many travellers have been lighted. Bells of pack-horses have tinkled in the bends, and the yapping of sheep-dogs has been heard. Many a flock of pink galahs has been mirrored in its green waters; many a thirsty

worth into a garden city, readily reached by rail from the southern seaboard.

The country around Wentworth is flat, and to those who are not in sympathy with the Australian Bush—monotonous. The rainfall is low, averaging less than 11 inches a year. Out at Milparinka it is less than 8. But Milparinka, on the same meridian, is three hundred miles north, at the extreme corner of the Western Division.

Wentworth enjoys an ideal winter. Mid-summer is decidedly hot; hot but healthy, with cool nights when one may sleep in the open air and awaken to appetite and strength. These conditions apply generally to inland Australia.

Send no pessimist to Wentworth, but a prophet! He will tell you that this place is one day to be the

metropolis of the Darling, not the Darling of 1916, with its millions of cubic feet of priceless waters going wasted to the sea, but the Darling of the future—locked from end to end, its silver ribbon fringed by green irrigated colonies as far apart as Pooncarie and Bourke. For, as surely as the brain of man has learned to harness the lightning and bind the genii of mechanical force as slaves to the Lamp of Invention, this meandering daughter of the Riverina is destined to bring wealth and fertility to thousands of Australian acres.

The Government Irrigation Settlement at Wentworth has pointed the way. It is one of those finger-posts to Progress that already stand here and there across Southern Australia. The road behind them has been macadamized alternately with Failure and Success: the road ahead will be paved with gold.

To the believers in Australia's future, the story of the Wentworth Irrigation Settlement reads like a lyric.

The late New South Wales Commissioner for Irrigation, L. A. B. Wade, told the Dominions Commissioner in 1913 that there are 250,000 acres which can be irrigated on the Darling River. As a careful engineer, Mr. Wade's estimate would doubtless be a conservative one. We will see presently what *one* good western gardener can coax 50 acres to yield. In farms of 50 acres this estimate gives us 5,000 new homes for the Western Division. Under Providence there is nothing to prevent it if our people are wise and courageous.

Of Western dry farming possibilities we will say nothing at present.

Let us deal for the moment with certainties of irrigation; already foreshadowed at Wentworth in the far-back West.

Wentworth irrigation area consists of 10,000 acres, located in the eastern angle between the Murray and the Darling.

Of this about 2000 acres had, at the end of 1913, been subdivided into blocks of from 7 to 35 acres. Each block receives the water at the highest point and slopes to the natural drainage lines, thereby minimising the amount of grading required to prepare the land for irrigation.

The water is pumped from the Murray River and conveyed to the land by means of sloped channels two feet wide at the bottom and 3 feet 6 inches deep. From September to the end of February waterings are given every three weeks. This meets the summer requirements. From March to August the soils receive their artificial moisture once a month. The area thus receives an equivalent to the rainfall of the north coast

of New South Wales, and gets it just when it is required for purposes of cultivation.

The departmental chemist pronounces the soil "with judicious watering capable of bearing good crops of anything, especially fruits of all sorts suitable to the climate."

The Government of New South Wales grants its irrigation leases to settlers here, as elsewhere, on most liberal terms. The title is a form of perpetual lease. Rents range from 2/6 to 5/- an acre. The water rate is £1 an acre. To encourage and assist settlers of small means, neither full rent nor water rate is charged until the fifth year of occupation.

Residential conditions on this particular area have not been enforced.

Many of the first settlers were men without capital, who kept the pot boiling by working beyond their blocks when occasion offered, as shearers or laborers. In Australia any average industrious man can find a road to competence if he seeks for it wisely.

Examples of individual success afford the best argument. We will take one from Wentworth Irrigation Area:—

Five years ago an excellent citizen of South Australia, of the sterling Devonshire stock, moved up with his family to Wentworth. His name is Walter Sage, and it may be said of him that he impresses one as a man for whom the flowers would be glad to grow and the trees to fruit.

When the author of this book—six years ago—went down to Wentworth on a motor boat expedition of 1,500 miles from Albury to Lake Alexandrina—which established a world's record for this particular mode of travel and strengthened his ever-growing faith in Australia—the area was just emerging from a rather troubled infancy. A N.S.W. Government had even considered its abandonment.

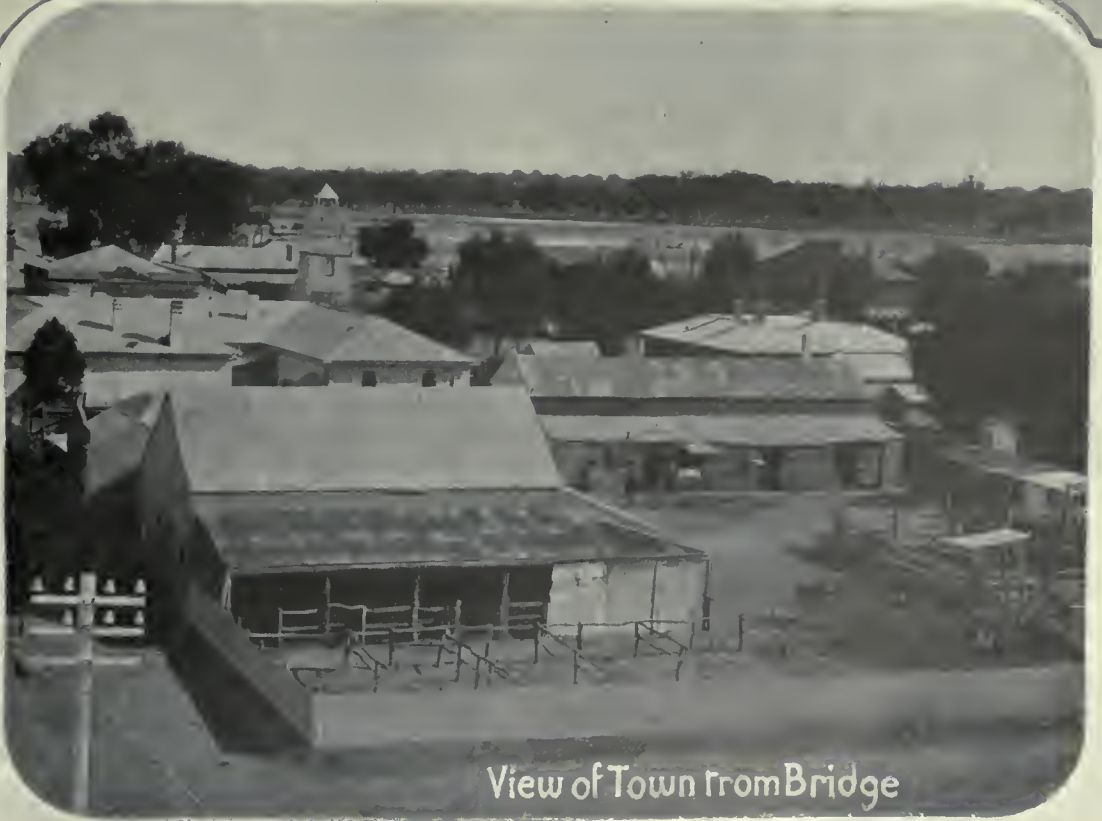
Two years and a half later he was one of a party of parliamentarians and pressmen journeying by river steamer from Goolwa in South Australia to Mildura, Vic., to embark the Scotch Agricultural Commission, and incidentally to inspect proposed lock sites and irrigation settlements along the Murray.

Among this keenly patriotic crowd of South Australians were some who knew that Walter Sage had migrated from their State, and they said,

"If any of these settlers are going to make a big success on Wentworth, Sage will be among them. He will be right among the first."



Wharf & Bridge Wentworth



View of Town from Bridge

Wentworth.



Peach-Tree two and a half years old, on Walter Sage's block, at Wentworth

So when the writer came again to Wentworth in 1913, under the gracious aegis of the N.S.W. Minister for Lands and Agriculture, and the official party was met by the settlers at the pumping station, he looked around for the South Australian.

The bronzed, broad-shouldered Sage was there; and furthermore, his 50 acres of orchard were there, giving eloquent testimony that the hands of this ideal settler had not been idle nor his judgment at fault.

It was only his fifth year on the area, but the family crops had given £2,000 clear profit!

With his two sons to aid him, he had taken ugly bush land and converted it into a garden of fertility and wealth. Others on the area, including an irrigationist from western America, who swears by Australia these days, had done exceedingly well, but the Sage blocks were yielding the greatest returns.

His nectarine trees at two years old were giving him £50 an acre. He had taken three tons of peaches to the acre, worth £60 a ton; and one particular crop of the same fruit had brought him £220 to the acre. But his citrus fruits were going to prove more profitable than any. Ideal climate, peerless soils and plenty of water will make orange-growing in western N.S.W. one of the most successful industries of the future. Nor will there be any fear of cold snaps, which have caused such tremendous damage to citrus crops in America, or the physical disadvantages which attend this industry elsewhere.

Apart from its profits the cultivation of citrus is one of those pleasant outdoor occupations which seem to bring people health and happiness as a natural order of things.

Among orchardists orange-growers form a gentle aristocracy of their own. Nor do the people who take up orange-growing need to be either rich or independent. A very modest amount of capital suffices an agricultural settler in Australia, and even the man who comes to this country without any capital at all may be sure, if sober and earnest, that he can speedily earn and save enough to make a start towards independence.

For example, the N.S.W. Government offers him an irrigable holding on the easiest terms, supplies him with the levels of his land, with expert information as to its treatment, remits a part of his rent to meet his needs; supplies him with wire netting at cost price and gives him five years to pay for it—aids him in every possible way to success.

The timbered land on Wentworth area has cost about £5 an acre to clear and prepare for planting; the open country £2.

The estimated cost of planting with rooted Gordo grape vines—which have returned a nett profit of £20 an acre on this area, is about £2/5/- per acre. Sultanas and currants require for trellising about £5 an acre in the second year.

Stone fruits, peaches, apricots, nectarines, all of which the Western Division grows to absolute perfection under irrigation, cost £4 an acre for

planting. Cultivation amounts to about £4 an acre on Wentworth irrigation area.

The price of citrus fruits for best varieties may be set down at £6 an acre, but planting and cultivation would be the same as for stone fruits and vines.

We foresee what the back blocks of Australia are going to be when we go over a fifty-acre irrigated garden such as that of Walter Sage at Wentworth.

Here long rows of spreading apricot trees, pruned to perfection, will be weighted down with luscious fruit when December days—once so dreaded as a destroyer of grass—are emptying their quivers of golden arrows over the West.

On umbrella-shaped peach trees, trimmed with an eye to shade and fruit-bearing branches, mid-summer fruit will blush like the cheeks of Monaro maidens.

Here the dark evergreen of citrus foliage makes a fitting background for yellow and golden fruit.

The flavor and quality of these Wentworth oranges give them first place in the markets. In a little time Walter Sage expects an income of £5,000 a year from his block.

These irrigated soils have produced sorghum 17ft. in height and lucerne yielding nine cuts in one year. Thirty pounds an acre have been secured from alfalfa crops. Maize 9 feet high, and water-melons 65lbs. weight are among the productions of this prolific soil. Millions of acres just as prolific are to be found in New South Wales.

System in treatment of his land is the most essential qualification for the settler. Given systematic attention, the land will do the rest; for all irrigable cultivation there is nothing better in the world and very little as good.

The irrigationist can establish a comfortable home, rear and educate a family and enjoy a pleasant rural life with flowers, birds, music, and friendly association. He will live and labour in a garden, where the earth simply pulses with fertility, over which the skies are perpetually blue, and the breeze that sways the drooping branches of his fruit-trees everlastingly pure and healthy.

In time, none of the water of the Western Division will be allowed to waste. Its soils are far too valuable for an acre of possible irrigation to remain undeveloped. Money invested in irrigation schemes, public or private, is likely to yield bigger profits on sounder security than money invested in most other things, even in Australia, a land of profitable investment.

In order to make a personal examination of country along the Darling, the author of *Australia Unlimited*, accompanied of Mr. A. C. Roberts, of the New South Wales Agricultural

Department, and Mr. Walter Sage, left Wentworth in a motor car on the 22nd May, 1913. It was one of many long Australian journeys undertaken for the purpose of collecting facts and impressions at first hand.



Sorghum, nine feet high

With the expert knowledge of Irrigationist Walter Sage, the general grip and experience of an Agricultural Minister's secretary, and the steady hand of Senior-Constable Bob Ferguson upon the Renault's wheel, the author felt that he was in the way of correct conclusions.

We set out from Wentworth on a cool grey morning, well overcoated and rugged. First disproof of an Eastern fiction—it is *not* always hot in the far interior. On the contrary, the interior enjoys a long bracing winter.

It was the duty of the passenger who occupied the front seat by the chauffeur to get down and open gates. The first was about five minutes' run from Wentworth. It was a white gate. On the other side of it stood a finger-post.

The left arm bore the legend—

"BROKEN HILL. 200 MILES."

The right said—

"BOURKE. 400 MILES."

We had entered the Country of Great Distances! Between the white gate and Broken Hill there was not so much as a village marked on the map. Between the white gate and Bourke there were two towns—Menindie (population, 250), and Wilcannia (900). The rest was sheep stations and open plains.

Gates occurred at frequent intervals all the way to Bourke. All the west of the Darling to the Queensland and South Australian borders is held by pastoral leases and devoted to sheep-raising for wool. We were motoring through 400 miles of squatters' sheep paddocks.

Away from the Darling are the typical rich red soils of the West. Along the river—brought down no doubt from the black soil plains of the Darling Downs and north-western New South Wales—there runs a wide belt of black land.

The dominant timber is box.

The land along the Lower Darling Mr. Sage pronounces similar in character to that on which his orchard at Wentworth is located. This brings us another of those national sums for which the writer confesses a fondness. The answers are so many mallets to smash the addled eggs of old Delusion and make room in warm nests of Facts for healthy chickens of Confidence and Effort.

When we Australians get correct answers to a few of these important national sums we are going to take top of the world's class.

We will call this "Walter Sage's Sum," because it was checked by Mr. Sage under the shade of a redgum tree between Menindie and Wilcannia, and the answer he pronounced correct.

The sum is simple:—

If W. Sage earns £5,000 in 1 year from 50 irrigated acres (citrus) fruit—and there are, according to L. A. B. Wade, 250,000 irrigable acres on the Darling—what is the possible capital value of the annual fruit production thereon?

The answer is *Twenty-five Million Pounds!*

Citrus lands in cultivation at Renmark, South Australia, were last year valued at £269 an acre. The capital value of the 250,000 acres, if they were under cultivation to-day, would stand probably at sixty-five millions of money. A generation hence, if values of irrigable land increase in this country as they have done in the United States,

the orchards of the Darling would be worth twice as much.

Few modern investments will return a higher rate of interest or ensure a greater increment than those offering right throughout Australia.

Our road—a dusty track innocent of formation—followed the river to Sturt's Billabong. Here we left the steep gray banks of the Darling to cut across country and save that great bend in which lies the sandy village of Pooncarie.

One leaves the river to enter a silent country. Spreading redgums give place to stunted vegetation. Back from the river the squatters have excavated huge dams and conserved immense quantities of water for sheep. Of natural fodder plants—especially saltbush—there is no lack. Pastoralists of experience west of the Darling know that, provided you can establish a water supply, sheep will carry through the driest years with little loss. There is always a sufficiency of native feed in the back country.

In the near future, when the Darling has been locked and conservation and irrigation settlements flourish along its banks; when the lakes and anabranches and billabongs are turned to account, when proper transport has been established, this wonderful river belt between Bourke and Wentworth will not only support a great population, but it will form a base on which still further settlement will safely rest—a settlement extending right to Tibboburra and Broken Hill. All that now has to be left to chance of season will be under scientific control.

It is admitted by men occupying large pastoral holdings that if a scientific artesian exploration were made of the remote West and proved successful, the whole of those backblocks could be converted into 30,000-acre holdings; and it must always be kept in mind that the Australian pastoralist thinks in largest holdings because he has been and is a product of original conditions. He is guided more by methods of the Past than those which a clamorous Future are likely to force upon him. He has proved a good pioneer, filling a useful and honorable function in opening up new country; but one tendency of Australian progress is to push him further back—unless, indeed, he is prepared to fall in with a newer order of things and from an overlord of leases become an organizer of farms.

If our modern world based its effort on a sentimental rather than a practical philosophy, one would regret the departure of the squatter from his ancient habitat; a picturesque figure is fading from the near Australian landscape; the first chapter of the romance of the Wool Kings has been closed. But picturesque and romantic as medieval Europe appears, nobody prays for a return of the old feudal laws and characters.

The evolution of human society is everywhere inevitable. The Australian pastoralist and his function will be remoulded from the melting-pots of Time.

Such thoughts were in our minds, when, at the end of a long day's run, we found ourselves for a night under the hospitable roof of Messrs. Dunn Brothers, at Netley Station, on the western bank of the Darling.

At Netley the Burke and Wills expedition dried the beef which they took with them on their fatal journey towards the interior.

There is a fine irrigated garden at Netley. Here Walter Sage examined orange trees fifty years old, and pronounced them absolutely free of orchard pests. He declared Netley garden the healthiest old garden he had seen in all his life.

That day, far back from the river, we had carred through red lands, showing only dry feed and blue bush, which the same authority declared could be occupied as wheat lands to-morrow if they were provided with transport.

One can always be guided by a reliable South Australian opinion on wheat. The growers of the Central State are now ranked among the best dry-farmers in the world.

At Netley, in the heart of what many good Easterners still believe to be a wilderness, we found paddocks of green lucerne, giving a cut regularly every six weeks.

Here the orange, lemon, and citron bore profusely. Here grew olives, nectarines, apricots, quinces, apples, and vegetables in abundance. Here, too, were velvety lawns of thick buffalo grass, graceful cedars, and flowers.

The stalwart Dunns talked eloquently of the West. The broad-minded Westerner swears by his heritage. The land he has won is ever dear to him. A conqueror, he is in turn conquered—the magical West holds him a willing vassal. He is happy in her smiles and accepts with patience her occasional frowns. He knows that the worst drought is only one of his lady's passing moods.

The men of Netley told us that their country was barer than usual. They had less water on their frontages than for several years.

In their opinion the damming of the tributary rivers had led to a great decrease lower down and a lessening of navigation—on which the Darling largely depends for the transport of wool and supplies.

The underground-water quest here, as elsewhere, is intensely interesting. Recently the divining rod has come into favor on Netley. Now the divining rod, divested of all unnecessary occultism, is based on some yet unexplained physical or psycho-physical fact. The number of sceptics as to its uses is becoming a daily decreasing

quantity, the divining rod having proved a mysterious but generally exact guide to subterranean water.

Of the two Dunn Brothers, one possessed the gift of the rod; the other did not.

The method adopted by the man with the gift is simple enough in seeming. He cuts a green forked twig of a native willow or some pliable wood, with a stem a foot or so in length. He then grasps a prong in each hand and walks slowly over the ground it has been decided to test.



Navelencia Oranges
(Note comparative size with the penny)

If the diviner comes over a spot where underground water is situated, the erect twig bends of its own apparent volition. In some unaccountable way it is attracted towards the surface of the earth at that particular spot. So strong is this seeming magnetism that the twig will sometimes snap off short in the diviner's hands.

There are diviners who profess to tell whether the water below is fresh or salt. From evidence collected with great caution over a wide sphere of operation in this Commonwealth it would seem that they are more often right than wrong.

Moreover, certain of these men are prepared to back their faith with their money, a sovereign

test. They cheerfully sign contracts to sink wells or put down bores on a basis of no water no payment. A jury of scientific sceptics could hardly ask for stronger proofs than these.

On Netley back-country they had just located water with the rod. If the rod were right they would cart timber from Broken Hill, fifty miles, putting on teams, work relays night and day, put in a centrifugal pumping plant, and start watering their sheep out there, in time for shearing.

especially well if they could be provided with permanent water. The average rainfall on Netley is nine inches a year. For the river frontages this does not matter so much; there has always been water enough in the Darling. But the further-back sheep cannot all be brought in when a drought threatens; animals must drink or die; overstocked frontages are as fatal as understocked back country gone dry. Years ago the men of Netley decided to put down



Irrigating Peas grown between young Fruit Trees, Yanco

It is amusing to hear the parlor-bred philosopher of cities or the casual visitor declaiming with a superior air that the men of our back-blocks are slow-going and lacking in resource.

Men who speculate £6,000 in a single well are not moral cowards. If the back country men were what the world has been asked to believe, the back country would still be all an open domain for the aboriginal and the kangaroo.

It is a fascinating thing, this Conquest of the Wild. Away back from the Lower Darling, about 50 miles east of Broken Hill, there is a line of Netley holding, where sheep would thrive

a bore in this good but occasionally arid country. The bore went down 200 feet and struck—air! For a certain number of hours in the twenty-four there was a prodigious inrush; as if some imprisoned giant under 200 feet of earth and rock was filling his Titanic lungs. Then, for the remaining hours, air was just as forcibly expelled. That Giant breathed so mightily hard that the bore had to be abandoned—the casing would not stand the strain. Besides, the proprietary was not looking for air; it wanted water. It was certainly air that went in and out of the bore because, with casual Australian curiosity, the

borers held lighted matches to the outrush and it never ignited.

A number of years elapsed, and another bore was put down, some distance away, with the same results. Similar happenings are recorded in the history of artesian exploration in other parts of Australia. The water in some artesian bores is reported to ebb and flow with the tides.

North of Netley (spelt also Netalie) is Menindie Lake, one of a series of lakes which follow in a southerly direction. They are filled from the overflow of the river in wet seasons and, with the great anabranch, help to relieve the Lower Darling of its flood-waters.

area, which could be watered by this cheap and simple gravitation scheme. If box-flats along the Darling are worth £100 an acre return per annum, Cawndilla Lake bed would in all probability be worth more. One can dimly see what the centuries' deposit of silt would produce in the way of lucerne. Lands below the junction of the Murray are declared richer because of precipitation from the Darling. The drainage area of the Darling comprises black and red soils as rich as any in the Commonwealth.

By and by, when the river is locked and cool-storage boats are installed, there will be a tremendous output of fat lambs, which will not receive



Children at Menindie

They occupy many hundred square miles of country, and can with a little inexpensive engineering be converted into permanent storages.

One of these intermittent lakes—Yarlta—we circled on our first day out from Wentworth. Its bed was perfectly dry and bore the appearance of an immense plain covered with good grass, on which the stock were in excellent condition. Water is to be got at a shallow depth by sinking.

Menindie Lake offers an opportunity for an irrigation scheme. It is fed directly from the Darling, and can be made to impound from 20 to 25 feet of water at a comparatively small expense. It is connected by a natural channel with Lake Cawndilla, a few miles south. The levels of Cawndilla are four feet lower than Menindie. The bed of Cawndilla—composed of richest silt—would no doubt make a splendid irrigation

their condition from “old-man” salt-bush and belah scrub; they will be fed on the alfalfa, which this belt of beautiful country can produce—not only on our theoretical Cawndilla, but right from Wentworth to Bourke with proper cultivation.

There was just a taste of frost in the air on the morning our car left Netley, and all the world of Nature seemed in an exhilarated mood.

As we bowled along—now approaching close enough to the banks of the Darling to see the reflections of red gums in its greenish-colored waters, now crossing from bend to bend, over flat plain, the car would run into flocks of galah parrots.

In companies of hundreds, with their beautiful pink and gray plumage, they added a splash of color to a rather sombre landscape.



A River Trading Steamer

Occasionally we overtook a mob of emus, whose awkward gallop several times carried them into a wire fence. Then would come a wild tangle of birds, flying feathers, avian somersaults, kicking legs, and gaping beaks, which ended in broken fence wires and dilapidated emus striding at accelerated speed towards the horizon.

It is this tendency to break through wire fences which makes the emu so disliked by sheepmen. When one saw a raffle of pink and grey feathers by a river bank, one knew that an eagle had dined off a galah, but the remains of an emu, with the usual crow pouring out coarse abuse from an adjoining tree, meant as likely as not that some stockman's Winchester had been busy on the breakers of fences.

There were many varieties of parrots along the way, including the beautiful shell parrakeet, its little emerald body flecked with gold, flashing as it flew across our sunlit track.

Given good companionship, a journey such as this is a daylong delight.

It was noon when we came to Menindie, a back-blocks village located among the pink sandhills of the West. The landscape hereabout is by no means a settled quantity. In the post office yard we found sand banked up nearly as high as the fence. When a strong wind blows, fine red sand is left in drifts, as snow is drifted in colder places.

Menindie is a depressing array of tin-roofed houses on a sandhill, with only a few scattered trees to relieve its bareness. Yet Menindie might be a green oasis, full of shade, fruit trees and flowers. The Darling is within reach: a cheap co-operative pumping plant would convert the ugliest spot in the State of New South Wales into an attractive garden town.

One day Menindie may be an important western centre. Let us hope that the generation which is coming will realize here and in other parts of Australia, that shady streets and green gardens make for personal happiness and the prosperity of towns.

As we carried a well-stocked provision basket and a "Thermos," there was no necessity to linger for lunch in Menindie. So we took the trail for Wilcannia, still keeping to the west side of the river. A little difficulty with a sand hill having been successfully overcome, our car stood in due course under a shady box-tree, while its occupants enjoyed an outdoor meal. This open-air living is one of the many charms which make Australia a land to which every exile will return if he can.

At dark we were forty miles from Wilcannia. We lit our reflectors and went on in the starlight. In that wonderfully clear atmosphere the stars shine with unusual brightness. The country was now quite green as the car glided on across that great quiet plain, sleeping under a cosmic arch

of twinkling suns. Our lights played mysteriously along the blue-bush, brought up ghostly outlines of trees from darkness, and dropped them into night again.

Puzzled rabbits crossed and re-crossed before the car; night insects flashed through the incandescent beams that lit our track, and now and then illuminated the wings of a startled bird. By and by we saw the lights of Wilcannia twinkling through the night.

To swing into a lighted street with shops inviting Saturday-night custom, out of the still, starlit darkness—was like passing from one phase of a dream to another.

But four hungry men soon sat down in solid reality to a late meal of excellent cold mutton and pickles, good bread, good butter, and favorable tea.

Where was the wild and riotous West of story and melodrama? And the heat, flies, thirst, shearers in "the horrors," painted blackfellows, and all the tawdry setting of alleged "Australian literature"?

Like the "Great Sandy Desert" of South Australia, they have vanished into the *Ewigzeit*. If they ever were, they are no more.

We had seen about two hundred bush people enjoying themselves at Cuthero, on the Lower Darling, on the previous day—a public holiday. We had that morning found the people of Menindie tired after *their* sports and dances, and at night Wilcannia was rubbing its eyes and threatening to go to bed early after it had had a warm at the fire.

But at none of these Furthest-Back places had we seen a single person under the influence of liquor, nor any fighting, nor heard loud and offensive language, nor witnessed anything beyond the normal conditions of an Australian country town.

As for the drunken shearer of tradition, the loud knocker-down of cheques, the recalcitrant, violent, red-shirted hero of a hundred impossible fights and foolish adventures, the staggering figure in gaiters and a snake-buckle belt and wide-awake—he has gone.

Nowadays, in machine sheds, sober industrious mechanics, some being young men from the cities and some being small agriculturists, selectors, and selectors' sons from the Bush—remove greasy fleeces to the rhythmic purring of belts driven by electricity. Singularly few of them are drinkers, and most of them are fond of sports. The majority have tidy banking accounts.

Just here we will drop in a photograph, showing a party of these back-country workers, setting out on bicycles for their next shed. . . .

At the Wilcannia Hotel there was a stone-floored kitchen with a huge cooking range, from which a spacious dining-room was supplied with plentiful cookery—for the West is in nothing stinted or small. Cobar and Broken Hill, the last railway points, might each be well over a hundred miles away, but Wilcannia had an abundance of good things to offer. The old idea that people in the New South Wales bush subsist on corned beef, damper, and black billy tea is another of those fictions which are found only in imaginative literature. Good bakers' bread, made from whitest Australian flour, is obtainable all over the country. In any part of the Bush fresh meat is constantly available, and the average settler can cultivate as many vegetables and rear as much poultry as he thinks fit. The rivers, creeks, even the remotest dams and lagoons generally teem with fish, and game is to be got in most parts if a family has appetite for it. In no country of the world do the people live as cheaply and well as in Australia.



Shearers leaving Tolarno, River Darling

Furniture, pianos, pictures, and pots may have to be carried hundreds of miles, but the good bush housewife has her household gods even "west of the Darling," and derives just as much pleasure from dusting and tidying as her sister in the suburbs of Sydney.

Faced by these simple domestic facts, after toasting ourselves at a huge fire in the writing-room, we went comfortably to bed. Glimpsing through a lifted blind we saw the moon—which we had watched through the oleanders and oranges at Netley the night before—rising over the spreading pepper trees of Wilcannia, 619 miles west of Sydney.

It was a joyous Sunday morning when we glided out of Wilcannia. A substantial breakfast stood between us and despair. Never did the face of Australia seem fairer. Over wide plains of black soil and red, with a perfectly blue sky, sparkling sunlight, and freshest air to give us healthy intoxication, we skimmed on comfortable pneumatic tyres. Good country certainly brightens one's spirits. Northward from Wilcannia to Bourke spread the flat lands of the Upper Darling. Far West, in the direction of White Cliffs, we saw blue ranges rising from the billiard-table level of that mighty plain, through which the longest river in the world wound its immemorial length, now in straight reaches, and anon, like some vast python of the Ancient Past, writhing itself into serpentine coils and bends.

A long morning's run, another lunch in the open-air, a glance at the station garden at Killara, where they showed us date palms 50 years old, and we were still on plains of incalculable richness.

Through the galvanized town of Tilpa—where we saw wool waiting for a rise in the river to get it away to Adelaide—and on again over the same level landscape, broken by clumps of graceful wilga or groups of gums, we went joyously.

Blacksoil flats and billabongs, then mayhap a beautiful plain covered with grey-green annual saltbush—excellent fodder plant—just about six inches high and level and even as a crop, we crossed again and again. There was to us nothing dreary or monotonous in the journey, for each hour brought us fresh interests. Everywhere we visioned beyond scattered fat sheep and occasional stations in the bends, beyond the lean stockman, the biking shearer pedalling towards Bourke, beyond rarely disturbed solitudes and vast spaces—a Future in which western New South Wales would be an invaluable contributor in settlement and industry to the general prosperity of the Mother State.

We bided at Dunlop Station that night. It was cold and frosty. Sitting with the station

manager before a roaring log fire, we discussed the problems of the West. The irrigated gardens around this station are growing abundance of lucerne, fruit, flowers and vegetables.

Dunlop, Tarella and Nocolleeche are under one financial control. They cover three million acres of western New South Wales, stretching out to the Paroo and Warrego.

Dunlop (952,000 acres) shored 140,000 sheep in the season of 1912.

On the western bank, in a pleasant bend of the Darling, 90 miles from the Paroo, this comfortable station home is a seat of government for the largest sheep satrapy in the State. But the quiet, unostentatious hospitality of Dunlop is typical of all these west-of-the-Darling stations. The stranger's welcome, a hot bath, a good room, an excellent meal, a soft bed, made an harmonious ending to a day spent in gliding over wide saltbush paddocks, lightly timbered flats and pink ridges where grey kangaroos hopped quietly away from the motor-car.

The Warrego was in flood when we touched it next morning above its junction with the Darling. There had been rain away out along its sources by Tambo and Charleville and Cunnamulla, in Queensland. Yellow waters were flowing lazily through the lignum and lapping the trunks of drooping gum-trees. A barrier of earth turned it away from the station garden at Tarella, where oranges and mandarins were ripening in the sun. Past losses by flood in that garden had made the owner wise. Not only can the Warrego come down in flood, but it can stay in flood long enough to put another side of the Western water question forward for consideration.

Some day none of this surface water will be allowed to waste, and there will be a wider development of artesian supply.

Then, with irrigation bases along the streams, population and production will be tremendously increased throughout the Furthest West. The larger part of this country will probably remain pastoral as at present, but holdings will gradually be reduced and general productivity increased beyond calculation.

The beef and mutton grown out here are of the very finest in Australia.

With drooping myalls and wilgas to give them shade, waving cane-grass on the flats, silver-grey saltbush, distant mounds of colored sand, and all the wonderful bird and animal life of the interior, these plains throw a glamor in some mysterious way over the human soul.

They bring a pervading sense of restfulness and peace to the traveller. The people who belong to the plains seem of gentler speech and manner. They are among the strong-limbed, soft-spoken, brown-skinned Australians who have

absorbed the Greater Distances till their hearts are widened and their souls enlarged. . . .

What will be the future of north-western New South Wales? That is rather a matter of deduction than prophecy. Already wheat growing has been extended north and west beyond Nyngan.

In the near future it will no doubt be extended still further along the western railway line to Byrock, even to Bourke. Beyond Bourke—north and west—is a great artesian basin proved by any number of successful bores. On the Pera bore irrigation area, near Bourke, the New South Wales Government has demonstrated that citrus fruits can be grown to absolute perfection.

One concludes, therefore, that irrigation and dry-farming are going to be part of this vast country's future; that ultimately along the Warrego and the Paroo, and beyond that again into the furthest North-West, industries other than pastoral will gradually extend.

The red hills, covered now with yellow-flowering gidgee and cypress-pine, will be found some function for their undoubted fertilities.

Instead of Nocolleeche waiting for the Paroo to come down once in a while and make good grass-country, scientific treatment will make the Paroo permanently good.

Ten million acres in Bourke district are carrying under a million of sheep. That order of things will not remain for ever. Even if rabbits *have* decreased the carrying capacity of some stations by 50 per cent., neither "sheep" nor "rabbit" is going to be the last word in the

development of the Northern-West. Holdings of thirty rather than three million acres, with seventy-chain instead of seventy-mile frontages to natural watercourses, will also be part of the future. Three combined N.W. stations yesterday shore 300,000 sheep. To-morrow—and the life of a generation is only to-day—3,000 holdings will produce more than three hundred times the annual value of that one crop of wool.

Australia is yet young, but agricultural experiences gained during the last decade have thrown a new light on the future.

Everywhere pertinent facts and patent comparisons will come under the observer's eye. Everywhere is the beginning of a mighty change which the rank and file of Australia have hardly begun to realize. But as the tide of European immigration and investment turns more and more to these shores, which it inevitably must, the increase of population and activity will be so rapid that the mental outlook of the most conservative will be revolutionized.

Of these pertinent facts the Northern-West supplies its quota, among them Pera Bore.

This interesting experiment in cultivation under artesian irrigation has been carried on four or five miles on the western side of Bourke.

Some important roads lead in to Bourke. One crosses the Darling by a fine bridge, over which tremendous bullock teams and trains of camels, heavily laden with supplies for the far interior, go North and West. At Bourke the Darling is still a fine river, kept so largely by a lock and weir built by the New South Wales Government a few years ago.



Bridge over the River Darling at Wilcannia



The Bore at Pera

The road over the bridge will, if you follow it, take you on to Queensland *via* Wanaaring and Hungerford—which is 647 miles from the obelisk in Macquarie Place. Or you may cross into Queensland by Barrington in a more direct line; or strike out *via* East along the Culgoa and down the Condamine to Dalby and the Darling Downs.

As a rider, a coach-passenger, or a motorist, you will experience no particular hardships and jeopardise neither safety nor health. An amateur bushman, carrying his swag after a prolonged spree, would doubtless find the country flat and trying; but a swagman's impressions do not alter normal facts, and the facts are that you would on either route cross a rich and interesting part of Australia.

Why the opinions of derelicts, who cadge flour and mutton from station cooks, should ever have been received as authentic expressions of the Bush is one of the many profound mysteries of colonial thought.

Men who never planted a cabbage or grew a geranium have declared some of the most prolific and fertile lands on the earth to be unfit for civilized occupation, and their utterly unfounded assertions have been accepted as gospel truth!

This mania for distorting realities; for taking accidental phases of Bush life and character, and representing them as typical, is one that has beset the minds of our own writers for two generations. So that a majority of city people, and nearly all foreigners, still imagine an Australia which is almost as far away from the actual prosperous productive Commonwealth as neolithic Europe from London or Paris.

Let the reader divest himself of these ancient prejudices and stand beside the bore at Pera.

He is now in the heart of the Back Country. He finds himself in a magnificent orangery cover-

ing 25 acres of ground. Outside of that are another 45 acres of cultivation. The water of the bore is hot when it reaches the surface; not quite so hot as that other bore nearer the Border—the deepest in New South Wales, which taps the artesian basin at 4,862 feet. The Pera water comes from a depth of 1,160 feet, and flows at the rate of 80,000 gallons a day.

It has been flowing so for 17 years, and during that period the water has constantly been used for irrigating the 75-acre farm of which it is the life-giving artery.

The original site was gidyea scrub. The yellow flowers of the gidyea (*acacia homalophylla*) have an overpowering and offensive odor; although the tree itself—averaging a growth of 20 to 30 feet—might be described as ornamental.

The gidyea flourishes on the red soils of the Bourke district. In this red soil, common to inland Australia, and of which there are hundreds of thousands of adjoining acres just as good—the Pera Bore oranges are grown. In the opinion of some experts they are the finest in New South Wales.

The Valencias average 22/6 a case. The Washington Navels—usual crop 6 cases to a tree—bring 17/6. The freight to Sydney is 1/5 a case; but most of the fruit produced at the bore is sold locally.

The Washington Navels begin to ripen in May; the full crop of Valencias comes at Christmas. The trees receive from six to seven waterings in a season. The cost of putting down this bore was £1,300, and the upkeep of the farm is not great.

Pera has proved that artesian water may be successfully used for the growth of citrus fruit. Bore water, however, varies very greatly in its chemical constituents. Much of it is likely to prove too highly mineralized for irrigation unless some cheap means can be devised for precipitat-

ing certain salts, which are injurious to plant life. This can be done by the use of neutralizing agents. It has been found in some places, curiously enough, that by mixing water pumped from different levels, neutralization takes place.

At Warrawena, 36 miles north of Bourke, on the Culgoa River, one hears of a flourishing plot of 13 acres of irrigated wheat and lucerne three years old. The lucerne here gives nine cuts per year. These crops result from artesian water, constantly applied without injurious effects.

Seventeen years' experiment at Pera bore may be boiled down to the fact that it is peculiarly useful for citrus fruits. This subject of artesian water has been more fully considered in another part of this book.

Whatever uncertainty may exist about the extended use of bore water for purposes of irrigation, there is no doubting what our inland soils will produce with surface supplies.

Adjacent to Bourke weir is a Chinaman's garden and orchard which have been cultivated for many years. This is irrigated by an antique pumping plant from the Darling River.

In the orchard we found stone-fruit trees, thirty or forty years old, still healthy and in good bearing. The trees, although neglected and worked on poor miscellaneous stocks, were helping to rapidly enrich the Orientals who had leased the ground. As usual they produced a luxurious growth of various vegetables. The soil here was that rich black alluvial which edges the entire length of the Darling River. It is an asset of incredible value to the State of New South Wales, and should ultimately become one of its greatest wealth-producing factors.

Down at an Afghan's camp on the outskirts of Bourke, 40 camels were being packed with goods for "Further Back." Turbaned aliens were "slinging" cases of hardware and bales of drapery on the huge padded saddles whereby the animal carried his load.

This "slinging" freight aboard the "ships of the desert" is neither a peaceable nor gentle occupation. The camel is admittedly a useful animal, but only the besotted imagination of Asia could have invested him with poetry. His ungainliness is equalled by his vile temper and horrifying voice.

His simplest function is loud with protest. He will not "hooshtah" unless he roars. He roars during the process of tying his forelegs together—which alone keeps him "hooshtahed" while he is being loaded. All the time he is being loaded he roars, and when he is released he rises like the eruption of a mud spring, and if he cannot buck off his load he roars protestingly.

Yet he bears to the people out-back their drums of oil and bundles of brooms, bags of chaff, slung three on each side of him—tin buckets, sugar,

kerosene, buggy shafts, biscuits, dingo traps, and all the paraphernalia one sees scattered about the loading places at Bourke, at Hergott Springs, at Broad Arrow—wherever the camel camps are located.

On the camel's saddle, with its wooden tees, and gunny-bag saddle-cloth, much needful merchandise goes out across the Australian Plains.

This flat-footed, evil-smelling beast with rope crupper and leading string in its nose can go safely and profitably where neither horses nor bullocks would be possible, and until the heart of the Continent is railroaded, the cheap-living and much-enduring camel will continue to do his work.

But at Bourke, as everywhere else, they will tell you that Australians can effect more with camels than Afghans are able to do. In proof of this the number of Afghan camel drivers in the Commonwealth is becoming less every year.

Ultimately the uses of the camel will be over. The bullock team is now rarely seen in more settled districts. Motor-waggons are displacing both horse and bullock throughout the pastoral country. Later on they will invade that Far Back hinterland where the passing camel train is now a familiar feature of the landscape.

As older methods of transport change, country is changing with them. The great Western division of New South Wales—easier of access and better understood—will be touched in time by the steel wand of Progress, and out of its cornucopia of rich abundance it will pour a treasure untold.



"All the time he is being loaded he roars"

THE WESTERN DIVISION.

WHAT A RAILWAY WILL DO.

SOME day it will all come good. For some time past New South Wales has been considering the question of linking up East and West by the extension of the State railway system from its present railhead on the Lachlan, to Broken Hill.

As far back as 1885 surveys were made for a line connecting Condobolin, *via* Euabalong, Mossgiel, and Menindie, with Silverton.

Another survey was made in 1891 for a link line from Cobar *via* Wilcannia. The agitation for this route was carried as far as the floor of an unsympathetic Parliament and dropped there.

From that date onward the matter has been more or less before the public, and much evidence has been collected.

The Parliamentary Public Works Committee, having gone exhaustively into the whole question, recommended that the 373 miles between Condobolin and Broken Hill be constructed.

As one of the big developmental works of the near future, it is interesting to see what the results are likely to be.

When these 373 miles of railway are completed, New South Wales will possess an East and West route just on 703 miles in length.

From Euabalong to Broken Hill, a distance of over 320 miles, the lands through which the railway will pass are practically all unalienated—that is to say, that although leased in pastoral holdings for definite periods, ownership still remains with the Crown and (subject to the condi-



What the Land is Growing To-Day

tions of present leases and the Western Lands Act), the country can be dealt with for settlement purposes as the Government may see fit.

Eight or nine million acres of pastoral lands within a radius of twenty miles will be directly served by the construction of the line.

With 60lb. rails the estimated cost of construction averages £3,237 a mile. With 70lb. rails, £3,464 per mile.

The Chief Commissioner for Railways, in reporting favourably upon this scheme, says:—

“If the vast territory between the Lachlan and the Darling is to become in any way an adequate contribution to the national wealth and to become amenable to the closer-settlement policy of the Government, the line is a necessity.”

At present the annual revenue in rental derived from the lands to be served by the proposed railway is £5,586. Many of the holdings are leased for 2/6 per annum per square mile!

Within the influence of the new line there are a million acres of mallee which will be available for farms.

The following facts are culled from the report of the Public Works Committee:—

“In connection with their visit of inspection, the Committee on leaving Condobolin travelled *via* the pastoral properties of Kiacatoo and Booberoi to Euabalong, along the rich valley of the Lachlan River, stated to be equal from a grazing point of view to the land of the Condobolin district. The country consists principally of a series of low-lying flats, partly covered with excellent herbage, box timber, and yarran. Thirty miles west of Condobolin are patches of black soil and sandy ridges, lightly timbered with mallee and pine. Approaching Euabalong, however, the country is excellent for wheat-growing, and is fairly well improved.

“At a point about 25 miles west of Condobolin, the Western Division of the State commences, and thence the whole of the area to be served is held under the provisions of the Western Lands Act of 1901, and is controlled by a Board of Commissioners. Prior to the passage of the Act referred to, the whole of the land in the division was held under the provisions of the Crown Lands Acts, 1884, and the leases would have expired in 1918, whereas under the existing law they will not expire until 30th June, 1943. The right has, however, been reserved to withdraw one-eighth of the area from lease at any time gazetted by the Western Lands Commissioners.

“Immediately to the west of Euabalong the country for several miles is lightly timbered with

box and gum, but is bare of herbage, as the result, it has been explained, of the severe drought of 1902, and the roots of the natural grasses having been eaten out by rabbits. Leaving the Lachlan Valley in a north-westerly direction, pine, mallee, and yarran country is met with, but the bulk of the former is dead, and useless for sawing purposes. Following the course of the proposed line, and on either side of it, rich, sandy, red soil prevails, covered in parts with belts of mallee, extending for several miles. Midway between Euabalong and Mount Hope are to be found undulating ridges, but within ten miles of the latter township the country improves in quality, and although at present used for grazing purposes only, may be described as of a highly valuable character for wheat-growing.

“For several miles westward of Mount Hope, there is excellent wheat-growing land at present used for grazing, covered with herbage, and timbered with pine, gum, mallee and yarran, interspersed with occasional patches of plain. But good as the country is, along this portion of the route it improves in quality, and the rich red soil in the immediate neighbourhood of Roto homestead is of heavy wheat-growing capacity. A feature of this portion of the district is the absence of watercourses, although ample supplies of water for stock are easily obtained by well-sinking. Situated immediately on the banks of the Willandra billabong, an offshoot of the Lachlan River, is Roto station, where experiments in irrigation show the suitability of the soil for the growth of fruit.

“Beyond Roto to Willandra station, a distance of thirty miles, the country to a very large extent consists of open plain, with narrow belts of box timber along the banks of the Willandra billabong, and is of superior quality for grazing purposes. At the time of the Committee’s visit, the plains were carrying a luxuriant growth of daisy plant, barley grass, trefoil, and other herbage.

“Silver grass, crow’s foot, and other grasses of an edible character cover portions of the country toward Mossgiel. In parts there are large quantities of roly-poly, with lignum on the low-lying land. Close to the township are extensive areas of blue bush, mixed with convolvulus and other feed for sheep. The condition of the latter at the time of the Committee’s visit of inspection indicates the suitability of the country for grazing.

“Stretches of greyish saltbush plain prevail for fifteen miles west of Mossgiel, merging into red soil country, bearing luxuriant growths of spear and star grass, and lightly timbered with box, leopard, wild apple, and belar, as far as Ivan-

hoe. Thence for several miles further westward there is a repetition of greyish soil, bearing spear, barley, and prairie grass, and saltbush. As a result of recent bountiful rains the whole of the tanks, and many natural depressions, were filled with water, and the stock were in splendid condition.

"The whole of the country from Ivanhoe to German Tank is regarded as wheat-growing, with sufficient rainfall. Traversing the district in the direction of the latter point, *via* Bellpajah, an outstation of Kilfera, the country changes to red soil, with gently undulating uplands to German Tank, around and beyond which belar is the prevailing timber. There are, however, occasional patches of mallee and yarran, whilst the herbage consists of currant-bush, apple-bush, bluebush, saltbush, silver and barley grass, and trefoil.

"To the west of Ivanhoe, a series of lakes (with frontages of box timber) formed by natural depressions, and occasionally filled by the overflow from Tallyawalka Creek, an offshoot of the Darling River, continue almost as far as Menindie.

"Approaching Boolaboolka from German Tank there is a change in the character of the country, the soil being loose and sandy. Many of the yarran trees in the vicinity of the lake in this neighbourhood have apparently been destroyed by flood waters. A few miles west of Boolaboolka, the sandy soil continues, and the timber consists principally of stunted pine, the bulk of which has been destroyed, interspersed with belts of bluebush. Cotton plant, nelia, and apple-bush grow freely along with bluebush, saltbush and silvergrass. Generally the country as far as Menindie is similar, and is interspersed with heavy sandy ridges and clay pans, bearing bluebush and other shrubs, with box and lignum belts near the Darling River, where it is low-lying and subject to inundation.

"Immediately to the west of Menindie, the country is of a sandy nature, with box and gum flats adjoining the River Darling. Traversing the border of Menindie Lake, which, at the time of the Committee's visit, was dry and covered with dead box timber, the sandy soil continues as far as Lake Speculation, where it opens into red-loam country, lightly timbered with mulga. Thence to Kars Station, thirty miles distant from Menindie, and forty-two miles from Broken Hill, the country is similar. Immediately west of Kars, however, there is a good deal of open saltbush plain, interspersed with nelia bush as far as Battery Tank, where the soil improves, and is suitable for wheat cultivation. Thence the character of the country changes to heavy, undulating, gravelly ridges, devoid of timber, and so continues as far as Broken Hill."

To anyone who understands Australian Back Country the facts given above will be of special interest.

The average rainfall of Condobolin is 17.23 inches; Euabalong, 16.49; Mount Hope, 14.81; Ivanhoe, 13.22; Menindie, 9.16; Broken Hill, 9.33.

As far westward as Ivanhoe therefore (180 miles) the rainfall is adequate under conditions and methods which have been already established in other parts of the Commonwealth for successful dry-farming. Six million acres will be served within that particular radius; which is a fairly large block to add to the wealth-producing lands of New South Wales.

The timber and vegetation mentioned in the report are in themselves a testimony to the quality of the soils. We have learned elsewhere what cypress-pine and mallee belts stand for. We have also seen what the Darling River means as an irrigation proposition. Again, "the last lands are the best lands." It looks as if New South Wales holds an agricultural and pastoral asset in her remote West of far greater value than her people have yet realized.

In our consideration of these wide un-railroaded stretches of "back-blocks" throughout Australia, we must base conclusions not upon present results but upon the vastly improved conditions which naturally follow the establishment of transport.

Much of this country is described as being "so prolific of rich herbage in fair seasons that it is almost impossible to keep it down with present stock. With railway construction it is confidently anticipated that the sheep and cattle raising industry will be largely developed.

"In average seasons the district around Euabalong, a small township situated in the centre of fairly good grazing country, carries a sheep to 6 to 10 acres; but the evidence indicates that the construction of the line will almost immediately lead to 20 per cent. more stock being carried, and will prove of the greatest convenience in times of drought. In view of the probability of large losses as the result of an uncertain rainfall, the pastoral holdings are very much understocked, experience showing that overstocking during dry periods necessitates the lapse of many years to bring the flocks to their normal number."

Mount Hope—on the line of expected railway—is the centre of a copper-mining district, and is also surrounded by extensive tracts of grazing and wheat-growing country.

"The evidence shows—and the fact has been confirmed by the Committee from their personal inspection of the district—that the country in the immediate neighbourhood of and around Mount Hope is admirably adapted to wheat pro-

"duction. Although wheat is only grown for local consumption, yields have been obtained, even under the old style of farming, of from 15 to 29 bushels to the acre. The wool is at present conveyed by road at high rates to Cobar and Nymagee, and its carriage would be transferred to the proposed line if constructed. Most of the holdings are fenced and otherwise improved, and very little trouble is experienced from rabbits and other pests."

Irrigation experiments at Willandra with water pumped from the billabong "have proved eminently successful, and have been the means of producing splendid crops of lucerne and wheat for home consumption." In the opinion of Willandra management the country is excellent for mixed farming, and within twenty to thirty miles of the railway 6,000 acres or less would be ample for successful settlement.



A Train from Up-Country

Roto station lies along a suggested deviation between Euabalong and Ivanhoe. Its total area is 152,000 acres. The manager of Roto told the Works Committee in evidence that the installation of transport will "revolutionise the condition of the country, permit the settlers to double the number of stock at present raised, and to a large extent convert the district into one of mixed farming."

Willandra is another of the large Western Division holdings affected. Its total extent is 257,000 acres, of which 87,000 acres are freehold.

Mossgiel station covers 190,000 acres. All through this district water of superior quality is obtainable at a depth of from 95 to 135 feet. Blue-bush country extends over one-half the holding, and is stated to be capable of being put to agricultural use. The indications are that, with the adoption of the dry-farming system, excellent results from wheat cultivation may be obtained.

Mossgiel, Roto, and Willandra would be touched by the proposed deviation from Euabalong. Either route will cut through the heart of the New South Wales back-blocks, long regarded as a drought-stricken area, but in reality compris-

ing an enormous extent of productive soils, which, like the Pinnaroo and Eyre's Peninsula, will grow wheat, and more.

North and west of Mossgiel is Ivanhoe, a hamlet in the heart of rich grazing lands—also capable of producing wheat. From here to Menindie there rolls 183 miles of good country.

The possibilities of irrigation in the vicinity of Menindie have received the attention of the Public Works Committee. The Lake Cawndilla scheme has been mentioned in another part of *Australia Unlimited*.

The utilisation, for the purposes of irrigation, of Lakes Menindie, Cawndilla, Speculation, Pamamaroo, and others on the western side of the Darling has formed the subject of investigation by the Public Works Department. Ten years ago surveys were made with a view to utilising the lake system referred to for the purpose of irrigating Lake Cawndilla, or for a much larger system of irrigation to the south. No investigation was made of the country south of Lake Cawndilla, but samples of soil were taken from the bed of the lake itself. At this time alternative proposals were before the department, the first being a small scheme to irrigate the bed of Lake Cawndilla and possibly Lake Speculation, from water stored in Lake Menindie. The bed of Lake Speculation was proved, by investigation of the soil, to be suitable for irrigation, and it was estimated that an area of 33,000 acres could be utilised for this purpose. It was also ascertained that certain difficulties in regard to the collection of water in the bottom of the lake after it had been used for irrigation were likely to exist, and that the water would require to be pumped; but beyond samples of the soil being obtained and surveys being made, nothing further was done in connection with the scheme.

On the eastern side of the river the lake system comprises Lakes Boolaboolka, Victoria (not to be confused with another lake of the same name near the South Australian border, which is filled from the Murray), Rat-catcher, and a number of others, fed from the river in high floods through Tallyawalka Creek, which takes off from the river 260 miles above Menindie. In ordinary seasons the creek does not run, but when the river is high, water finds its way to all the lakes of the system. In 1911 an investigation of this system, with a view to ascertaining whether water could be stored for the purpose of serving the lands of the Western Division below the lakes, was made, the conclusion arrived at being that the system was well adapted to the storage of a large quantity of water and that there were possibilities of obtaining sufficient to justify the establishment of an irrigation settlement.

The writer has no doubt that the Lower Darling, from Wilcannia to Wentworth, will ultimately be converted into one of the most productive areas in the Australian Commonwealth. In Tallyawalka anabranch on the east side, and the anabranch of the Darling on the western side, nature has gone ahead of the engineer. The Lower Darling lake system, of which these anabranches are a part, will be converted into storages, and from more than one irrigation settlement fruit, fodder, and dairy produce will find a ready market East and West.

Of the Darling and Broken Hill we have already read. In regard to the latter, it may be added that—

“Since the opening of the Broken Hill district as a mining field the total tonnage of ore extracted from the mines has been 23,400,000 tons, and there are already in sight without any fresh developments 13,400,000 tons. Although the ore now being raised is of low grade compared with that obtained in the upper levels in the early days of the history of the field, much larger tonnages are being handled, and the industry, it is contended, rests on a firmer basis. For some years the ore reserves have been showing a steady increase and, notwithstanding the fact that the tonnage of crude ore extracted has been on the up-grade, are higher now than at any previous period in the field's history. It is estimated that at the present rates of extraction the ore in sight alone is equivalent to a life of nine years.” Development work is continually in progress to open up the extensions of the known ore bodies, and in some instances have proved the existence of entirely new bodies of ore.

During their visit of inspection the Committee could not be other than favourably impressed with the richness of the bulk of the country traversed, the remarkably luxuriant growth of the herbage, the healthy condition of the flocks and herds, and the quality and extent of the fleeces on the various holdings.

In conclusion we find them highly recommending the Government to build this line, which it is anticipated will pay from the time of its construction, and be the means of adding a new province to the State of New South Wales.

Various Australian Governments have been criticised for following a borrowing policy, but nowhere in the world can money be more safely invested than in Australia; nowhere will capital, borrowed at current rates of interest, give a surer return to the borrower. The whole structure of modern commerce and finance is based on credit. If an Australian Government borrows money at, say, 4½ per cent., interest, and by expending it on re-

productive works secures a return of seven or eight per cent., it is surely sound commonsense finance.

This is practically what Australian Governments are doing. As an asset, the Government Railways of the Commonwealth alone more than cover the whole of the National Debt. The country is young, and what it wants more than anything else is engineering. It borrows money for engineering projects, which are converted into national assets, giving a far greater annual return in revenue to the nation than the amount of their interest bill. As long as Australian Governments follow a safe, sound policy in the application of borrowed moneys they need not dread increasing the amount of the national debt.

If a New South Wales Government should

decide to borrow and spend a million and a quarter of money on the extension of its western railway system from Condobolin to Broken Hill, neither the financier abroad nor the citizen at home need have any fear that the Government was making an unsound investment. The remote red West of New South Wales will pour out hundreds of millions of national wealth when its time comes, and the time is coming fast.

Every year our knowledge of the West is increasing; every year the Mountains of Inexperience lie further behind and the Plains of Promise draw nearer. From eastern seaboard to western border New South Wales is destined to hear the hammers of Progress beating out a glorious hymn of Prosperity upon the golden anvils of unequalled national resource.



An Australian Dairymaid

BROKEN HILL.

Another very profitable year has been experienced by shareholders in Barrier mining and investment companies, despite the dislocation of industry by the strike and the less favourable metal market. Taking the mining and treatment companies, and the investment concerns, whose activity is dependent on the mining industry, it is found that total distributions for the year amount to the enormous sum of £1,693,752. Examination of the details shows that the total is the gross dividend, no allowance being made for English income tax, and it is found that the mining and treatment companies accounted for £1,478,376, while the investment companies, such as the Silverton Tramway, Broken Hill Water Supply, and Globe Timber, made up payments totalling £215,376. The increase in the dividends for the year is the outcome of the still prosperous range of metal prices and the important part which the recovery of zinc concentrates plays in the operations of the Barrier companies to-day. A noteworthy fact about the past year in connection with many of these companies' payments was that they were not all from current profits. The prosperous conditions produced by exceptional metal rates the previous year led to large distributions, and when the metal market reacted dividends were not reduced proportionately, so that accumulated profits were largely drawn on in many cases to make up the above-mentioned total. The South Broken Hill Company retained the distinction of making the largest distribution, and no less than £300,000 was returned to shareholders. Next came the North Broken Hill, with £240,000; followed by the Proprietary, £216,000; Sulphide Corporation, £192,500; Zinc Corporation, £183,962; Amalgamated Zinc, £162,500; Silverton Tramway, £125,000; British, £115,000; Water Supply, £75,000; Block 10, £50,000; Block 14, £23,000. While the figures speak eloquently of the prosperity of the Barrier, it is worthy of mention that the bulk of the shares in nearly all the companies are held by British and Continental investors.—*Melbourne Argus*, December 24, 1913.

AT the further edge of western New South Wales, about parallel 32 and distant thirty-five miles from the border line of South Australia, lies the city of Broken Hill.

This is nowadays the capital of what explorer Sturt described as the most worthless country in the world.

Until the projected Condobolin to Broken Hill railway becomes a reality, the latter city must remain most readily accessible from Adelaide. To get to Broken Hill from Sydney one travels to Melbourne, thence to the South Australian capital, and on to the Hill. The journey occupies at least three nights and two days by train, and covers 1,397 miles.

The traveller boards the Limited Express in Sydney at 8 o'clock in the evening, and reaches Melbourne at 1 o'clock next day—580 miles.

He catches the Adelaide Express again at 4.30 in the afternoon, and lands in Adelaide at 10 the following morning—483 miles.

That night he takes the Broken Hill Express, changes from the S.A. broad gauge line to the narrow gauge at Terowie, and arrives at the Hill in time for breakfast—334 miles.

Its comparative proximity to Broken Hill has been a good thing for Adelaide.

The reader will assume that he is one of an assorted crowd of passengers boarding the express at Adelaide. As all readers are permitted to travel in comfort, he will take his seat in the observation car, with easy chairs and abundant room. The majority of his fellow-passengers

crowd the second-class compartments—mothers with babies, giggling girls, noisy youths, typical bush people bound for intermediate stations in the North.

At Terowie, after he has located his sleeping berth in the narrow-gauge train, he can join the boisterous crowd which besieges the coffee stall, and see for himself that an Australian is not necessarily a melancholy character. Most of these night-travellers will be miners and miners' people *en route* to the Hill.

After snatching their late refreshments they get into a long car, with parallel seats around the sides, not too comfortable if crowded, and settle themselves in rugs and top-coats for the night.

Morning finds the moving train skirting the low brown hills of the Barrier. Redgums mark dry watercourses which have their sources in these hills and may occasionally carry some of their flood waters as far as Lake Frome. The land is rich, red and arid—flat, saving for the Barrier Range.

The sun rises in a cloudless sky. In winter the days are cool and the climate bracing. After rains the whole landscape is robed with delicate herbage and flowers. Miles of white everlastings sometimes give it the appearance of being sprinkled with light snow. Salt bush, blue bush, mulga, acacia, the usual panorama—nothing to indicate that over the fringe of hills, from the beginning of geological time, Nature has been hugging one of her richest secrets.



A Broken Hill "Landscape"

Then the train glides smoothly into a vast amphitheatre in the hills, and the traveller finds himself among streets and crowds and steam trams and the traffic of a city.

The people alight. Miners coming back home are met by their wives and youngsters; people shout recognitions to their acquaintances, the air vibrates with questions and answers, and with a hotel badge on his cap, a stranded player of minor parts comes forward and looks awkwardly after our luggage. The cabman charges us 2/- each to drive 200 yards. He looks at us as if we ought to have paid him double. It is all in the manner of mining places.

Broken Hill is not beautiful, but it is vastly interesting.

Early in 1882 this city of thirty odd thousand inhabitants was part of a sheep run. If an inspired magician had gone to the Government geologist and told him that it was to be the site of the greatest silver-lead-zinc mine in the world, that prophet would have been told to take more water with his whisky.

After 1883 his pronouncements might have received more attention.

The discovery of Broken Hill was preceded by discoveries of silver-lead in adjoining districts.

As far back as 1876 Patrick Green found silver at Thackaringa. Prospectors got to work, and Apollyn Valley, Day Dream, Purnamoota and Silverton were opened. Each had its day, and if mining authorities are right there are possibilities for some of these old fields yet.

Silverton rose to be a place of some importance—until the brighter star of Broken Hill quenched its light.

Prior to November, 1883, this same Patrick Green—a Menindie storekeeper, full of faith and determination, an optimist—was using what he made out of Thackaringa in a mineral quest along the Barrier. He largely fathered the preliminary fields. In 1883, with a party of prospectors, he arrived at Broken Hill, pegged out a copper claim, and sank a shaft. The shaft proved barren of results, and the claim was abandoned.

The actual credit of discovery belongs to Charles Rasp, a boundary-rider on Mount Gipps Station, on which the Hill was located. As an example of what may happen to boundary-riders in Australia, he pegged out a claim which six years afterwards was valued at £8,750,000!

A syndicate was formed to handle Rasp's find. It was comprised—to quote R. de S. Magnussen, who has written an interesting account of the early field—"of G. W. McCulloch (the overseer of

"Mount Gipps), two station hands, a blacksmith, "a jackeroo, and two teamsters." This syndicate put down a shaft to the depth of 50 feet. The original company held their property in seven shares. Their claim embraced Blocks 10, 11, 12, 13, 14, 15, and 16. These seven blocks covered the property of the original Broken Hill Proprietary Company.

It was some time before the syndicate knew the value of what it held. Some of the station hands found the call of 10/- a week on their resources too great. The ground was then costing £7 a week to work. They sold out twenty-eighths or half-fourteenths of their interests. McCulloch was angry because to get at the workings wire fences had to be broken and sheep disturbed. Sheep have always been a sacred interest in Australia. One day he played euchre with a man named Cox on Mt. Gipps Station to see whether Cox would pay him £50 or £100 for a share. McCulloch won; Cox paid £100 for the share. It would have added another million to McCulloch's princely fortune.

An early speculator bought three shares for £320. He sold one for £105, one for £200, and kept the third. In six years—taking in the bonuses and dividends it was worth £1,250,000.

Some of the original syndicate became patrons of art, famous horse breeders, millionaires. Others passed quietly out of the history of the Hill.

The discovery of chlorides in large quantities in 1885 brought the Barrier definitely into the front rank of the world's greatest mines. In 1905, twenty years later, the value of Broken Hill's trade—export and import—for the year was £2,612,334.

Not bad for Sturt's "worst country in the world." Sturt was almost as far away from the true Australia as Dampier.

By 1905 the Broken Hill Proprietary Coy. had paid in cash and bonuses nearly £11,000,000. The storekeeper on Mt. Gipps was a pessimist. His mind was full of that peculiar disbelief which has been so prevalent in Australia. This type of colonist has always looked on the darkest side. If the rain did not come at the expected time, there was sure to be a drought. If it did not stop raining precisely when the pessimist imagined it ought to, there was sure to be a flood.

If a crop showed signs of a poor yield, the district was permanently unsuited for agriculture.

If the harvests were plentiful the prices were certain to fall—and so on. This mournful band, whose delight it has been to prophesy disaster and defame the country, have been called "calamity howlers." New South Wales has had them from the very beginning.

So the storekeeper on Mount Gipps sold his original seventh interest in the greatest silver-lead-zinc proposition in the world—for £25!

This is what the half-yearly report of the Company in 1887 said: "After eight months' time another of the original syndicate also sold out to his partners, and it was then found necessary to re-form the Company into one made up of 14 shares of equal interest. Towards the end of 1884, the existence of chlorides was first noticed in Rasp's shaft. This gave an impetus to prospecting, and chlorides were shortly afterwards noticed on the surface of the iron ore by Thomas Low, who at the time purchased, by private arrangement, one half of a fourteenth share. The rich surface kaolin ore was accidentally dropped across by Harry, an aboriginal in the employ of Mr. Jamieson, who had taken the management of the property. Since the beginning of 1885, the prosperous advance of the Company has been most satisfactory, without check or hindrance, and perhaps unparalleled in this respect in the mining history of the colonies. Not the slightest hitch or dispute to occasion litigation of any kind has arisen to mar its progress, things moving smoothly, without failure, from success to further success. 'The Broken Hill Mining Company' was floated into 'The Broken Hill Proprietary Company Limited' on the 12th August, 1885. The original fourteen holders appearing upon the first-named Company's agreement were:—Wm. Jamieson, W. C. Dalglish, K. E. Brodribb, Solomon Wiseman, Charles Rasp, E. Thomson, Bowes Kelly, W. R. Wilson, David James, James Poole, Phillip Charley, A. W. Cox, and George McCulloch. Of the original holders of the first syndicate of seven, there are now (1887) only McCulloch, Charley, Rasp, and James, who hold shares in the present Company. Mr. McCulloch has continued his large interest in the Company, and has throughout been prominently identified with its marked success."

Some figures issued by the Broken Hill Propy. Coy. in 1911 show how personally unprofitable pessimism may sometimes prove in Australia, and how Faith, national and individual, pays best in the long run. Here is the illuminating result from that once despised corner of Mount Gipps Station—"the broken hill."

Normal pre-war figures are given in the newspaper excerpt at the beginning of this chapter. To produce, were it even for one year, a quarter of the world's lead and a sixteenth of the world's silver is something for this remote corner of the Western Division, once regarded as the least profitable part of New South Wales.



Ore Dressing Plant, Broken Hill Proprietary

But Broken Hill has done more. It has led the mining world in method and organization and taught the world new processes and treatments for ores. It has been a training ground for engineers and metallurgists, some of whom have risen to world-wide distinction. Its managers have drawn salaries greater than State governors. The fluctuations of its output have affected the price of metals, and, as the second city in New South Wales, neither its political nor financial voice can be treated with disrespect.

Of course Broken Hill was not without the "boom" which is a feature of all great mineral propositions. When the richness of the find was fully realized, Australian speculators and share-mongers went temporarily crazy. The country for miles around was pegged out. Syndicate after syndicate formed, floated, and fell. Men made fortunes in a week, and lost them in less than an hour.

Some of the fortunes were made on a pure fiction; others had a solid foundation in fact. Block 10 Mine offered an example of the latter. At that period of its development when the man-

agement were expecting to cut the lode, business in shares became brisk. They stood at £3/6/- when the announcement was made that the lode had proved to be phenomenally rich. Then they sprang to £20, and people who held them found their bank balances suddenly swollen to a degree they had hardly anticipated.

In March, 1888, when the boom was at its height, the capital market value of the Barrier mines was more than sixteen millions of pounds.

The field has long entered the normal path of development, and will continue to be a producer of silver, lead, zinc, copper and gold for many years to come.

The geology of the Hill has naturally attracted attention from scientists all over the world. These remarkable deposits of valuable ores have formed the subject of many a scientific paper; they have inspired more than one treatise; and their interest to the mining man, the chemist, and the engineer is perpetual.

According to Mr. E. F. Pittman, sometime Government Geologist of New South Wales, the Broken Hill ore deposits do not occur in what is

known as an ordinary fissure lode, but are of the class called "segregated lodes" or "saddle" reefs, resembling in some respects the auriferous saddle reefs of Bendigo, Victoria. The Broken Hill reefs are argentiferous, although they contain a percentage of gold. They consist, at or near the surface, of manganiferous ironstone, which below is replaced by kaolin and oxidised ores (carbonates) of lead. These, again, at greater depths, are succeeded by sulphides of lead and zinc.

The overcoming of the "sulphide" problem has been among the historical achievements of the Hill.

One of the chief points of interest about these saddle reefs is that while the "legs" of the saddles invariably thin out and disappear in depth, the permanence of the mines is assured by the certainty of other saddles being discovered almost perpendicularly under the first and at greater or less intervals of depth.

"The Broken Hill lode," said Mr. Pittman in 1892, "appears to be a huge saddle lode formed in a fissure which owed its shape to the contortions which the gneissic rocks have undergone. If this opinion is correct, the possibility is that the eastern and western legs will be found to thin out gradually as they descend, and in that case the depth at which they would disappear would depend to a great extent upon the width of the synclinal basins on either side of the hill. . . . What appears, however, to be the most interesting question is the possibility of similarly shaped lodes being found vertically under the present one, as they are found to occur in Bendigo."

The geological problems of eighteen years ago have been solved in part; the main consideration these times is economical working. The mines in operation—Proprietary, Junction, Junction North, Amalgamated Zinc, British, Block 14, Block 10, Sulphide Corporation South, Zinc Corporation, South Extended—with all of them the matter has resolved itself into cheap process which will leave a profit on the market values of metals.

So that the visitor to Broken Hill finds not the romantic mining-camp of early days, but a row of smoke stacks along the hillside for a mile and a quarter, over which hangs a heavy plume of smoke by day and a dull glow of arc lights and furnaces, reflected skyward, at night.

He hears the hoarse voices of steam whistles calling the "shifts." He sees in the distance great hillocks of "slag" and dumps, the size of which is some indication of the operations of the particular property it marks.

These great heaps of tailings stand at intervals along the line of lode and represent an incredible amount of underground and surface labor.

As he approaches the scarred hillside a peculiar murmuring noise issues from the disturbed slopes. It resembles the droning of a titanic hive of bees in swarm—rhythmical, persistent—carrying a note of anger or warning; and bespeaking a tremendous activity. This ever-present sound proceeds from the machines along the slope, purring like gigantic cats in the sun.

All day, all night long they are at work, grinding, grinding ore into dividends for shareholders, into salaries for officers, into wages for men.

It is not beautiful, this city of the Barrier, standing unique, tremendous, in an open landscape of hundreds of miles. But it is wonderful, not only to geologists, chemists, engineers, but to philosophers, students of economics, writers of history.

The joy of the Hill is a garden, but the scarcity or cost of water has to be taken into consideration by residents, so the place is not beautiful as it might be. The happiest face in Broken Hill will probably be that of the lady who has two small plots of buffalo-grass lawn and a shady pepper tree in front of her cottage.

Up at the Roman Catholic Convent they have a bangalow and a cabbage palm, which are treated with a tenderness akin to that bestowed on delicate growing children.

On the Western Hill stands the granite cathedral. Opposite, on the "broken hill," are the mines.

Between Religion and Science, facing one another like hostile armies, lies the town.

The boundary-riders who watched their sheep grazing in the hollow thirty years ago, heard no echo from the future of church bells or machinery. There are, throughout the length and breadth of this Commonwealth, many another hill and hollow, pregnant with future cities, where sheep are grazing peacefully to-day.

If the physical appearance of Broken Hill children is a guide, there is no part of inland Australia which cannot be occupied by Europeans.

For seven months in the year the climate of Broken Hill is delightful; the other five months are hot. But if people would only learn, the heat and discomfort of these five hot months could be minimised.

Unfortunately, Australia has not given the question of housing, clothing, food, and habit, the attention which their importance in the scheme of effective white occupation demands.

Broken Hill offers examples. Its climate is dry and healthy. Consumptives have been sent to the Barrier to die, and gone away cured.

For five months out of the twelve, residents must put up with a certain amount of inconvenience. If the definite objective of the population were to reduce that inconvenience by every pos-

sible means, life in the summer months would be as pleasant as any other time. Apart from its exceedingly healthy climate this land is everywhere intensely fertile. It will grow anything if it can be irrigated.

Unluckily for Broken Hill, the city water supply is a monopoly, and the charge is 5/- a thousand gallons for domestic purposes.

This, and the uncertainty that always hangs over a mining district, together with the heavy tariff inflicted by another monopoly controlling the connecting railway between Cockburn on the South Australian border and Broken Hill, have

covered by a further refining treatment, suddenly converted into reserves of great value.

The open spaces are crossed and recrossed by rails; iron trucks rattle; iron arms of steam shovels swing towards the tailings, dip with automatic movement into the black heap, and swing back to the railway waggons, loaded with sand which has already been through the mills and is now going back to be treated by a new process and the last fraction of its mineral value extracted.

Out of a mass of galvanised roofs, iron smoke-stacks project—spires of the Churches of



Broken Hill Proprietary Silver Mine

tended to make it poor in private gardens and foliage. It suffers by comparison with Mount Morgan or Kalgoorlie or Charters Towers, nor have its wealthier citizens displayed the same patriotism as those of Bendigo and Ballarat.

In its remoteness and concentration Broken Hill, with 7,000 to 8,000 working miners, its steam trams and camel-drivers, its galvanised houses and granite cathedral, whirling flywheels, ore-laden trains, smoke, noise and dust, constitutes a world of its own, a world isolated from the rest of civilization, and yet more modern in certain aspects than most cities.

One only needs to visit the surface workings of the mines to see this. Here one gets a closer view of these enormous mounds of black sand—the pulverised hearts of the hills, which, after being cast aside as worthless, were, by the dis-

Mammon, whose votaries are toiling deep underground, some far below the very roots of the ranges—1,300 feet and more.

Rusted, discarded machinery lies about everywhere, proof that one expensive mechanical system has displaced another, during the twenty-eight or thirty years of the field's existence.

Telephone poles and electric standards manifest the universal use of the forces of electricity, which has now entered so largely into the subjugation of matter.

That "broken hill" where the wallabies were once plentiful, is bare, torn, tunnelled, beheaded, levelled, devilled, and unmercifully dishevelled.

Nature has been ransacked, explored, exploited and infinitely vulgarised by the spoiler. Industry, the ravisher of peaceful solitude, from whose strenuous thighs great wealth is born in sore travail, has erected its dwelling here.

filled. Finally, as we have seen, the worthless waste—from which all mineral values have been ground, crushed, rolled, washed, and chemically extracted—is automatically conveyed into a gaping excavation on the crown of the lode, left by early operations.

Industry has taken the heart out of the hill, powdered it, sieved it, sifted it, reduced it to component atoms, retained what it required for the uses of man, and returned the country rock as clean-washed sand.

In her own laboratories Nature effects some astonishing changes, but she takes lakhs of centuries to get her results. Man, being short-lived, goes through all the phases of big reductions in a few hours.

Short of the transmutation of metals, atomic reduction—exemplified in the zinc mill at Broken Hill—seems to be the last word.

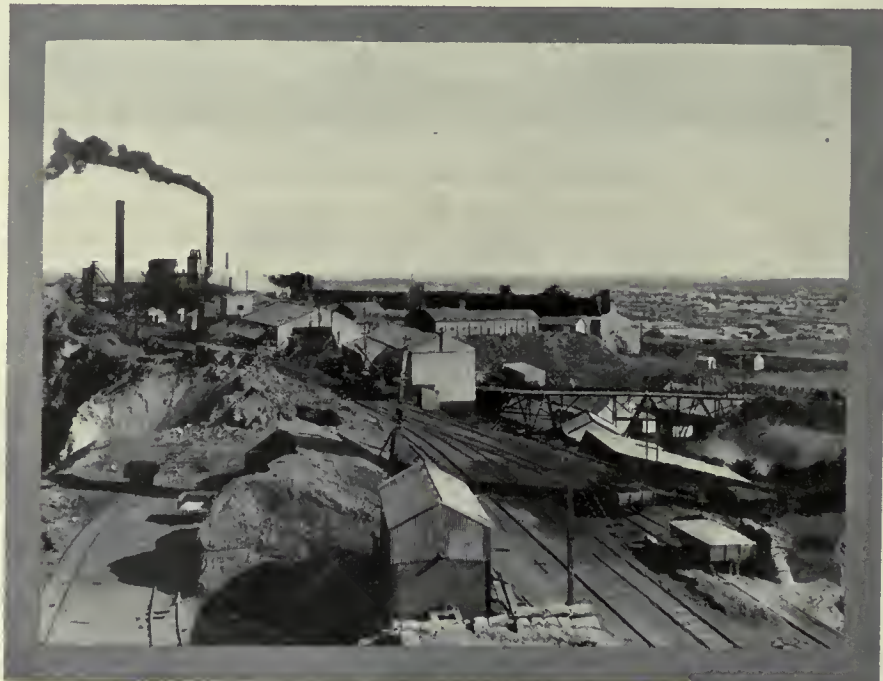
Wages paid on the Hill (1916) are for shift bosses, £4/10/- a week; miners, minimum wage, 11/3 daily, the hours of labour being 44 hours

per week. On contract work the men earn as much as 18/- a day. They have a Co-operative Meat Supply and a Co-operative Store in the town, both working on a profitable basis.

After nearly thirty years of activity the Barrier fields still seem to have a long life before them. Geologists have said that there is a "mother lode" yet to be discovered. Along the present line of the lode stand the poppet heads of putative mines—some just complying with labor conditions, some moribund or dead. The Pinnacles, for which great things have been predicted, stands out in blue prominence in the southern skyline. Between it and the Hill lie many possibilities, and Northward again the chances lie.

The Darling River is only sixty-five miles away. If Western Australia carried water to Kalgoorlie—300 miles, New South Wales may yet be justified in taking water to the Barrier and beyond it.

The red soils between will grow anything. Some day it will all come good. . . .



A Broken Hill Silver Mine

THE LAND OF MILK AND HONEY.

KNOWEST thou the land where the citron blooms?" If Heine had seen the sunny south coast of New South Wales he might have written it, "Knowest thou the land where the rock-melon ripens?"

It was a morning late in January, 1914. Two of us sat on the balcony of a hotel in Nowra, and the rock melon's netted rind, neatly divided into sections, lay empty before us.

We had purchased it in a fruit shop up-street for fourpence but a half-hour previously. Now, it was no more than a luscious memory.

From a contemplation of our fruit we turned to contemplate the green land around us. Fertility and peace were the keynotes in that sweet symphony of Nature. "Breathes there a man with soul so dead—" who, looking over Shoalhaven, does not feel proud to be an Australian? There is no discord in the Aeolian harpings of its winds; there is naught but beauty in its gently undulating lines.

English blackberries hung in ripening clusters on its hedges. Scented lilies diffused their ineffable fragrance by the banks of its rippling creeks. Its maize fields are defiant of drought; there are no pests in its orchards, and the dairy-men know what riches fountain into the milk-pails, all the year round.

By the establishment of a storage reservoir on the Shoalhaven River—at a suitable base above Burrier, 12 miles from Nowra—the latter district, Berry, and probably Kiama, could be developed as irrigation settlements. Production would be enormously increased; with a near market in Sydney, the future will doubtless see the whole of this southern Illawarra and Cambewarra converted into irrigable gardens and small dairy farms. Near Nowra is a plot of 28 acres, held by Chinese at an annual rental of £5 per acre. In dry years, with irrigation, these Chinese gardeners succeed in raising five tons of potatoes to the acre—which, doubtless, pays them handsomely.

The irrigable belt near Nowra contains about 32,000 acres of magnificent alluvial soil. At the present time this land is worth on an average £40 an acre. One farm of 800 acres was recently sold for £40,000. Some of this has produced as much as 100 bushels of maize to the acre.

Between Nowra and Burrier, however, there is Government land valued at £1 an acre, much of which, with irrigation, might be turned to profitable account.

While looking out over verdant Shoalhaven and discussing these possibilities of future coastal development, there arrived O. L. Harrison, of the N.S.W. Forestry Department, in his busy little Cadillac car.

It had been arranged that we should accompany Mr. Harrison on one of his down-coast tours of inspection. The journeys and voyages undertaken in search of accurate material for this book have never been tedious, but some of them have proved more enjoyable than others. That ten days travel with Forester Harrison was amongst the most memorable. It has left dreamy recollections of hours that were as near to perfection as Earth can give.

Although it was midsummer, there had been some rain; whereby the dust was checked and the atmosphere sweetened and cooled.

The southern coast of New South Wales enjoys perhaps the best climate in Australia; its roads are excellent, its inns comfortable, and its people hospitable and friendly.

* * * *

Down the South Coast from Nowra to Eden, prosperous dairy towns and villages follow one another. The land is rich, the seasons usually good, and coastal steamers plying regularly to the different seaports keep the farmers in touch with their markets. Overland communication with the rail-head at Nowra is kept up by motor and coach services.

Added to all the native attractions of the Land, we had a travelling companion who knew every track, bend, and beauty spot, as well as a Sydney tram driver knows the road to Circular Quay.

From Nowra to the junction of the Crookhaven and Shoalhaven—where one gets a glimpse of the blue Pacific—the road runs through the alluvial belt already mentioned as a future irrigation possibility.

We took this before lunch, ere starting out on our four hundred mile jaunt to the South.

At a little roadside orchard, worked by one P. Caffery, as an adjunct to his dairy farm, we pulled

filled. Finally, as we have seen, the worthless waste—from which all mineral values have been ground, crushed, rolled, washed, and chemically extracted—is automatically conveyed into a gaping excavation on the crown of the lode, left by early operations.

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While looking out over verdant Shoalhaven and discussing these possibilities of future coastal development, there arrived O. L. Harrison, of the N.S.W. Forestry Department, in his busy little Cadillac car.

It had been arranged that we should accompany Mr. Harrison on one of his down-coast tours of inspection. The journeys and voyages undertaken in search of accurate material for this book have never been tedious, but some of them have proved more enjoyable than others. That ten days travel with Forester Harrison was amongst the most memorable. It has left dreamy recollections of hours that were as near to perfection as Earth can give.

Although it was midsummer, there had been some rain; whereby the dust was checked and the atmosphere sweetened and cooled.

The southern coast of New South Wales enjoys perhaps the best climate in Australia; its roads are excellent, its inns comfortable, and its people hospitable and friendly.

* * * *

Down the South Coast from Nowra to Eden, prosperous dairy towns and villages follow one another. The land is rich, the seasons usually good, and coastal steamers plying regularly to the different seaports keep the farmers in touch with their markets. Overland communication with the rail-head at Nowra is kept up by motor and coach services.

Added to all the native attractions of the Land, we had a travelling companion who knew every track, bend, and beauty spot, as well as a Sydney tram driver knows the road to Circular Quay.

From Nowra to the junction of the Crookhaven and Shoalhaven—where one gets a glimpse of the blue Pacific—the road runs through the alluvial belt already mentioned as a future irrigation possibility.

We took this before lunch, ere starting out on our four hundred mile jaunt to the South.

At a little roadside orchard, worked by one P. Caffery, as an adjunct to his dairy farm, we pulled



The South Coast at Eden

up to eat peaches and plums. Stone-fruits flourish in this locality. The amiable Caffery fed us with red nectarines, golden drop plums, and rosy-checked peaches, till we could eat no more.

We returned to lunch with pleasing impressions of green flats, fat cows, melon patches, silky oaks, willows and jacarandas, fertility, beauty and prosperity. Later, when we set out again on our journey by the main coast road, it was with a very contented mind.

The road ran through noble bush, up hill and down. Blackbutt, turpentine, ironbark, and bloodwood were the prevailing timbers; but now and then a hillside curve or bend would bring us in sight of a gully beautiful with palms and tree ferns; or a dip downhill led us across a green flat, where, on cleared farm lands, dairy cows and maize crops flourished. Always on the western side of us there was a blue background of mountains, which practically remained, in many varying contours, all the way down coast. Now and then we caught a glimpse of blue waters eastward.

So, with mountains on the right, and sea on the left, we journeyed leisurely.

Over the grassy shoulders of a cleared hillside we saw Lake Conjola; looking in the afternoon light like an immense bed of blue cornflowers in bloom.

We motored into Milton, through rich grazing and dairying hill-farms; worth in some places £45 an acre.

Milton, lying beyond the railway, is an old and quaint village. It is perched on a high ridge, which overlooks a scene of great fertility.

Between Nowra and Eden there are many old-fashioned gardens, with tall hollyhocks, and blue larkspur, and red cabbage-roses, to keep folk in mind of colonial days.

Motor cars and military bands, of course, they have on the South Coast, but the air of once-upon-a-time, somehow, clings to it still. Not all the khaki uniforms, nor bandoliers, nor magazine rifles, nor high-decked military saddles of its smart modern yeomanry, can quite dispel the feeling that Captain Waldron or Captain Weston, with a squad of British regulars in long red coats, with Brown Besses, bayonets, pipe-clayed belts—and all the uniform and accoutrements of William or young Queen Victoria will shortly come marching, drummers and fifers at their head, down the South Coast road. Nor all the motor cars with their hoarse noises, polished lamps, coughing exhausts, and burning engines can quite put out of one's mind the thought that Cobb & Co.'s mail coach must be somewhere just ahead.

More forests and flats, maize paddocks and farms lie before us. There are creeks whereby

the dog-wood and myrtle are flowering. Over these we will run carefully. The hillsides are well-graded, the creeks spanned by stout, little wooden bridges—the roadmakers' art has been exercised to good purpose. So we glide quickly, smoothly, and, with constantly stimulated interest, through an ideal country.

Now and again we pass a timber mill, usually no more than a long, low iron-roofed shed with a saw bench and appliances for hauling logs. These mills are mostly located on some tidal creek or inlet, where ready water-carriage relieves them of their output. Sometimes the timber is rafted, but more often loaded directly into little coasting steamers, specially built, on a shallow draught, to handle this trade.

By and bye we come to Ulladulla, which leaves a memory of a blue bay, a breakwater and sandy beaches, overlooked by forested hills. Norfolk pines and spreading fig trees, throwing a dense black shade, complete the picture.

Ulladulla, four miles south of Milton, is located in a picturesque lake district, where fish and game are plentiful. Like other South Coast districts, Ulladulla has been the nesting-place for a sturdy brood of young dairymen who, when the time came, trekked northward to the more tropical districts of the Richmond and Tweed, which they helped to subdue and convert into rich farm



Turpentine Trees

lands. Just as South Coast men went north years ago, North Coast men are now trekking further north into Queensland. The trend of migration is likely to be from south to north in the future.

Ulladulla—most melodious of aboriginal words—will always be beautiful. Its grassy hills, wide coastal lagoons and jungled gullies lure the hunter and the dreamer to sylvan delights.

Apart from being a marksman, the hunter must know the habits of game; the necessary bushcraft is not picked up in a day. Readers of this book will bear these facts in mind. Australia is a sportsman's paradise, but the sportsman must learn many pages of Nature's Book if he wishes to avoid disappointment.

For example, below Eden, forty miles or so, is the Mallacoota Inlet. At certain seasons of the



A Cream Cart

The good rock oyster fattens inshore, and along romantic sea-margins whimbrel and godwit call. It is good to tramp some coastal marsh or foreland, well waterproofed and gaitered, when the south wind is whipping the spindrift, and, from grey clouds, comes down a warm slant rain.

Then is the time to crouch under cover, where the wheeling black duck alight to feed.

Good also it is to whistle the pointers to you at early morning, ere the dew has left the grass, and walk rushy flats or stubble paddocks for quail. One may be assured of sport in proper season anywhere along this littoral between Nowra and Eden.

But as fishermen are born, not made, the perfect hunter cannot be evolved, save from specially adaptable material. The unskilled amateur will go into a district where game is plentiful and get nothing. The experienced sportsman will go where game are scarce or shy and still secure his bag.

year a stranger might sail all day over a series of salt lakes and freshwater rivers and see, perhaps, a dozen birds. But if the stranger knew just where to hide from sundown to dark, he might shoot as many ducks as he could carry.

At any day-time of the year he will not see a blue-wing duck on Mallacoota.

But if he knew where to "plant," and he knew how to shoot by the splash of alighting birds or by starlight, moonlight, or no light at all—as an experienced duck-shooter can—he will get blue-wing—not earlier than 9 p.m. any evening.

Where those particular blue-wing come from; where they go; why they never arrive until night-fall, and why they leave the waters of Mallacoota before daylight is one of those nature problems which the writer has been unable to solve. It is doubtful if the New South Wales Intelligence Department—an encyclopaedia of interesting information—has solved it either. . .

Our good forester said we would get oysters at Bateman's Bay. Having already found him a reliable authority on South Coast matters, we accepted his assurance with the faith of Hadji pilgrims on the road to Mecca.

Crossing the picturesque Clyde River by a slow punt we came to the Clyde Hotel—another low-roofed South Coast inn filled with grateful surprises.

They gave us oysters, in sooth, luscious, flavourable, memorable oysters, freshly opened—three large plates.

Then they served us an excellent soup, and followed it with fish, newly-whisked from the salt water near by. Then they pressed us to asparagus and roast lamb and mint sauce, and seemed grieved because we ate sparingly. Rather than hurt their hospitable feelings we attacked the rice custard and plums, and the peach pie with baked custard; but, there is a limit to the capacity even of hungry travellers an hour late for Sunday dinner.

For a while afterwards we sat on the verandah of the hotel looking idly at the hazy entrance to Bateman's Bay, looking at sea, island, training wall, and long reaches of tidal sands—all very beautiful, full of colour, and fanned by the winds of perfect peace.

Inland, the still waters of the Clyde opened out into wooded hills, with blue ranges in the far background.

It is a picturesque district, and its limited population enjoy prosperity—and the finest of oysters. The fishing, they told us, was good, but we might not linger.

Once again the quiet, competent Harrison turned the starting handle of his reliable little car, and we glided on through alternate forest and flat towards Moruya.

Anon, the road wound into coastal hills. Many stiff climbs and sharp turns gave it variety. The sides of these hills are thickly covered with dark, palm-leaved macrozamia, from whose ripe red seeds—protected by a spiked green outer case, resembling a pineapple—a food substance resembling arrowroot has, it is said, lately been extracted. It is claimed that this starchy product contains much nutriment. An attempt is being made to commercialise it.

The forests immediately south of Bateman's Bay contain spotted gum and blackbutt of good quality. New South Wales spotted gum has been proved one of our most valuable hardwoods. It enters largely into carriage work. It is light and strong, and more durable than American hickory. The tree itself, with its tall white trunks covered with leopard-like spots, umbrageous foliage, and smooth, regular branches, is one of the finest in our glorious native flora. Superficial writers

have described the Australian Bush as monotonous. No botanist, no lover of Nature, could ever find it other than beautiful and interesting. The wonderful hardwood forests which cover so many thousands of square miles of this Continent are an asset beyond calculation.

There are yet magnificent belts of commercial timbers in Southern New South Wales, which are receiving the careful attention of the Forestry Department.



Blackbutt, Bateman's Bay

As we motored through these, our forester friend gave us details of forestry work, of the quality, value, tensile strength, and use of various timbers. He opened for us a book of woodcraft, which made an interesting journey still more enjoyable.

By and by, of a clear Sunday afternoon, we petrolled out of the high timber, and entered a region of more frequent houses, with trim gardens and orchards around them.

Moruya appeared before us. The town is approached by a long bridge spanning a tidal river. It is the centre of an exceedingly fertile district, surrounded by alluvial flats growing prolific maize crops, and has a fine background of blue mountains.

Moruya is hospitable, prosperous, picturesque. Poverty does not exist on the South Coast; most people are making money, and everybody enjoys a good living.

A tour such as ours, leaves the visitor with impressions of fresh-faced, happy people, good food, good beds, good roads, pleasant days filled with panoramas of ever-changing beauty and refreshing nights.

The average of South Coast farms is a little over 200 acres, and the output of agriculture and dairy produce has materially added to the richness of the State for the last fifty years and more.

Farm land near Moruya is valued at £40 to £50 an acre. All South Coast agricultural pro-

Tall hollyhocks, in cottage gardens, mossy four-rail fences, and an utter absence of that air of bustle and speculation which one finds in new places, proclaimed Moruya to be an early settlement.

It has been celebrated for its fine dairy pastures for many years. The motor car has come, the separator has come, but the South Coaster, kindly, good-humoured, and easy-going, still jogs along comfortably in his own quiet way. The next generation will probably 'hustle'—he is satisfied with to-day.

From Moruya to Bermagui there extends a coastline which is an open casket of gems to nature-lovers. The main road skirts shallow



Moruya Cheese Factory

duction gives one the impression that people are not getting anything near the revenue possible from their lands. But, how can we blame them for taking things easily? Living in an idyllic climate, softened by daily sea breezes, surrounded by sea, sky, and mountains, Levantine in light and colour, with fishing, oystering, shooting, sports, races, dancing, and amusements for constant attraction; possessing an easy competence; dreading neither want nor stintage, owning their buggies, bikes, saddle horses, motor cars; having mostly money in the banks, and a certainty of good seasons—it would be absurd to expect such people to live a strenuous life.

Even the sea-gulls sitting on the fences in the main street look lazy and contented.

Lake Coila, a haunt of wildfowl, and runs on to the Tuross River. This romantic river and estuary empty into Tuross Lake, an indented and island-studded sheet of water where fisherman and sportsman forget fast-flying hours in thrills of constant kill and capture.

Historic Bodalla Estate is an example of what can be effected on good country by good management. It lies along the Tuross River, a liberal freehold which has been in the possession of the Mort family since the days of the late T. S. Mort, to whose memory, as a pioneer of industry, New South Wales pays homage. The estate comprises 50,000 odd acres. On 6,000 acres of its improved areas about 300 people find a living. They are well housed and apparently contented. The



Narooma River

estate pays £8,000 a year in wages. It is the best-grassed, best-stocked, most scientifically conducted estate, with the exception perhaps of Kameruka, on the coast of New South Wales. Its dairy products—butter and cheese—are famous. Its general appearance is that of a State agricultural farm, conducted on revenue-producing lines.

There is an accommodation-house at Narooma, where the traveller can be sure of a good lunch with fresh oysters as an appetiser.

The channel is crossed by a punt near the mouth of the inlet—a fine sheet of water that widens out into picturesque reaches towards the hills. Mount Dromedary stands out in solid bulk in the background.

Strong tides pour in and out of the channel; rarely navigated except by timber steamers, which thread a careful passage to and from the wharves at the feet of the mills.

Good timber goes out of Narooma, which is also famous for its fishing. It is one of the many delightful places along this coast, where one might spend an enjoyable vacation, forgetting the world of care, detaching the good rock oyster from his native habitat, and filling one's fishing basket with the spoil of rod and line.

Breakers were combing lazily on a golden stretch of sand; steep hills throwing their replicas into still depths, as we left Narooma behind.

Bordered by tree-fern, myrtle, dogwood, pencil cedar, and mountain musk, the winding road went on. Wild tobacco grew in the bushes and on the forest reserves, the trunks of the spotted gum stood like pillars of white marble, ornamented by dark arabesques.

It crossed out over a shoulder of the Dromedary, where Tilba-Tilba is set in a rich pocket of

soil, and went down over Wallaga Lake through Bermagui and Baragoot, and Cuttagee and Wapengo, all salt inlets, to Tathra, which is the port for Bega and its district.

At Tanja we turned and crossed Mt. Doctor George, from the summits of which we looked down and saw the town of Bega, the capital city of this far South Coast.

Bega lies on a river of the same name. With the exception of the alluvial flats along this river, the district is nearly all granitic hills, getting higher as they go westward towards the Dividing Chain. These hills have been largely cleared, and make excellent pastures. They go out through Candelo and Rocky Hall, and include some fine pastoral country of which Nungatta Station, near the Victorian border, is perhaps the best. This station, on an area of eleven thousand acres, has carried 2,500 head of cattle. Nungatta is well watered, high, and grows good fattening grasses. This back country is coming into sheep, and later on will, no doubt, be occupied as dairy farms.

Kameruka Estate, a few miles from Bega, is a telling example of the value of this southern granitic country. All over Australia Kameruka is celebrated.

Its fruits, cheese, and dairy produce are of the finest qualities. It is delightfully situated among low rolling hills, is abundantly watered, and has been laid out and improved on the lines of the best English estates.

Similar country around Bega—suitable for grazing and dairying—is valued at £7 to £10 an acre, whereas the alluvial flats, devoted largely to maize-growing, can hardly be got for £60 and £70 an acre. The average maize crop on Bega flats is from 70 to 80 bushels an acre; but, in exceptional seasons, this has been increased to 140



Benjamin Boyd's Old Home, Twofold Bay.

bushels. The annual net returns from these maize lands may be taken (1914) at from £10 to £12 an acre.

Ultimately the "back country," the rolling granite hills (such as compose the major part of the Kameruka Estate) through all this southern part of New South Wales, from Bega to the Victorian border, will be found more productive on actual expenditure and receipts than the naturally rich soils along the river beds. Should an extension of the railway from Bombala to Twofold Bay be carried out, all these lands will come within the range of closer settlement.

The road from the railway at Cooma comes down to Bega. Nowadays the South Coast and the tablelands are linked up by motor services over various routes.

The trip from Cooma to Eden brings the traveller a practical example of the fact that Australia is a land of many good climates. He may leave Cooma in a grey fog or covered with snow, wrapped to the ears in rugs and overcoats. He will still shiver at bleak Nimmitabel: but as the road falls through thickening forests towards Brown Mountain, the climate becomes perceptibly milder.

On the hunch of the mountain, all at once, from an elbow in the road, he beholds another world spread out beneath him. The South Coast is unrolled like a green scroll edged with blue. While the cold mountain air is still nipping his ears, he looks over into a land of summer, dotted with patches of green sub-tropical vegetation, and fields covered with waving maize. In another hour or so we find him discarding his overcoat, dispensing with his travelling rug, and talking pleasantly about surf-bathing.

He eats his breakfast chop beside a roaring fire, takes his midday lunch amid spring perfumes from country gardens, and calls for cool drinks with his dinner at night.

We bided overnight in Bega at the clean and comfortable Commercial Hotel, where, true to South Coast traditions, guests are treated like friends, and feather-beds are found for favored visitors. Some critical writers have complained that Australians lack polish. In this country superficial manners—which mean little—are sometimes neglected; but kindness and an honest hospitality, which is common to all classes, will be found everywhere. If the traveller is prepared to "take things as he finds them," and is not given to aloofness, he will soon learn and appreciate the homely goodnature of the Bush.

From Bega down to Eden the coast road changes pleasantly from forest to clearing and back to forest again.

At Merimbula there is an old-established depot for the manufacture of maize flour; a little roadstead and a wharf where coastal steamers are berthed twice a week.

The village of Pambula lies in the margin of a rich pocket of alluvial flat, devoted mainly to the growing of maize.

Between Pambula Lake and Eden there are many forest-clad hills. Surmounting the final ridges the wide, blue waters of Twofold Bay come into sight, with the township of Eden perched on an overlooking hill, and Mount Im-lay standing high and prominent, some miles to the westward.

Eden is rich in historic memories of the days when Benjamin Boyd attempted to establish a whaling industry on a baronial basis; when the white sails of wooden brigs and schooners awakened local interest as they came and went, when Sir Oswald Brierley painted fine canvases on the southern shore and old taverns re-echoed the songs of carousing sailormen.

On the south headland is the unfinished tower of Ben Boyd's lighthouse. On this side of the Bay still stands Sir Oswald Brierley's house, with

ancient mulberry trees growing in front of it. The shingles are slipping from its high gable roof these days, and the plaster is falling from the walls. Ben Boyd's substantial buildings are suffering the same fate. For many years they have stood as silent monuments of a fine failure. They have helped to keep green the memory of old times, when Eden was the great whaling depot of the South Pacific.

The industry has never actually died out. For thirty years every season the Bay has been the scene of wonderful whale chases, in which the "Killers," harriers of the seas, have played a star part, helping the local whalers to corner and kill their whales, and being permitted in return to tear out their tit-bit, the tongue of the whale, in repayment.

The Killer (*Orca gladiator*) is somewhat like a huge porpoise, with a blunt nose. It has a high dorsal fin, a black striped body, is 15 to 25 feet in length, and has proved itself to be one of the most intelligent creatures of the living world.

The Twofold Bay "pack" numbers about twenty Killers all told. During the season, June to October, this pack is invariably to be found about a spot called "Leather Jacket," just off the south headland. Here they apparently lie in wait for whales coming up coast. The appearance of a whale off the entrance to the Bay is the signal for a great commotion among these Killers, who surround the cetacean, and endeavour to drive it into the Bay.

The local whaleboats put out quickly, and a most extraordinary hunt takes place, in which

Orca gladiator works the worried whale for the whalers's advantage, just as a pack of harriers will drive a hare to the gun.

Nor do they leave the quarry until the harpooner's lance has finished its deadly work.

Eden whalers have bestowed fanciful names on their finned assistants, and take good care to protect them. A most friendly relationship has grown up between the boat crews and the Killers, and the hunt is carried out on a joint organization, which generally proves fatal to the whale.

A whale chase in Twofold Bay is a sight that stirs the blood of the lucky beholder, and the residents of Eden never grow tired of the spectacle. While the chase is in progress the business of the town remains at a standstill. Finbacks, humpers, right whale, and grampus are all caught at Twofold Bay in this unusual fashion.

Eden of to-day is a haunt of tourists and a shipping depot for timber and wool and produce, brought down tediously by teams from Monaro and the adjoining districts.

Midway between Melbourne and Sydney, this fine harbor, as the terminus of a railway from the tableland, should have a future.

At Kiah, Towamba, Pericoc, Yambulla, Nungatta, and Nethercote there are good farm lands; some in settlement and some awaiting subdivision. The hills will grow splendid fruit, and though old as Australian occupation goes, the district is still young in development.

On a blithe, windy morning we went out to Nethercote, a belt of volcanic soils a few miles from Eden. En route we halted the German



At the Whaling Station, Twofold Bay

waggon of one Adolf Fourter, at the summit of a tall, forested hill. Adolf is a fine example of a successful Bavarian colonist—blue-eyed, blond-bearded, hearty, and cheerful. With his competent Australian wife and three stalwart sons, he has cleared and cultivated a comfortable farm out of virgin forest. He holds a 250-acre block under conditional purchase title. Twenty-one years ago he began, as a young immigrant, on 91 acres. He had a little colonial experience and no capital. As he cleared the heavy timber, he planted maize and potatoes. After a few years he began dairy farming.

By culling his little herd and testing his milk carefully he can make his cows each return him

scope of rolling hillsides, where forest and farm alternate, is a green garden of fertility.

The Southern dairy farmer has been called upon to cope with the rabbit, and netted fences cross the landscape in all directions.

At Cobargo, they told us, the rabbit was proving a blessing in disguise, inasmuch as people were learning that 640 acre holdings could be reduced to 320 acres and worked to greater advantage.

For rabbits, prickly pear, and other foreign introductions, which become pests in Australia, there is one explanation—and a remedy. Rabbits, foxes, prickly pear, spread because wide, waste lands afford them unique opportunities to



A Dairy Farm at Nethercote

as much as £2/3/9 monthly per annum. He nets nowadays a living of £300 a year, and regards Australia as a good country.

Nethercote soil averages 40 to 50 bushels of maize to the acre. In good years the crops go up to 90 bushels. Its farming population seems exceptionally contented.

We turned northward by inland roads; climbing over the hills that lie between Pambula and Wyndham, and crossing Myrtle Mountain, en route to Candelo.

Traversing a short belt of red volcanic country, yet virgin to settlement, we beheld, from the summit of this mountain, one of the finest panoramic views in the State of New South Wales.

Kameruka lay beneath us, with its boundaries of dark pines, and the pretty little town of Candelo at the head of the Bega River. Candelo is famed for feminine beauty. In spring all this

increase and multiply. Closer settlement forms the one effective check to these evils, simple and commonplace enough in their origins, but taking on complex and singular aspects from the very nature of local circumstance.

In occupied countries some of our worst curses are cultivated as blessings. We hear that the French peasant breeds his rabbits as an agreeable addition to the bill of fare; that the American agriculturist grows prickly pear for fodder; that the English sportsman preserves his fox. In Australia we poison our rabbits with phosphorised pollard; we employ noxious gases to exterminate prickly pear, and—although a sporting people—shoot foxes without a qualm.

It is true that frozen rabbits are exported in large quantities. New South Wales sent out, roughly, seven million pairs of rabbits and hares in 1913, and nearly five million lbs. of pelts.

Prickly pear is being turned to some account, and the English fox skin has become an article of commerce—but the Australian settler has not yet learned to look upon these things as valuable national assets, nor is he to be greatly blamed on that account.

From Cobargo, back through Wagonga and Eurobodalla, and across the Bodalla Estate again from west to east, was a lovely afternoon's run. On this track we headed Narooma Inlet and traversed some fine spotted gum forests and partially cleared farming lands.

Between Bateman's Bay and Milton next day we again took a westerly route, which brought us over Termeil Mountain, where we inspected the locally famous "water trees."

These twin trees act as a reservoir for a supply of clear, cool water, from which the thirsty traveller may procure a refreshing drink, no matter how dry the season. The butt of one tree is hollow. A hole has been cut in big enough to admit a swagman's billy-can. All sorts of mysterious bush explanations are given for this little natural phenomenon, which do not affect wayfarers with local knowledge, who find the trees by the roadside a pleasant place of shade and water on a hot day.

Late that night our pleasant pilgrimage with Forester O. L. Harrison finished at Nowra. But for evermore in joyous recollection we will see that long, lovely coastland, dreaming lazily between Shoalhaven River and Twofold Bay. Lake and inlet, river and mountain, blue skies, blue seas, blue hills, waving palm trees, glorious forests, green meadows, whitewashed dairies, winding roads and all the happy incidents of travel and adventure through a romantic and beautiful country will make mental pictures, whereon we can look with unwearied delight.



White Apple Tree

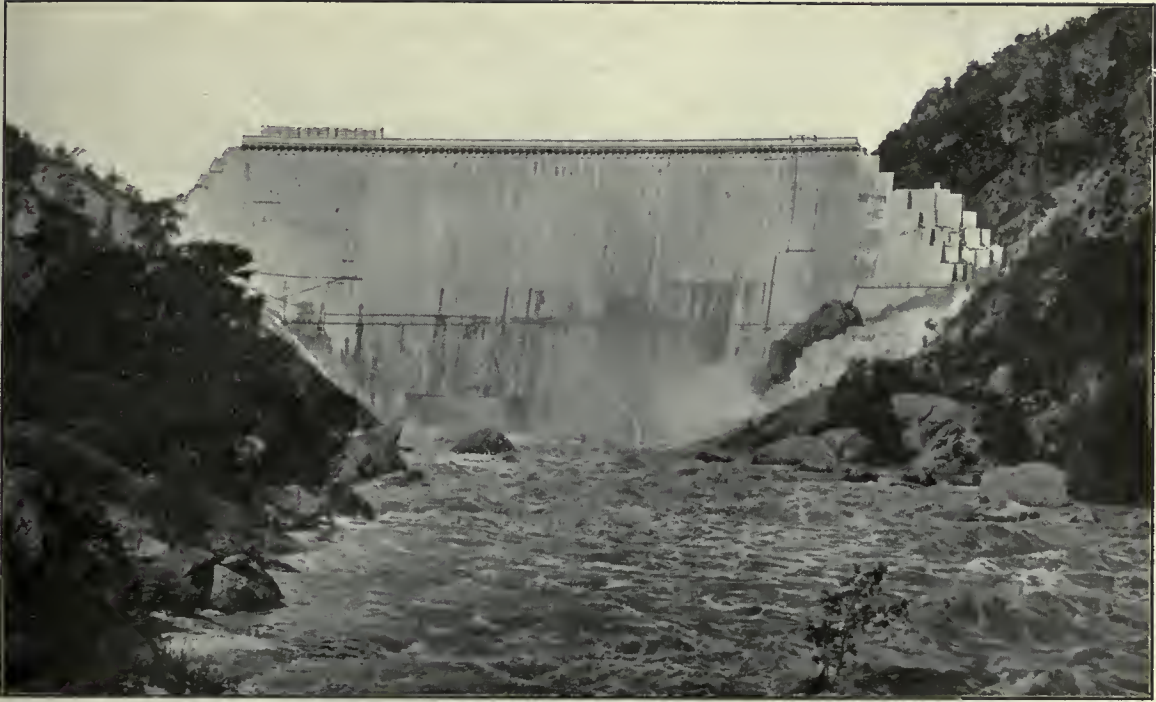
The white bridge across the river at Towamba, the granite hills of Pericoe on which dark rain clouds are gathering, Nungatta homestead with its background of hills, the road from Pambula to Wyndham winding through the gorges, the lookdown from Myrtle Mountain, the spindrift on the ocean beach at Narooma—these things are not easily forgotten; nor are the cool sea winds coming shoreward in the afternoons, nor the sparkle of the waters, nor all the light and color and contour and foliage of a land forever favored by the winds and sun.



Main Street, Milton



Sluice-Gate, Lock, and Weir, Berenbed, Murrumbidgee Irrigation Area



Burrinjuck Dam, in Course of Erection (Down-stream Face)

IRRIGATION AND THE RIVERINA.

AUSTRALIA has been a land of Doubting Thomases, where machine-made critics spent their leisure time in predicting the failure of each fresh enterprise.

Some years ago the N.S.W. Government decided that it would link up Coonamble in the North-West with Dubbo, by railway—90 miles.

One remembers the violent opposition to this line. The author of this book, driving a caravan across from Dubbo to Narrabri, en route to Northern Queensland, in 1899—met many doleful prophets, who proved, to their own satisfaction, what an utter failure the North-West line was going to be.

Looking up railway returns for the State recently, he found with no surprise that the 90 miles has been paying £20,000 a year after the first year of its construction!

So with the Murrumbidgee Irrigation Scheme. Despite all predictions of failure, this great national work promises to be one of Australia's biggest successes.

These engineering works represent the second greatest artificial storage in the world—being only a little behind the Assouan Dam.

The site chosen for the erection of the retaining wall was at Burrinjuck, on the Murrumbidgee River, forty miles from Canberra.

Here the river enters a deep and narrow gorge. By damming this gorge with a wall of cyclopean concrete, the engineers were able to throw back the flow of the river into an enormous natural basin, capable of containing more water than Sydney Harbor.

The wall of this colossal dam is 236 feet high and 752 feet long. It has absorbed over 60,000 tons of cement. Five thousand square miles of catchment area spread behind it. The actual irrigation area is located a long day's journey down stream. The farms receive the water as it is required.

The Murrumbidgee Irrigation Scheme has been expensive, but it has established a national asset of ever-increasing value. The original estimated cost was £1,169,008; but this will be greatly exceeded.

The irrigable district, 220 miles from the Burrinjuck Reservoir, extends on the north side of the Murrumbidgee River, from Narrandera to Gunbar, a distance of 130 miles. It contains a territory of 358,000 acres. Of this 196,000 acres have been classed as first-class land.

The area will carry at least 3,580 homesteads, on a basis of 100 acres to a holding.

It is difficult to estimate what the total population of the new province will be in another ten

years. If, on 11,000 acres of irrigated land at Mildura, over 5,000 people are doing well, the Murrumbidgee Irrigation Scheme should ultimately support as many as two hundred thousand. Already it has a population of 5,000, and not one-tenth of the scheme has been dealt with. The latest official report of Yanco and Mirrool sections—the first to be thrown open—is inspiring.

“At the beginning of the year,” says the official report to the Ministry, “approximately 330 farms had been taken up on the Yanco and Mirrool areas.

to the growth of vegetables, tobacco, and other annual crops.

“Not only have the farms taken up in the initial stages of the settlement been brought into production, but during the year an additional 225 farms, with an area aggregating upwards of 10,000 acres, have been allotted, and in the majority of cases brought into full use. The settlers as a whole have displayed the utmost energy in the development of their farms, and they are to be congratulated on the results achieved. These remarks apply equally as well to the Mirrool end



Burrinjuck Dam. Almost Completed (Up-stream Face)

“Most of these were at Yanco, the Mirrool area having just been opened. Many of these farms had been taken up only in name, the settlers were not in occupation, and on many holdings clearing operations had not even been commenced. Except in the immediate vicinity of Leeton, there was little to show that any attempt at closer settlement on a large scale had actually taken place. Now, however, conditions are entirely different.

“From Yanco station northwards for a distance of 12 or 15 miles on either side of the road, there is a succession of closely-settled holdings, varying in area from two to 50 acres. Many of these have been planted with fruit trees and vines; others again, have just yielded to their holders very successful hay crops; while still others have been put down with lucerne or are being devoted

of the scheme as to the much larger settlement at Yanco. The first subdivision of the Mirrool area included about 89 farms. Almost the whole of these have been taken up, cleared, and cultivated, with the result that the Mirrool settlement on a small scale is a replica of the country around Leeton. The total number of farms allotted during the year is 560.

“One hundred and fifty additional farms have been made available for settlement, and these will be thrown open early in the new year, and there will be additional areas from time to time.

“Generally speaking, settlers may be divided into three classes:—(1) orchardists; (2) dairy farmers; (3) mixed farmers. Everything points to success in the whole of the three branches of intense culture. The results obtained from the



An Apricot Tree, Yanco

trees planted at the experimental farm have been extremely satisfactory, and as the farm was established on some of the poorest land in the settlement, it is only to be expected that settlers on higher-class country will produce even better fruit—fine as the fruit produced at the farm has undoubtedly been.

“With regard to dairying, the results obtained so far have been eminently satisfactory.

“Expert opinion is unanimous on the point that Yanco offers splendid opportunities to the dairy farmer. Settlers are rapidly recognising this fact. Before the local factory was opened cream sufficient to produce 600 lb. of butter per week was being sent from the areas to the Hay Butter Factory. The cream suppliers to the local factory number 60, and the output amounts to approximately 3,500 lb. per week. The quality of the butter produced is first class, and no difficulty has been found in disposing of it at top market rates.”

Co-operative canning plants, to deal with the surplus crops of vegetables are being installed, and co-operative fruit-preserving plants will also be a future development.

For the guidance of intending settlers, official information concerning terms and conditions will be found in the appendix of this volume.

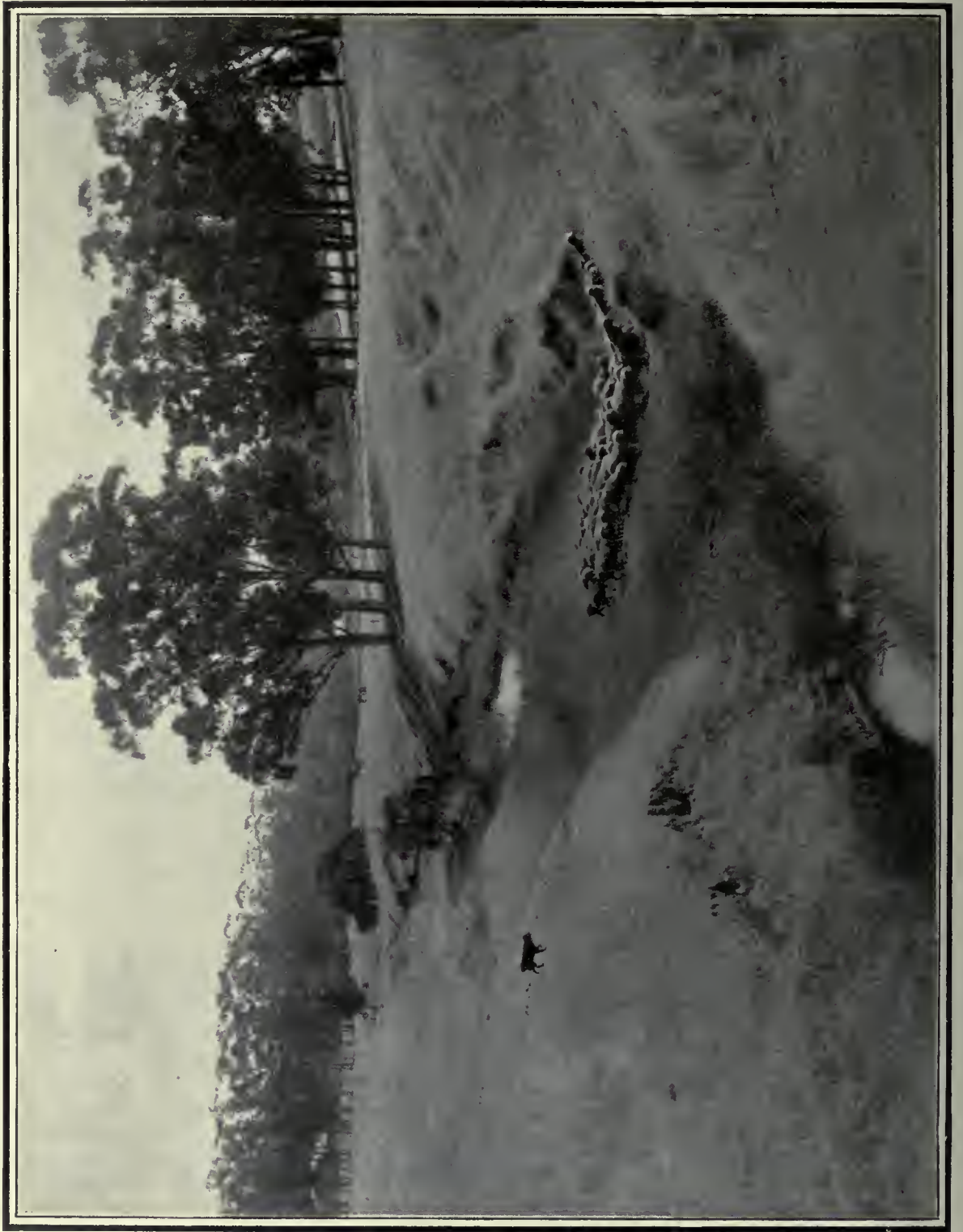
New South Wales is naturally anxious that Murrumbidgee settlers should succeed, not only for themselves and for the sake of the scheme, but in order that the benefits of irrigation may be demonstrated beyond all doubt. Nowhere can

there be found a more interesting settlement. The resources of modern science have been freely called up to achieve the maximum of result. The engineer has been given a free hand, and the artificer is nowhere stinted.

As a result, things have been made possible in a space of time which the pioneers of the last generation could never have imagined.

The author saw the beginning of this settlement in August, 1910. The State Experimental Farm was then the only area planted. In May, 1913, he re-visited it and found profitable agriculture firmly established, villages where there had been solitudes, prosperity and progress already in being. As a sheep-raising proposition the annual revenue of Yanco might have been 10s. to 15s. an acre in good seasons; but now these red soils will bring forty, fifty times that return to the irrigationist.

In May, 1913, there was hardly a railway station in the south-western radius where one might not see huge stacks of wheat awaiting transport. Old fields were green with self-sown wheat, In the new fields, stubble and sheep, and disc ploughs at work told of a thriving industry. But the production of wheat lands will never be as great as that of irrigation areas. *The 50-acre farmers are the men of the future in Australia.* They will be as independent as the old sheep-barons, even if their incomes cannot be so high—and they will not envy the 1,500-acre men on their grain-growing mixed-farming sections.



A Riverina Pasturage

The actual life and growth of this settlement in the making is good to watch. You go down to Leeton and put up at a well-patronised boarding-house, where a crowd of young engineers and Government officials of all ages and ranks come regularly to "chop."

Many of them dwell in the canvas town waiting, like some of the settlers, for houses which are yet in the building. Material and labour can hardly be got through quickly enough to meet the demand for construction. Bustle and business are in the atmosphere of the place.

Awaiting permanent quarters, this section of the population makes itself very comfortable under calico or canvas. The settlement is attracting a good class of people, with intellectual and social instincts.

While the work of ditching and grading, subdividing, fencing, and house building is going on, social and municipal organisation are also evolving. Being, in a sense, a huge co-operative family, the irrigationists are friendly and helpful to one another.

The new colony on the Murrumbidgee is an ideal place for the man who would live the healthiest of lives, amidst the happiest of surroundings, and is satisfied with a comfortable income, which can be supplemented in many ways.

A tour of inspection around Leeton to-day leaves the visitor with a conviction that he has seen a district where success is written in letters of green and gold at every turn. He finds the most up-to-date butter factory in Australia; he sees on the State Demonstration Farm a hundred examples of profitable production, by which settlers may be guided. Along the main canal, which three years ago was no more than a huge ditch newly cut through virgin country, he will see maize, melons, pumpkins, lucerne, and behold young fields in the first flush of agricultural motherhood, new dwellings, new gardens, and hopeful new residents.

He will see the beginnings of ostrich farms, dairy farms, orchards, vineyards, all the signs of intensive culture and close occupation, where a few years ago there were only long lines of wire fences and a few scattered sheep.

It was worth while, for this result, that the Great Dam, 200 miles away, was slowly raised as an eternal monument to the foresight and public enterprise of a young State. It took six hundred thousand tons of material and sixty thousand tons of cement to weld Burrinjuck Mountain to Black Andrew, and to create that titanic cup which holds 33,630 million cubic feet of water that will keep perennially green this national garden and extend its boundaries year by year.

In this garden of five thousand plots, fodder enough can henceforth be grown to supply the surrounding pastoral districts, if necessary. There will be no more drought on the area, and no more shortage in the country round about it. Most valuable of all, a populous centre of settlement has been created in the heart of the West!



Irrigation at Yanco

New South Wales meditates the construction of other storages for the purposes of irrigation: at Wyangala on the Lachlan River, and Camberooona on the Murray; on the Upper Hunter, the Warragamba, the Macquarie, and at Lake Menindie on the Darling.

The financial aspect of the irrigation policy includes the creation of a sinking fund and the meeting of any accumulated deficiencies on account of maintenance and interest that may occur during the early years of working. In regard to the Murrumbidgee scheme, it is provided that the whole cost of the works, both storage and channels, shall be wiped out in a hundred years.

The Government can do this, and still afford its settlers all the water they require for purposes of irrigation, at a lower rate than that charged in any other irrigation settlement in the world.

The original Warragamba River scheme includes the construction of a storage dam to retain a volume of 103,800 million gallons of water. This would give Sydney a supplementary daily domestic supply of 80 million gallons, and leave 80 million gallons daily for irrigating lands along the banks of the Nepean River and South Creek.

The introduction of intensive agriculture into a country, where agriculturists have been used to large areas and depended on Nature alone, has not been accomplished without opposition and doubt. But New South Wales has ever exhibited a thoroughness about her public enterprise. Confident of her enormous resources, she builds solidly and fearlessly. In launching her irrigation policy, after much premeditation, she determined that she would begin with a scheme on a parallel with the great Assouan dam. The State has now practically completed its works at Burrinjuck and on the Murrumbidgee, and will probably await the sequel of experience before undertaking another scheme of the same magnitude. Meanwhile there is room for many smaller irrigation schemes within the borders of the Mother State. The next decade will doubtless see a great advance in irrigation throughout New South Wales.

The Murrumbidgee Scheme may ultimately be extended to Hay. Between Whitton and Hay, the railway line runs through typical Riverina plains, giving, under present conditions, good returns from sheep. Wheat-growing is extending, and one near day all that vast prairie, from Carrathool on the Murrumbidgee to Hillston on the Lachlan, will doubtless come under the plough. With a rapid extension of dry farming, the establishment of the Murrumbidgee Irrigation Colony, and necessary railway building, Riverina is coming into her own.

And what an Eldorado it is! He who has not seen the Riverina in good season, has never known how wondrous fertile, kind and fair our Australian Motherland can be. Her face is beautiful in many moods, but Riverina is the maternal smile upon her mouth.

From Cowra to Balranald, from Jerilderie to Maude, our Southern Sultana, spreads one vast carpet of emerald, brodered with flowers. Spring dances her sarabands across it for hundreds of melodious miles. The early winds of summer ruffle its grassy seas into undulating billows; but, instead of the lonesome albatross, cutting cold crests with down-pointing wing-tips, the speckled shell parrot and the pink galah match their colours with its painted flowers.

Life, the life of the plains, is everywhere. The lagoons are covered with wildfowl, plump black duck, with iridescent wing-feathers, noisy teal, swift-flying widgeon, whistling duck, and other species. White-breasted pelicans, reminding one

of Dutch fishing-smacks, drift to and fro; graceful black swans, with arched necks, scarlet beaks, and impudent eyes, move through the water-weeds like Venetian gondolas.

Cormorants, snake-necked, sharp-beaked, evil-smelling and predatory, watch on shoreward snags for their meal of fish.

Along the edges mottled wood-duck sleep with brown heads tucked under their wings. White, black and white, and straw-coloured ibis make Egyptian borders to an Australian picture, as they stalk along the marshy margins, pausing every now and then to pick up an insect with sickle-shaped beaks.

Flock plover and spurwing, jack-snipe and sand-piper, white and blue cranes, spoonbills, egrets, divers, redbills, coots, water-hens, play and feed upon the surface, or around the margins.

From cypress-pines come the calls of top-knot pigeon, and turtle dove.

Brolgas, mostly in pairs, but, at sunrise in dancing parties of twenty or thirty, walk with stately strides across the plain. Grey bustards, taking flight before foot travellers, but easily approachable by horsemen or vehicles, move with backward-turning heads through the long grass. Awkward-looking emus cover the distance with long stilt-like strides. The agile kangaroo hops gracefully here and there, sitting up and listening between feeding whiles.

Flocks of galahs and crested cockatoos, and flights of gorgeously-coloured parrots, all add colour and animation to a scene which makes an equal appeal to artist or sportsman.

In good season the Riverina is beautiful and benign, abounding in fish and game. It grows the finest of wool. All fruits and flowers flourish on its wide domains. It produces the best of mutton and the fattest of beef; the manliest of men, the sweetest of women. In good season it is a dream-land, a lotus-eater's heaven, a paradise on earth.

The galvanised roofs of its stations standing miles apart among their gardens, red level coach-roads; winding rivers meandering along under drooping branches of shady trees; wire fences that seem to run to infinity; rotund sheep, young unbroken horses, wooden houses with red-raddle fire-places, kerosene lamps, fly-proof doors, Austrian chairs, bullock teams and motor cars; grey myall trees, pointed pines growing in dignified regularity, as if they had been planted and pruned, yarran, boree, golden wattle, muddy billabongs, low hills clothed with stunted mallee, long plains, covered with salt-bush; wide plains carpeted with grass and wildflowers; soft winds perfectly blue skies and exhilarating sunlight—that is Riverina in spring.

There is an atmosphere of easy-going prosperity about Riverina towns. The pleasant, broad

streets of Hay planted with kurrajong and pepper trees; the avenues of gums in which Balranald takes its pride; these make pictures different from those which have been painted by imaginative writers about towns "out back."

Hay was once a port for all the western wool as far as Bourke, but the opening of new rail-

The tables were decorated entirely with roses grown in the town. It would have been difficult to select such a display from the best florists' garden in Sydney, which prides itself on its roses.

The "wild and woolly West" was represented by a decorous assemblage of well-groomed townsmen in evening dress. The menu was innocent of



Dairy Cows on Natural Pasture, Murrumbidgee

ways has taken much of its river-transport away. Still the whistles of river steamboats are heard along the red-gum reaches of the Lower Murrumbidgee, and the chug of paddle-wheels awakes the echoes of its bends. There are 3,200 miles of navigable river-waters in Riverina.

Hay, like all the Western towns, is a most hospitable place where they kill the fatted turkey on slightest provocation. Once the author thought of Hay as a singularly hot and uncomfortable place, unbeautiful and distressing to a degree.

He arrived at Hay wearing a heavy overcoat. After a hot bath, in a very fine hotel, he was ushered into a spacious, electric-lit dining hall, where a banquet had been laid for the visiting Minister and his party.

traditional corned beef or boiled mutton; but as a menu it remains in middle-aged memory—another pleasant recollection of the "western desert."

The desert which can colour roses and brown turkeys with such infinite success should make very pleasant biding-places for those who call them "home."

At the conclusion of our elaborate meal a group of us sat around a warm log fire and talked of Australia's future. There were some educated and intelligent local young men in the circle. Their views on the future of the West would have astounded some metropolitan "Writers of the Bush." To them there was no longer any problem; but a certainty which would be realised

by increased population. Dry farming had been proved, irrigation had been proved, wool-growing had been proved—there was nothing to doubt and nothing to dread; all they wanted was transport and the right kind of settler; the land would do the rest.

They believed in their country, because they knew how good it was. The ridiculous West of the story-teller moved them to mirth. When somebody said, "Hay, Hell, and Booligal," the outside world had been inclined to accept it as a statement of fact. The gorgeous roses of Hay put forth their fragrance in denial. Down at Booligal they said the roses were even better. If so, Booligal must be a veritable Vale of Cashmere.

From Hay to Balranald spread the mighty plains, beautified with blue bush and pearl bush, needlewood, wilga, and pine. They are composed of black soils and red soils, as fertile as anything on earth. For every acre of their surface there could be found a use. They contain the potentialities of five hundred thousand years of fallow; their virgin breasts are yearning to suckle thousands of farms.

The 'Old Man' salt-bush, perennial, succulent, dots the level distances with its silver clumps. Miles of plain are covered by annual salt-bush—one of our most valuable Australian fodder plants. Samphire flats and red sandy ridges, beloved of the cypress pine, patches of mallee, all these give the landscape variety. To the man with eyes and a soul there is no monotony in these magnificent, fertile distances.

Between Balranald and Euston—close to the latter township—is Lake Benanee, a splendid natural reservoir—of Aeolian formation—which is to be used as a storage for an irrigation scheme. The projection of a Victorian-built railway through this district, and the carrying out of this scheme, and a similar one at Gol Gol, would bring much fine agricultural land into occupation. If I were asked to prophesy which part of New South Wales will be most densely populated in another forty or fifty years, I should say the western river belts. At least they should carry the largest rural population and give the highest agricultural returns.



The Beginnings of an Ostrich Farm at Yanco.



Road and River.

THE FUTURE.

WE have glanced over some possibilities of the Western Division along the Darling. We have stood at either end of a river which falls six inches to the mile in 1,200 miles.

At Wentworth irrigation area we saw SUCCESS written in large letters. Four hundred miles higher up the river we saw SUCCESS written at Pera Bore and the Oriental Garden.

Between these two demonstrations lie the station gardens, the woolsheds—and all the yet unexploited offerings of a rich, undeveloped country.

Pessimists may argue against the future, and as long as the Man of Faith has no data to offer in contradiction, the Pessimist may prevail. But once you establish a scientific fact—it stands.

At Wentworth and Bourke we have the established fact that irrigation in Australia is a payable proposition. Anywhere, everywhere, along 400 miles of road between these points, this fact can be repeated over and over again.

The area which it is possible to irrigate is ultimately determined by the amount of necessary water available—and that is a matter for the engineers of the future.

The Commissioner for Irrigation to-day says a quarter of a million acres, enough to support 25 Milduras, with an aggregate population of two

hundred thousand. That in itself would be a fine thing. It would one day be worth 25 millions of money annually to the Mother State. But settlement of the Western Division does not stop at the Darling. There are other potentialities, latent yet, but certain to develop later on.

The normal carrying capacity for the Western Division in sheep is set down officially at from 7 to 7½ millions over its whole area of 83 million acres, or about one sheep to 12 acres. The nett annual revenue from sheep might be at the outside five shillings a head. Twenty-five irrigation settlements (another chapter will tell us what happened at Mildura) would add a revenue of many millions greater than the whole Division can give from wool—and these 25 settlements, on the basis of Mildura, would occupy only a quarter of a million acres! The area of Dunlop Station alone is nearly four times that.

Now in one of their reports, we have the Western Lands Commissioners, Messrs. C. J. McMaster and Hugh Langwell—both knowledgeable men—complaining that they have about 360,850 acres of Mallee lands on their hands, “a large proportion of which, although of little value for grazing purposes, is, with improved methods of cultivation and the adoption of dry-farming processes, capable of conversion into

"agricultural areas for which there is an existing
"and growing demand."

It is all singularly Australian!

Here we have two earnest Commissioners almost tearfully telling the Minister of the day that they have nearly half a million acres of beautiful country which they want to get rid of.

In a few years, as wheat lands, if the story of Pinnaroo is repeated, it will be worth ten pounds an acre.

When this particular belt of Mallee is given communication, it will be found, if the writer's experience is not at fault, among the most profitable land in New South Wales.

At Gol Gol, opposite Mildura, there are about 132,000 acres of vacant Crown lands with a frontage to the Murray which can be developed as an irrigation settlement at a comparatively small cost. These lands are superior in quality to Mildura.



Raymond Terrace Viticultural Station

The Mallee is no good—or rather in Nature's scheme, too good—for grazing; consequently this parcel of wheat lands, worth a prospective three million pounds at least, goes begging for lessees!

"In order to pave the way for the disposal of these lands, or part of them, the Board announces that it is going to cut up some into blocks and "offer them in areas sufficiently large to "enable the lessees to undertake mixed farming "on a scale that we believe will be remunerative "and lead to a development of this part of the "State."

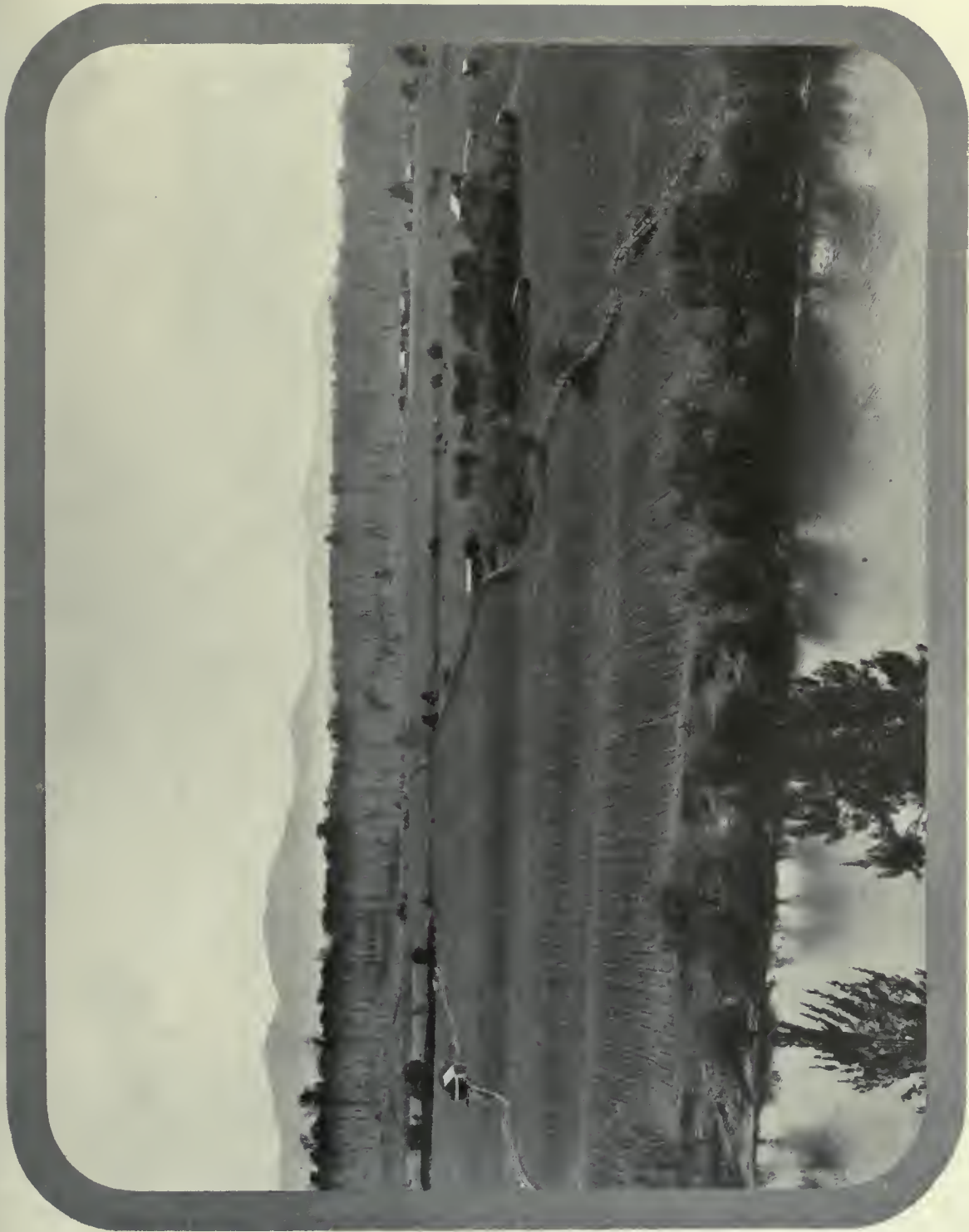
In actual fact the Mallee in the Western Division of New South Wales, bears every appearance of being superior to Mallee which is being rapidly settled in Victoria and South Australia. Our trouble is that Australia, all over, *has too much good agricultural country and not enough people.*

Nowadays Lands and Agricultural Department reports speak of successful wheat-growing on eight and nine-inch rainfalls or even less!

We know that profitable dry farming in America and in South Africa is being carried out on what would a few years ago have been considered an absolutely inadequate rainfall.

Says William MacDonald, an agronomist of world-wide fame:—

"All soils are not suitable for dry farming—the most important thing is depth of soil; "sandy or silty loams are the best. The soil "must be looked upon as a sort of reservoir for "the storage of water over periods ranging from "a few weeks to many months. It has recently "been found that the nitrifying germs are present "in large numbers in the soils of the drier regions "and in a very active state."



A Farm on the North Arm, Bellingham River



Girls Picking Grapes, Hunter River District

Soils such as William MacDonald classes among the best for dry farming prevail throughout the West.

"The future of dry farming is assured. It will take its place alongside the sister science of irrigation, and through the combined efforts of the farmer and the expert it is destined to exercise an enormous influence on the future development of the United States and the British Empire."

These words have a special significance for all Australia. Their peculiar application to the farthest-out lands of New South Wales will one day be more fully realised by the people of the Australian East.

Dry farming is not new; but in its modern application it will achieve results that it has never given in Egypt or north-western India. If ancient agriculturists could remain for thousands



A Wheat Stack at Gerogery

of years in dry country without any knowledge of organic chemistry and its application to agriculture, dry farmers of the future will do wonderful things in Australia.

With their drought-resisting stocks and their fallowing methods, with library and laboratory behind them, they are destined to go out, a silent conquering army, further and further towards the heart of the continent.

green with growth and yellow with golden harvests.

* * * *

The Gospel of Dry Farming, as given by Dr. Widtsoe, is simple enough:—

1. Plow deep.
2. Plow in the Autumn; there is no need for Spring plowing.



On the Karnah River, near Bowral

Where the vanguard camps to-day the rear-guard rests to-morrow—the Army of Invasion is already on the march. Led by the shining spirit of William Farrer, this Army of Invasion is preparing its assaults upon the outstanding citadels of Nature, and its conquests will continue for still another hundred years.

As the hopeless sage-brush lands of Western America have fallen under the plough, so will the salt-bush and spinifex lands of Australia display their profitable uses.

We can safely predict that the most Western lands of New South Wales will yet in turn be

3. Cultivate the soil in early Spring; as far as possible after every rain.
4. Fallow the land every other year under a rainfall of 12 to 15 inches; every third year under a rainfall of 15 to 20 inches.
5. Grow crops that are drought-resistant.
6. Stick to a few crops; preferably such staples as wheat, oats, barley, rye, alfalfa, and when they are established go on to others.

Simple enough; modified and applied to Australian conditions it is already bringing thousands

of acres of despised back blocks into profitable agriculture.

Mixed farming at Menindie will be no more an impossibility for the future than wheat-growing at Wyalong is to-day.

If 640 acres are the outside limit considered necessary for a dry-farmer to hold among the sandhills of Nebraska, a day has to come in Western New South Wales when even less than that will be a good living area for a farmer and his family.

How much of these 83 million acres in the Western Division will be dry-farming country in 1950? If a prophet had got up in Sydney thirty-seven years ago and foretold that wheat would be—as it is—the staple crop of certain districts in 1916, he would have been discredited by the

best-informed agriculturists and severely criticised by a super-careful newspaper press.

In a recent report of the Western Lands Board this pregnant clause is inserted:—

“The Commissioners desire to again point out that the advancement of the Western Division now depends mainly upon:—

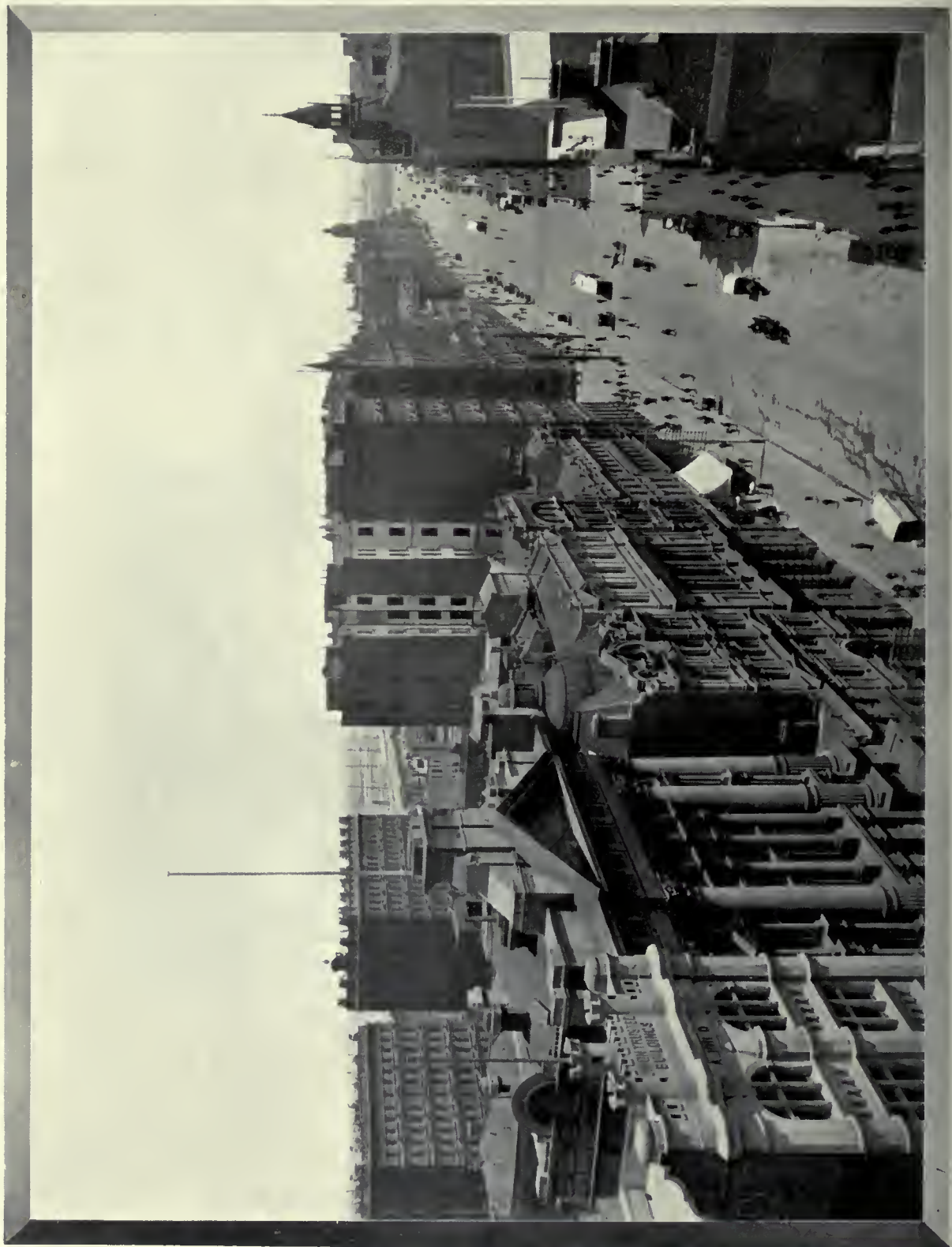
1. Irrigation settlement and distribution of water for stock and domestic supply.
2. Railway extension, and
3. Making available more country of a character suitable for small holdings.”

Therewith the question of settlement in this great third division of the Mother State may be left for the present.



Jones' Bridge, Tumut

VICTORIA



Collins Street, looking West, Melbourne



EVOLUTION AND PROGRESS.

IF the object of this book were historical, rather than descriptive, the author would be tempted to devote a maximum of space to the story of colonization in Victoria. Although the smallest of the Australian States, excepting Tasmania, it has been so blessed by natural advantages and sound citizenship that it is now carrying a larger population for its area than any of the others.

The Victorian coast near Cape Everard afforded Captain Cook his first glimpse of Australian shores; yet it was forty-seven years from the foundation of the British Colony at Port Jackson that actual settlement at Port Phillip began.

Nine years after Phillip's landing, the *Sydney Cove*, a wooden cargo vessel of the period, ended her voyage from Bengal on Furneaux Islands in the then un-named Bass Strait. The mate, supercargo, and fifteen of the crew endeavoured to beat up-coast to Sydney in the ship's long-boat, leaving the master and several Lascars on the Island. The long-boat was driven ashore, apparently near Cape Everard, within the present Victorian border.

Like the survivors of the *Monumental City*, wrecked sixty years later on Tallaberga Islet, near Gabo, most of them perished before they gained European settlement. Only the supercargo and two seamen reached Sydney. They left the ship in February, and were picked up, in May, exhausted and wounded, by a small fishing-boat cruising to the southward of Botany Bay. They had tramped along the intervening coast, living as they might, and dogged

by murderous natives, who speared several of the band. This wreck flickers the heroic figures of Surgeon Bass and Second-Lieutenant Flinders forward upon the shadowy film of History.

Bass, then 34 years of age, at his own request was provided by Governor Hunter with a good whaleboat victualled for six weeks and manned by six men. Thus outfitted, this young Columbus set southward along unknown and hostile shores in his cockle-shell. He rounded Cape Howe, and, entering Victorian waters—then sailless and uncharted—worked his intrepid course beyond Wilson's Promontory for sixty miles to Westernport. There, his whaleboat leaking and provisions running short, he was reluctantly compelled to put about and fight turbulent seas for 600 lonely miles back to Sydney Cove. He had doubtfully demonstrated that Van Diemen's Land was not, as had been supposed by Dutch and English navigators, a part of the Australian mainland.

Victorians have reason to be interested in their first explorer. "Six feet high, dark complexion, wears spectacles, a very penetrating countenance"—so he was described. He left Port Jackson in 1803—six years after this remarkable feat—with the brig *Venus*, for the west coast of South America, to procure salt meat and live cattle for the settlement. He was taken prisoner by the Spaniards, and his subsequent fate remains unknown. It is presumed that he died in South America.

The immortal Flinders, accompanied by Bass, sailed in the sloop *Norfolk*, of 22 tons, in October, 1798, on a voyage of discovery. They finally established the existence of a strait between



Surgeon George Bass.



Captain Matthew Flinders.

Tasmania and the mainland. Lieutenant Grant in the survey ship, *Lady Nelson*, two years later added to the imperfect geography of the period by sailing through Bass Strait, on the voyage of that vessel from London to Port Jackson.

Subsequently, he explored the Victorian coast in this vessel, of 60 tons, as far as Westernport, where, during a month's survey, he established a small plantation on Churchill Island, and built a block house—the first dwelling and garden on Victorian soil. Nine months later his chief officer, Lieutenant Murray, then commanding the *Lady Nelson*, revisited the place and found that the wheat and Indian corn planted by Grant were flourishing.

Governor King in the latter part of 1801 sent Lieut. Murray down the coast to make a detailed examination, with a view to forming a permanent settlement. He had already forwarded urgent despatches to England on the subject. Murray—preceded by Bowen, his chief officer, in the *Lady Nelson's* long-boat—entered Port Phillip Heads on 15th of February, 1802—a memorable date for all patriotic Victorians.

Murray was followed, six years later, by Captain Matthew Flinders in the *Investigator*. Flinders landed and explored the country on the western side of the Bay.

King's anxious determination to forestall the French, who it was believed meditated the occu-

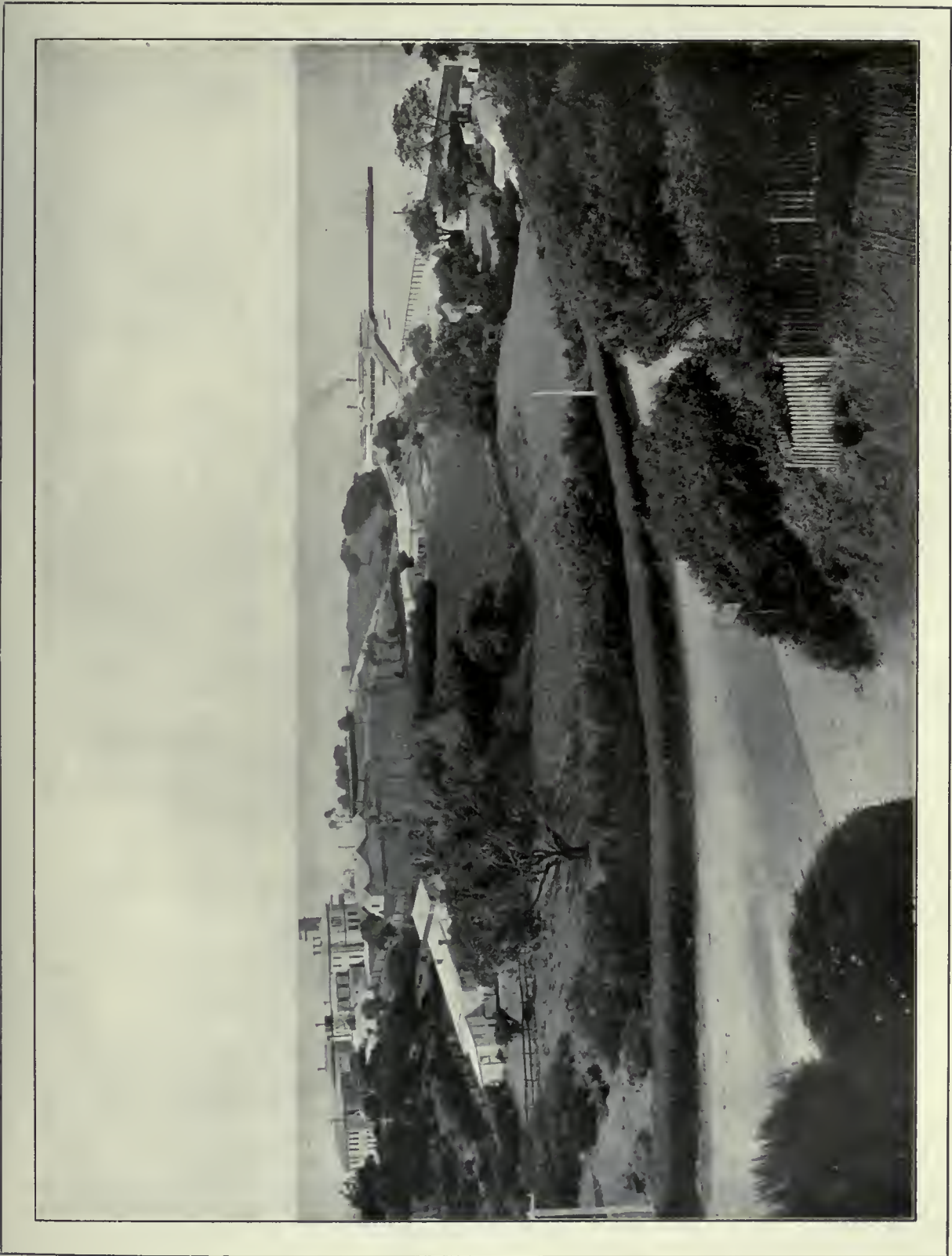
pation of southern Australia, led him to despatch a party in the Colonial schooner *Cumberland*, of 29 tons, from Sydney in November, 1802, to make a particular survey of Port Phillip.

Charles Grimes, the Acting Surveyor-General of New South Wales, was a member of this expedition. They fell in with Baudin, the French navigator, at Sea Elephant Bay, on the east coast of King Island, on the 23rd of the month.

Having explored King Island, and delivered an official warning to the Frenchmen to keep off Australian soil, the adventurous band sailed across the Strait to Port Phillip, which they entered on January 20th, 1803.

They remained until the 27th of February, examining the foreshores and charting the waters of picturesque Port Phillip. James Flemming, who was sent with the party by Governor King to report on the soil, timber, and natural advantages of both King Island and Port Phillip, has left a most interesting journal of these explorations, which extended right around the bay, and included the discovery of the Yarra and other rivers.

Flemming recommended the banks of the Yarra as the most eligible place for settlement, and described the country in general as excellent pasture, with fine clay for bricks, good stone, and timber inland suitable for building purposes.



Sorrento, on Port Phillip

Flemming, in so far, justified the confidence which King placed in his judgment.

On Friday, October 9th, 1803, there arrived off Port Phillip Heads the *Ocean* transport (Captain Merthon), followed on Sunday, by H.M.S. *Calcutta* (Captain Woodriff). These vessels, at the instance of the British Government, had sailed from Spit Head on the 24th of the preceding April with an assorted company of bondmen and freemen to form a settlement at Port Phillip in the then Colony of New South Wales. In May, 1803, England, seeing that the Peace of Amiens would prove no check upon the ambitions of Buonaparte, had declared war against France. While Lieutenant-Colonel David Collins of the Royal Marines was landing his men and stores at Sorrento, Napoleon the Great was perfecting his schemes for the invasion of England.

Lieutenant-Governor Collins had heard the muskets of revolutionary America discharging hot lead into his father's regiment of red-coats at Bunker's Hill. He had been Judge Advocate of the baby Colony of New South Wales under its first Governor, and at the age of 47 was chosen to father the settlement at Port Phillip.

If the records are true, Collins brought no enthusiasm to this task. He was decidedly anxious to divert whatever colonizing activities he possessed to Van Diemen's Land. Even before he left England, he seems to have determined that this would be his ultimate goal. He achieved his object at what might have been an incalculable national cost. The country which he libellously declared "uninhabitable," and abandoned after a stay of three months, has proved one of the richest territories in Australia.

From the window of the room where this is being written, the author looks out across the blue waters of Port Phillip, and sees dim outlines of that very shore whereon the tents of transitory settlement stood a hundred and ten years ago. Suburb succeeds suburb and garden follows garden, along the curving foreshores which grow between.

He turns to the map of Port Phillip prepared by Surveyor Grimes, and notes that the site of his own residence is marked down as "barren sandy hills." The home-grown cauliflowers and potatoes just placed upon the dinner table are a present testimony that even good and hopeful Mr. James Flemming was entirely wrong in this conclusion. Forty acres of splendid market garden on the opposite side of the railway line corroborate the evidence of an amateur agriculturist such as the author of *Australia Unlimited*. Twelve or twenty, or fifty thousand fruitful acres around the shores of Port Phillip in 1914 are

greenly contradicting the errors and libels of 1804.

Leaving its little human record of one birth, a marriage, and twenty-one deaths behind, the last of the settlement was embarked for Hobart on the 18th of May. Thirty-two years later, one at least of the Sorrento settlers, John Pascoe Fawcner, returned to the effective colonization of Port Phillip. The discoveries of Hume and Hovell, in 1824, did much to enlighten the colonial mind regarding the quality of territory south of the Murray. An abortive attempt was made to establish a settlement at Westernport in 1824. Meanwhile the development of the whaling and sealing industry among those islands which lie between Tasmania and the mainland led the Hentys—a family of Sussex sheep-breeders, who had been unsuccessful land-seekers in Western Australia and Tasmania—to establish themselves at Portland. They landed at this fine harbor in 1834 and inaugurated a highly creditable and successful colonial career. Victoria has reason to be proud of the quality of her pioneers, in the forefront of whom stands this acquisitive and energetic family. When, in 1836, Major Mitchell concluded his triumphant exploration of "Australia Felix," he unexpectedly found the Hentys firmly established at Portland.

Without doubt Major Mitchell's glowing account of the virgin pastures of the south-west stimulated the tide of immigration which shortly set in.

John Batman, in 1835, had already landed at Port Phillip from Tasmania, spied out the land and seen that it was good. John Batman was colonial-born, and consequently not filled with the fears and prejudices which have so often led migratory strangers to condemn things Australian which they do not understand. This Parramatta lad had migrated to Tasmania when he was only twenty, and engaged in sheep-farming. There he spent vigorous days of early manhood hunting bushrangers and endeavoring to conciliate the unlucky natives, who for twenty years waged unequal war against the white settlers.

The discoveries of Hamilton Hume, his old boy friend and townsman, first set Batman longing to transfer his energies to more profitable fields than Van Diemen's Land had offered him. The hopes, desires and beliefs of ten years bore fruit at last. Acting under a partnership with some fifteen enterprising local spirits, some of whom became the Fathers of Melbourne later on—the young colonist sailed thither in the schooner *Rebecca*, of 30 tons, from Launceston on the 10th May, 1835.

Lieut.-Col. David Collins had then been dead twenty-five years, and much of the physio-



Melbourne, from the St. Kilda Road.

graphical error and misinformation of his pessimistic period was buried with him.

When, after nineteen days' voyaging, the experienced eye of Batman surveyed the land around Indented Head waving with green grass like a wheat-field, he knew that the story Collins and his satellites had written just across the Bay at Sorrento thirty years before, was libellous and untrue.

The land was so rich and promising that Batman determined to secure the largest possible area for himself and his associates in Hobart Town. Three white men and seven Sydney aborigines accompanied him. Four days afterwards his barque lay at the mouth of the Yarra; and again the hardy adventurer came ashore and investigated the territory as far as the present suburb of Eltham. His famous deal with the natives was made on the 6th June, at the Merri Creek, near Northcote. For 40 pairs of blankets, 130 knives, 42 tomahawks, 40 looking-glasses, 62 pairs of scissors, 250 handkerchiefs, 18 red shirts, 4 flannel jackets, 4 suits of clothes, and 150 lb. flour, with a small annual rental of similar sundries, the Pizarro-like pioneer of Van Diemen's Land induced eight chiefs, who represented a tribe of about fifty aborigines, to cede to him over a half-million acres, including the present sites of Melbourne and Geelong. There was joy among the innocent vendors that day, and much display of red handkerchiefs and testing of new cutlery, and presumably the purchaser felt as much inward satisfaction as the fortunate Melbourne speculator who nowadays succeeds in purchasing a city site, for one foot of which he pays as much as John gave for all his holdings. Ultimately the Home Government cancelled the transaction. On June the 8th Batman

boated up the Yarra as far as the falls, just below Prince's Bridge. "This," he entered in his diary, which is now carefully preserved in Melbourne Library, "will be the place for a village." It has become the centre of a "village" of over 600,000 inhabitants!

While Batman was in Hobart endeavouring to secure official recognition of his concession, John Pascoe Fawkner, who as a boy of twelve had been with his parents among Collins's Sorrento settlers of 1803, came across from Launceston and staked out his claim by the banks of the Yarra on the site of the present Melbourne Customs House. He was accompanied or followed by several other would-be settlers from Van Diemen's Land. So the town of Melbourne had its beginnings in a cluster of tents and mud huts.

Batman brought over his family and all his belongings; planted an orchard on the banks of the Yarra, and ploughed up twenty acres of land, where the Spencer-street railway station now stands. His subsequent history is mainly a record of vain attempts to obtain recognition or recompense from the Governments of the day for his services, and finally to be allowed to retain his little agricultural holding by the river. He died at the age of 40, apparently a broken and disappointed man.

With this first genuine effort at colonization the progress of Victoria began. Up to the discovery of gold in 1851 that progress was principally pastoral. Until that year its territory remained, as "The Port Phillip District," a part of New South Wales. It then became an autonomous colony, and was christened Victoria in honour of the late Queen.

At the time of its separation from the Mother State, Victoria had a total population of 76,162,

and contained a little over fifty-two thousand acres of cultivated land, no railways and no telegraphs. By 1914 the population had increased to 1,430,878, the land under cultivation was 6,129,893 acres, and the State had 3,840 miles of railway open to traffic. Its expansion in other directions had been on the same constantly increasing scale. From the first export of wool of 175,081 lbs., in 1837, valued at £11,639, the production had grown by 1913 to no less than 106,833,690 lbs., nearly all of which was exported—a proof that the soil, climate, and pasturage of the State are all that these early settlers believed them to be.

ing well over the Murray into New South Wales and including the fertile districts of the Riverina. Between Wentworth, at the junction of the Murray and Darling Rivers, and Albury, various Victorian railway systems touch the great inland river at ten different points and extensions recently agreed upon by the Governments of the friendly States will carry some of these over the border into New South Wales.

The story of the Victorian goldfields contains many romantic chapters. Apart from actual values won—which made an enormous total—the yields attracted a population from all corners of the globe, whose energies and abilities proved



“The Block,” Collins Street, Melbourne.

From the date of its first discovery at Clunes in 1851 the value of Victoria's gold to 1913 was £293,550,928, or about one half the total Australian output.

Yet, when the border lines were marked, they left in the south-eastern corner no more than a thirty-fourth part of the continent—a territory of only 87,884 square miles—somewhat less than that of Great Britain.

The new colony measured 420 miles from east to west—its extreme length. Its greatest breadth was just on 250 miles, and its coast-line only 600 miles.

But Melbourne, with its expansive harbor, has become the natural outlet for a territory extend-

of sterling service in the general work of development. At the end of 1855 the young colony had nearly five times the number of people with which her national career had begun in 1851.

Her annual revenue in those few years increased from £259,433 to £2,728,656, and continued to increase until, in 1914, it had reached £10,731,000.

Those years, from the advent of Batman, Fawcner and other historic pioneers on the shores of Port Phillip, to the granting of responsible government, had often been strenuous. They were marked by honorable enterprise and vigorous public spirit. They witnessed the steady extension of pastoral settlement and production, and the foundation of agriculture and viticulture.

They saw the struggle for independent government begin and end at length in success. The Port Phillip District became a self-governing community, with its centre of legislation removed from Sydney to Melbourne, with its own Assembly and Council, administrative departments and a vice-regal representative.

During the period in question (between 1839 and 1851) the colonists increased their numbers from 5,000 to 77,000 odd, of whom 23,000 were resident in Melbourne, 8,000 in Geelong, and the remaining 46,000 scattered over the Colony. Their herds, sprung from Tasmanian stock, had grown to six million sheep and 40,000 cattle, giving a total export value of nearly a million pounds sterling in 1850. The land was growing wheat, potatoes and fodder, and John Batman had long been proved a wiser man in his generation than Lieut.-Colonel David Collins of the Royal Marines. During that period also a tale of adventure and exploration had been woven: unknown plains had been crossed, unknown forests penetrated, new rivers forded, new mountains discovered and named, and with steel and fire the pioneers of European civilization had penetrated the distances and branded the flanks of Nature with the marks of human occupation.

That steady pastoral and political advancement which the new country south of the Murray had followed, was destined to receive a sudden, unexpected impetus. The proclamation of responsible Government on 1st July, 1851, was squelched on the 16th of the same month by an equally important pronouncement.

Over the signature of the Mayor of Melbourne a placard was hung out from the Town Hall setting forth that

"The Committee appointed to promote the discovery of a gold field in the Colony of Victoria have the satisfaction of announcing that unquestionable evidence has been adduced to them, showing the existence of gold in a considerable quantity both at the Deep Creek on the Yarra, near Major Newman's run, and also at the Deep Creek on the Pyrenees, near Mr. Donald Cameron's house." . . .

Following closely on the first discovery of rich alluvial gold near Bathurst, in New South Wales, this proclamation set the people afire with expectation.

A month previously, leading citizens had decided to offer a reward for the discovery of a payable gold mine within 200 miles of Melbourne. This apparently was the successful result.

Even the most optimistic would hardly have believed that it was to herald the opening of a natural treasure-house which has yielded a value now approaching three hundred millions!



Town Hall, Melbourne

If Esmond, the discoverer of reef gold at Clunes—96 miles from Melbourne and 22 from Ballarat—could revisit the land that gave him fame, if nothing else, he would learn that there are now 15 mines on the Bendigo gold fields with shafts over 3000 feet deep, the deepest of the group being 4,614 feet (in 1912); that no less than 53 shafts at that period were down below the 2,000 feet level.

Anderson's Creek, Buninyong, and Ballarat followed quickly upon the discovery at Clunes. Then came Mount Alexander and Bendigo. Ararat, Stawell, Beechworth, Maryborough, succeeded one another; and even the remote fastnesses of Gippsland were finally found to be enriched.

Hardly had the young State been wedded to Liberty, ere Discovery, like a fairy godmother, dowered her with a marriage portion sufficient to begin national housekeeping on a princely scale. As treasure chest after treasure chest in the vaults of Nature was opened, gold mania seized the people of Australia. Its contagion spread to other countries. Not since Pizarro unlocked the riches of Peru had the imagination of Europe been so stimulated by tales of treasure in distant lands. In a little time the streets of Melbourne



Central Railway Station, Melbourne

were almost empty. People abandoned their business, civil servants left without sending in their resignations, the police force deserted in a body. Out of 40 constables in the City only two remained on duty after midnight of New Year's Day, 1853.

A constant stream of doubtful emigrants from Van Diemen's Land was muddily emptied over Melbourne wharves. The Overland Track from Sydney was dotted with foot-passengers carrying assorted bundles, containing their personal effects. Presently motley companies from overseas, one of which included a future Prime Minister of England, began to land at Williamstown Pier. Now white-haired but yet vigorous, many among the number remain to recall the stirring Colonial days in which they played their parts. They have seen deep-rutted streets of Melbourne changed into wide thoroughfares of a great city, and four thousand miles of railway replace rough bush tracks by which they travelled towards the fields. The scene of many a "rush" is marked by potholes or crumbling shafts; but Bendigo, Castlemaine, Maryborough, Stawell, Ararat and Ballarat are flourishing cities, albeit they no longer depend entirely or even principally upon mining for their support.

They were wondrous days, full of interest and adventure. They called to the strong, daring spirits of Europe and America with golden bugles, whose echoes haunted the brain of youth for many a year. They were stirring days when the griev-

ances of a cosmopolitan crowd found vent at Eureka Stockade; when Luck, which ever plays will-o'-the-wisp along the paths of men, danced openly down the main thoroughfares, turning now and then to scatter a golden benison of nuggets among the following crowd. Could clerks sit contentedly upon their office stools or constables phlegmatically walk their beats when nuggets such as the "Welcome Stranger," weighing 2,248 ounces of pure gold, and worth close upon ten thousand pounds, might be unearthed at a stroke of an amateur's pick?

The roaring years of Bendigo and Ballarat have given place to years of placid progress; but they made fine vigorous music for young Victoria's debut upon the stage of nationhood. They left with her a hardy battalion of seasoned pioneers of finest types to father and mother younger generations of colonists. They left her also with roads, bridges, wharves, public works, municipal and educational beginnings, and an infant railway system. They brought also some administrative and social confusion and that inevitable reaction which follows all great excitements.

In 1852 the deposits of Victorian Banks, on the authority of the banker-historian, Mr. Henry Gyles Turner, increased from £820,000 to £4,330,000, and the notes in circulation from £180,000 to £1,320,000. It was some time before such a violent disturbance of the deep waters of finance subsided and the era of universal gambling gave place to one of steady investment.



Fire Station, Melbourne

Nor might the equally sudden invasion of a mixed population occur without social disturbance. There had to be some administration of unpalatable economic medicine before the autonomous Government of 1837 was enlarged to a fuller measure of responsible Government in 1856. Great agitation of the public mind and long conflict with constituted authority preceded these radical amendments of the Constitution under which Parliaments of later periods entered upon their duties.

When Victoria ceased to be a Colony and became one of the States of the Commonwealth on the 1st day of 1900, she was enjoying the advantages of many democratic institutions. Her Statute Books were not lacking in liberal enactments. Her Constitution had been greatly amended and remodelled to meet the popular demands for reform. She possessed a comprehensive system of State Education, and a well-organized railway service controlled by Commissioners. Her Department of Customs, more expansive than that of New South Wales, her Posts, Telegraphs, and Defence, passed over of course with that of the other States to Commonwealth control. But she retains her Chief Justice, Puisne and County Court Judges, her Masters in Equity and Lunacy, her Commissioners of Police, Public Service, Water Supply, Lands Purchase, and Titles, her Agent-General and other high officials. She has her own State Electoral System, Marine Board, Forestry, State Coal-field, Public Libraries, University, Museums, Art Galleries, Reformatories, Gaols, Training Colleges, Harbor and Tramway

Trusts, Lands and Geological Survey, Public Works, Health, Treasury, Mines and Agricultural Departments, and other offices and functions of civilized self-government.

Apart from all these, which are chiefly under direct control of the Ministry of the day, the State has a Local Government system now practically universal. Victoria has been practically divided into urban or rural municipal districts. There are 15 cities, 10 towns, 36 boroughs in the State, and 147 shires.

The councils of municipalities are empowered by Acts of Parliament to levy rates, collect licence fees, market dues, rents and sanitary charges, which, with subsidies from the Central Government, make their principal sources of revenue. Their chief functions are the maintenance and control of streets, roads, bridges, ferries, culverts, sewers, drains, water-courses and jetties, within their respective boundaries; and under proper municipal by-laws to control the traffic and regulate the markets, pounds, abattoirs, baths, and places of recreation; also to make arrangements for sewerage, lighting, water supply, and the carrying on of noxious trades; and act as local Boards of Health.



General Post Office, Melbourne

The total capital value of rateable property in the State for 1915 was £318,960,116. During the four previous years there was an increase of nearly 44 millions in the value of these rateable properties—one indication of the rapid progress which Victoria is making.

Out of a population of 1,417,801 in 1915 the municipal ratepayers numbered 393,133, who were responsible for the respectable total given above. On the authority of the Government Statist the amount of private wealth only in Victoria in 1914 could be estimated at three hundred and twenty millions, or £243 per head of the



On the Upper Yarra

population, as against £153 per head in England. Statistics of the State indicate that the average wealth of its citizens is steadily increasing. The public debt is high, like other Australian States, mainly for the reason that large sums of money have been invested in public works, a large section of which, like the railways, are reproductive. Thus our public debts are to be regarded more in the light of profitable investments than liabilities uncovered by assets.

While political evolution was in progress, the Colony was laying foundations of future industries. People gradually ceased to expect to win fortunes from the hands of chance, and

learned to build them on safer grounds of exertion and enterprise. They came to see that the mineral riches of a land blessed like theirs were a providential lure to other riches of agriculture and manufacture which would prove more permanent and universal.

When the prosperous 'seventies were young, Victoria had completed only 276 miles of railway. By 1881 the mileage had increased to 1,247. In 1914-15 3,888 miles had been opened. The problems of transport had been grappled and practically solved; inevitably settlement and production followed.

By 1891, over two and a half million acres of land had been brought to cultivation. This total was doubled by the end of 1911. Coevally with this increase of agricultural activity, Victoria has devoted considerable capital to the establishment of local manufactures. Prior to Federation she may justly be credited with having pioneered many Australian industries. In 1871 her 1740 factories employed less than twenty thousand people. By 1915 the number of factories had increased to 5,413, finding occupation for 113,834 hands. The value of machinery and plant, land and buildings, rose from something over three and a half millions sterling during that period, to twenty-two and a half millions.

Between 1881 and 1915 the value of articles manufactured in Victoria steadily climbed from thirteen and a third millions odd, to fifty-one and a half, and is still an increasing quantity.

Perhaps the most significant statistics are those connected with the Victorian dairy industry. In 1891 the output of butter was under 17 million lbs. In 1914-15 it reached over 62 million lbs.

In the half century which elapsed between the opening of her goldfields and Federation, Victoria had been steadily proving her resources.

The path of progress was not always bordered by red roses of success. Colonization has ever been a rude and strenuous process in the history of races. The wilderness is not conquered without a conflict, the best of lands must be prepared for the plough. Nor can Governments and social institutions be got into proper working order without failures and amendments. Neither will the speculative instincts of national youth all at once give way to the steady scientific efforts of more experienced age. The habit of sudden riches had to be corrected in the closing years of the century. The remedy was drastic, but the cure will be permanent. The genius of Victoria thenceforward was destined to work in harness with discretion and science. But certain experiences were gained during that half-century of progress and reverse, which invest the outlook for coming years with elements of certainty. Whereas hope was often greater than faith, it may be accepted that



Back Beach, Williamstown, Fort Phillip

faith based on facts will be the guiding star of the future.

The suitability of the State for rural industries has been satisfactorily proved; the increase in dairy output alone confirms that. Profitable cultivation of wheat on lands previously regarded as unfit for this purpose, the successful manufacture of raw products into every-day articles of commerce, and the treatment of irrigable lands, are all beyond the stages of experiment.

below freezing point. Equable temperatures, such as these, make for industrial efficiency and assist to build up vigorous communities.

From an exhaustive table prepared by Mr. J. M. Reed, ex-Surveyor-General and now Secretary for Lands, we find that the little State is well dowered by mountains, having so far as at present known, 32 peaks between 5,000 and 6,000 feet, and 37 summits between 4,000 and 5,000 feet high. On some of these higher peaks in the



Tea-Tree on Port Phillip Shores

In subsequent pages these matters will be examined in some detail, and the claims of Victoria as a present field for European immigration and settlement more fully considered.

No matter what future contentions may be raised about the adaptability of white labor to Australian tropics, there is no doubt that the White Australia principle can always be maintained without difficulty in Victoria.

The climate is exceptionally suited to Europeans. The physical stamina of her men and the pronounced beauty of her women are distinctly evident; nor can this be attributed altogether to superiority of that original stock from which the present generation evolved. The mean temperature recorded at Melbourne Observatory over a period of 59 years was 57.4. The average showed that on four days during the year the thermometer rises above 100 degrees in the shade, and on about three nights in the year it drops

Main Range snow remains in sheltered places from winter to winter.

Victoria, especially in its eastern districts, is well watered and supplied with abundant lakes and streams. It enjoys as high an average rainfall as, and a milder climate than, that of Great Britain. The mountain system gives two drainage areas, one group of rivers falling northward into the Murray, the other turning southward to the coast.

The north-west of the State is a vast plain, originally covered for the greater part with that stunted eucalyptus which, known as mallee, has come to be associated in southern Australia with wheat-growing lands. The south-west holds what has so far been regarded as the best pastoral and agricultural district in the State. The eastern areas are generally mountainous but well watered and productive. The central districts fall away from mineral areas to fertile plains both coastward and inland.

With the object of improving the main roads of the State, an Act was passed on 23rd December, 1912, which empowered the Governor-in-Council to appoint a board, to consist of three members.

The duties of the board are to ascertain by survey and investigation what roads are main roads; the nature and extent of the resources of Victoria in metals, minerals, and materials suitable for the purposes of road-making and maintenance, and the most effective and economical methods for dealing with the same, and for supplying and utilising the material in any part of Victoria; the most effective methods of road construction and maintenance; what deviations (if any) in existing roads or what new roads should be made so as to facilitate communication and improve the conditions of traffic; and to record, publish, and make available for general information the results of all such surveys and investigations. The duty of furnishing information that may be required is imposed on the municipal authorities.

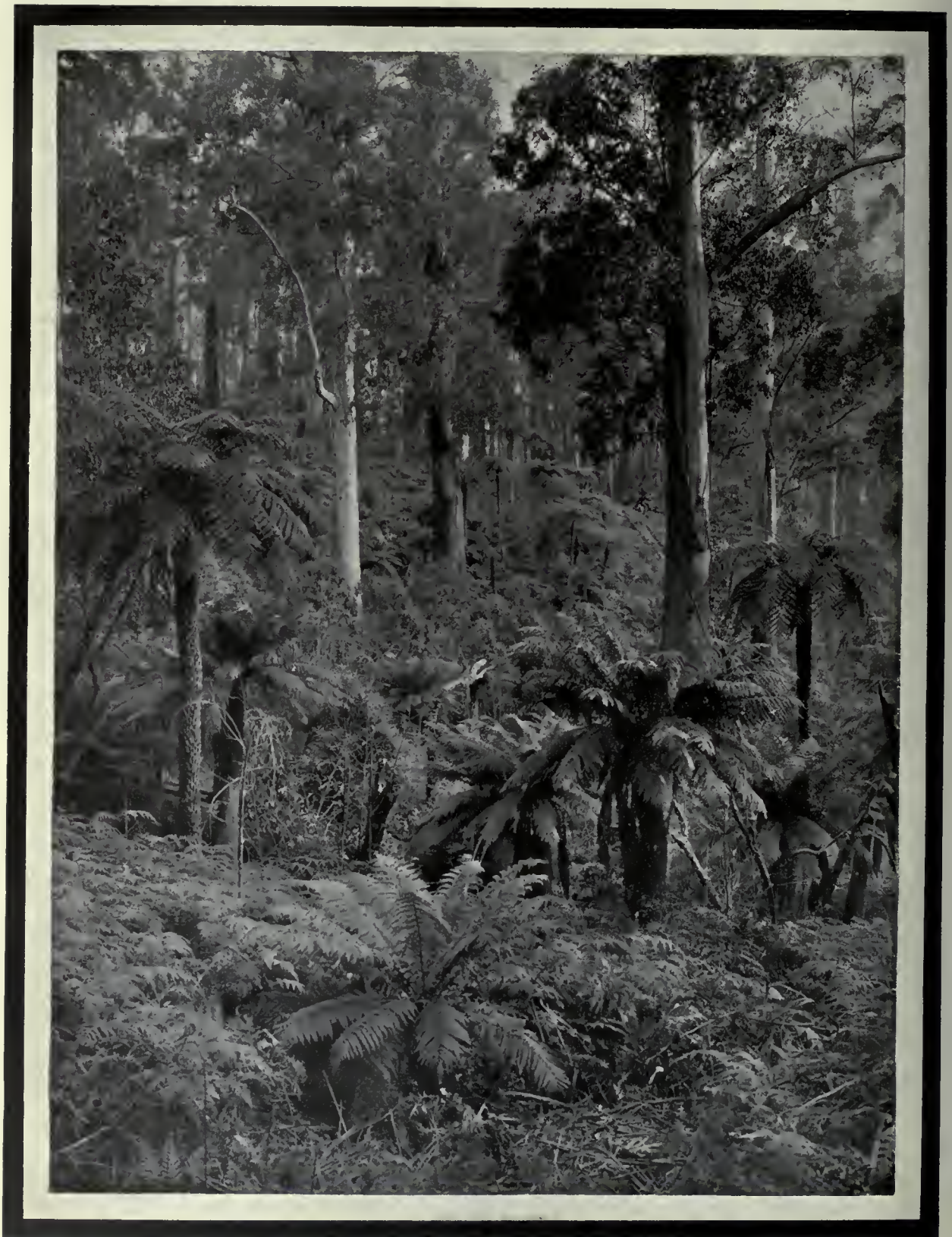
The construction of permanent works and the maintenance of main roads are likewise to be carried out by the municipalities to the satisfaction of the board. The total cost of the works, in the first instance, is to be paid by the Treasury, but subsequently half the amount expended on permanent works and maintenance is to be refunded by the municipalities affected.

For the purpose of making permanent works, power is given to the Governor-in-Council to issue stock or debentures to the amount of £400,000

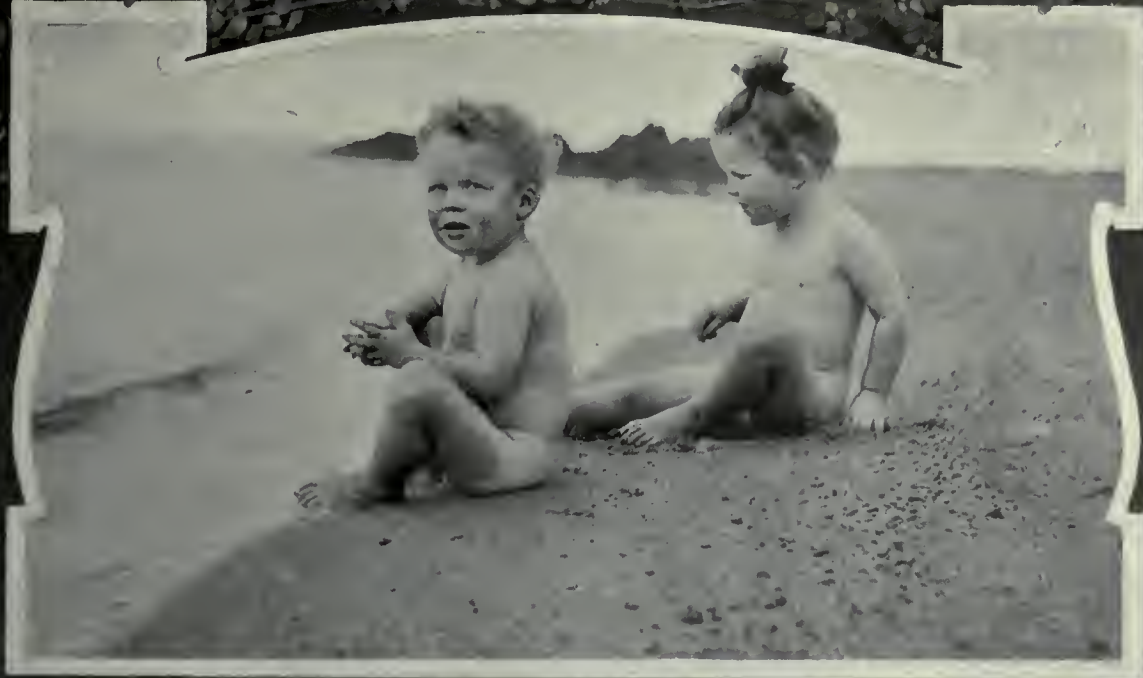
a year for five years, and the principal and interest are a charge upon the consolidated revenue of the State. The money so raised is to be placed to the credit of an account to be called "the Country Roads Board Loan Account," which will be debited with all payments made by the Treasurer towards the cost of permanent works. A sinking fund of 1 per cent. per annum on half the amount borrowed is authorised to be paid out of the consolidated revenue until half the amount borrowed is redeemed. An annual payment to the Treasurer of 6 per cent. on the amount due by each municipality in respect of permanent works is provided for, and the cost of maintenance, allocated to each municipality, must be paid before the 1st July in each year. A special rate, not to exceed 6d. in the £1 on the net annual value of rateable property to meet the cost of permanent works and maintenance, may be levied in any ward or riding of a municipality as the council may direct.

According to the Federal Statistician, up to the 30th June, 1914, there were 2017 miles of declared main roads, agreed to by the councils, and gazetted. In addition, there were 943 miles of proposed main roads not yet gazetted. The total amount of contracts for permanent works was £94,877, of which £23,440 represented contracts let directly by the board, and £71,473 by the municipalities. The net receipts for the year ending 30th June, 1914, were £49,279, of which amount the chief items were: motor registration fees, £26,011, and unused roads and water frontage license fees, £19,193.





Nyora Gully, Healesville



On the Beach at Mentone

PORT PHILLIP AND THE HILLS.

SINCE Batman's "village" grew to be one of the major cities of the world, Port Phillip District has been the scene of rapid changes. Where ample mid-Victorian skirts evaded contact with the mud and dust of unmade thoroughfares, sleek motor-cars convey modern Beauty to afternoon tea, over faultless street surfaces, where traffic obediently follows the movements of a uniformed constable's imperious hand. John Pascoe Fawkner's weatherboards and slabs have given place to lordly granite and arching steel.

The Yarra, although much yet remains to be done, has been improved out of all semblance to the stream; wherefrom, one boisterous Monday morning eighty years ago, Batman filled the *Rebecca's* casks with fresh water before setting sail for Tasmania with a freshly-written treaty which purported to make him and his associates lords of 600,000 acres, now the most valuable in the Commonwealth.

Batman, in his overland journey from Indented Head, had seen how suitable the lands were for pastoral and agricultural purposes. Unlike her older rival, Melbourne has rich soils at her back doors, in contrast to the stiff clays and sandstones on which Sydney is located. Victoria has been described as the "Cabbage Garden of Australia," a tag which anyone who has had experience of

gardening on the outskirts of both cities will accept as a satisfactory compliment.

In the end, only the very smallest proportion of our whole Commonwealth will be found unproductive; but, when the utilities of all Australia have been determined, it will probably be realized that Victoria has no real waste lands beyond the rocky sides of her mountains. On the western side of Port Phillip basaltic plains extend from the outskirts of Melbourne to Geelong, occupied first as pasture for sheep, but in latter years devoted to agriculture, principally the production of fodder, which has found a ready market in the metropolis. This sweep of country takes in Laverton, Werribee, Little River. In spring-time it is a land of green and gold—the settlers' broad acres emerald with flourishing young crops of oats, and open squares of fallow, golden with Cape weed in flower. Many Irish farmers took up land around here when the Colony was young, and have prospered.

The eastern arm of Port Phillip for the first few miles is mainly suburban and residential. Then come flat patches of peaty sand on which, with the judicious use of fertilizers, highly profitable crops of vegetables are grown. Mammoth cauliflowers, potatoes, onions, and tomatoes are raised for local sale or export to other States.

While this book is being written, its author is taking necessary physical exercise and recreation as an amateur gardener in this very locality. At first sight one might be inclined, like James Fleming, Governor King's agricultural expert, to condemn this particular strip of heath and bracken-coated sand as barren and unfit for cultivation. But never judge Australia by surface indications! That may be accepted as a guiding adage. It is certainly adaptable to market gardeners in this vicinity, who are making respectable fortunes on soils that have no pretence to richness. The secret, of course, is rational manuring, good rainfall, supplemented by irrigation

pleasant work examining a land of such beauty and attraction, a land of gardens old and new, of orchards, of blue shores and green hills, of pleasant rural roads, along which bush and settlement alternated, of clean and spacious inns, leafy villages, grassy slopes and running streams.

Through the seaside suburbs of St. Kilda, Brighton, Hampton, Sandringham, Beaumaris, Mentone and Mordialloc, the road runs to Point Nepean. Port Phillip covers a total water space of 800 square miles. Along its shores are many pleasant marine resorts. On the eastern side of the Bay a beautiful species of "tea-tree" flourishes. From Sandringham onwards this native tree has



The River Yarra at Melbourne

in some cases, and proximity to market. Proprietary gardeners round here pay wages to their European laborers which would make an English or French or German market gardener believe that the world had gone mad. They give comparatively high prices for implements and fertilizers, and yet are reaping profits which, to a Belgian peasant proprietor, for example, could be associated only with the Millennium.

There are still room and opportunity within a 50 miles radius of Melbourne for hundreds of small agriculturists with a little initial capital.

In the late spring of 1912, the author explored the country around this great southern centre in detail. It had two interests, the scenic and the practical. Each day's motor journey brought something of both. In sooth, it was

been carefully preserved. When it flowers in Spring the whole countryside appears to be dusted with snow. Residents have learned its value and cultivate it for hedges and breakwinds. It resembles the olive at first appearance, grows rapidly and hardily, and is of general service for groves and gardens.

Spaces widen away from the city, and the traveller enters into delightful rural surroundings. Something can be written on the attractions of every Australian capital, but Melbourne has a charm entirely her own.

There is a Spring-time softness, an atmosphere half country and half suburb about bayside places like Beaumaris, Mentone, and Mordialloc which cannot be matched in Australia. One happens on



A Mountain Road in Southern Gippsland

little lavender farms, strawberry and asparagus gardens in out-of-the-way corners. The week-ender has not yet destroyed their quaintness. He is a bird of summer, and haunts the foreshores in his bathing clothes.

One goes back a little and finds the market gardener plodding down broad paddocks behind his patient plough horse, or planting out long rows of cauliflowers after the autumn rains, or in summer-time loading his cases of ripe tomatoes on to a lorry on busy afternoons before the market days. Mayhap one chances on a field of oaten hay with the new-cut sheaves in stook, sweet-smelling as those that made the delight of rural England when Milton was writing *L'Allegro* or *Lycidas*. These places lie back from tree-fringed shores where the campers and week-enders—children of a later time—have taken possession.

At Mentone and Mordialloc there are long piers typical of Hobson's Bay, where folks promenade on summer nights.

Beyond Mordialloc lie Aspendale, Chelsea, Carrum and Frankston, where the railway leaves the foreshores of Port Phillip and goes across the peninsula to Stony Point on the shores of Westernport—now converted into a naval base for the Commonwealth. A short loop-line returns to Mornington. Dromana, Rye, Sorrento, and Portsea are all popular watering-places between that pretty village and the quarantine station at Point Nepean.

It was half a mile on the east side of Sorrento Pier that Collins and his company "settled" for three impatient months, a hundred and ten years ago. A few ancient graves remain to mark the locality.

From Mordialloc to Frankston the sun-loving Australian has found a curve of congenial shore whereon to erect hundreds of little bungalows and week-end places. In summer-time the tea-tree echoes the happiness of Melbourne youth; the sands are dotted with bathers, and the blue waters of Port Phillip sparkle with Sicilian light and color, or ruffle grayly when a cool south wind comes sweeping over Bass Strait.

The glories of Sydney are more marine than rural. The beauties of Melbourne are a delightful combination of both. Much has been written about Sydney Harbor—always a pleasant theme—but in the wider spread of Port Phillip, with its fertile shores, there is scope for patriotic paint and poetic rhapsody. Manly on a summer's night may be a Venetian Carnival, but Mordialloc on a spring morning is a page from Whittier.

The habitat of week-enders practically ceases at Frankston. Beyond that, it is shady countryside and sunny watering-place down the Bay. From Frankston there is a fair road across Mornington Peninsula to Westernport. Through the

villages of Hastings and Bittern, it goes pleasantly on to Flinders over hill and dale.

In spring-time, orchards smothered in apple and cherry blossom enliven the way, and green crops grow fence-high in unpromising sandy soils.

From Flinders to Cape Schanck is idyllic. Green fields, rolling slopes dotted with sheep and cattle, grassy headlands; roads that wind over breezy hill-tops and dip across running creeks, blue seas and white surf on the beaches, make a pretty pastoral, full of southern freshness and the fragrance of fruit, blossom, and hay.

One envies these comfortable citizens whose breezy farm-lands face the sea. On this fertile stretch of basaltic country old homesteads are tucked away in sheltered corners of the downs,



Rocks at Phillip Island

their avenues and groves of dark spiral pines proclaiming early settlement.

Westernport is looped like a horseshoe around French Island and Phillip Island, both of considerable area, both places of attraction for Melbourne visitors, who find here field and marine sports to make their holidays pleasant.

Cowes, Rhyll and Newhaven on Phillip Island are popular summer resorts. Tankerton stands on French Island, and San Remo on the eastern shores of the Bay. The latter is a quaint little seaside place with an old-world air about it. Hedges of sweet-briar and English trees help to heighten this effect.

For a restful, reflective holiday these Westernport villages have a quiet call.

It is pleasant to dawdle about the green fields and old gardens of a place like San Remo, to feel the keen south wind blowing across the sand dunes, to watch the long grass waving, to follow the red and white roads, lifting and dipping over slope and hollow, giving now and then glimpses of blue Gippsland and Dandenong Mountains and blue stretches of ocean on either hand.



The Beach, Cowes, Phillip Island

The district grows good fruit—great red and white-heart cherries, apples, and pears; and on many a patch of fertile soil it produces profitable crops of wheat and oaten hay.

Turning back from Cape Schanck towards Port Phillip, basalt gives place to limestone, but rural features remain—the squares of green crop, flowering orchards, long hedges, and old houses in their groves of pine.

Dromana, like these other watering-places, has its attractions for sportsmen and holiday-makers. The hotels, with rural heartiness, see to it that substantial meals are laid before their guests, appropriate to seaside appetites. Golfers, fishermen, shooters can enjoy their respective thrills, while for the great amusement-loving Australian public in general the guide-books set forth their snares. In summer many Melbourne business people send their families to Mornington, Dromana, Mount Martha, or some other of these cool and pleasant places, and either make daily journeys where trains are available, or join their families for the week-ends. Bay steamers make regular excursions to the outlying piers of Port Phillip on either shore.

Eastward from Port Phillip are a number of districts where small blockholders make comfortable livings, where there is room yet for little capitalists to establish minor industries or supple-

ment established sources of income with takings from the land.

The town of Dandenong, through which the Gippsland railway line runs, is an old-established market centre, and the capital of a shire. Spreading trees shade its busy main street. Like most Victorian towns, the aesthetic side of country life has not here been ruthlessly trampled underfoot by too-eager utilitarianism. The civic nakedness which unfortunately attaches to some Australian places has been decently covered, and the visitor retains pleasant recollections of the town.

From Dandenong, through the villages of Sherwood and Tooradin, a road of no especial interest brings one again to the shallow northern shores of Westernport.

A little further east and we enter the Koo-wee-rup area, where Government effort in swamp drainage and subdivision has been the means of settling many agricultural families.

The railway which connects Southern Gippsland with Melbourne passes through Koo-wee-rup and branches off at Nyora for Wonthaggi and the State coal-fields.

Koo-wee-rup is an example of what judicious road-making and engineering will do. An area of 53,000 acres has been converted into good, wholesome farmlands. The roads are flat and heavy travelling after rain; but right close to the

salty margins of Westernport one sees, on fields reclaimed by drainage, excellent crops of hay and other evidences of successful agriculture.

Following the main drain in a north-easterly direction for about fourteen miles, the traveller strikes the Gippsland road and railway line, and comes back through Drouin, Bunyip, Pakenham and Beaconsfield to Dandenong. These places, sleeping under the heels of the hills, are all of more or less agricultural account. Beaconsfield may be taken as an example of an East Victorian village.

by Lilydale to Warburton, and through Yarra Glen to Healesville—all picturesque routes. Through all its rugged and fertile length the long Dividing Range nowhere holds greater scenic beauties than those which mark the ends of its splendid mountain course just beyond Port Phillip.

The Marysville and Warburton districts, which go well out into the ranges, probably contain more beautiful mountain views than any similar area in Victoria. As the Marysville Road rises beyond Healesville, it takes the traveller up into forests



In the Drained Area, Koo-wee-rup

English oaks spread their leafy branches down its streets, its gardens are gay with roses, its hedges sweet with briars.

Waving crops along the hillsides, ripening fruit in the orchards testify that this sunny village is a valuable gem in a setting of emerald and gold.

Tilth and fertility, good seasons, constant rainfall are the features of Gippsland: into which indifferent roads radiate through villages and townships such as these.

From the old Gippsland Road one might, if so minded, walk by upward tracks of great beauty to Gembrook and Fern-Tree Gully, Melbourne's best-known hill places. As he mounts these hillsides, growing steeper by the way, the visitor will realize that he is ascending the southern wall of a mountain range which has its beginnings not very far from the Gulf of Carpentaria and extends across a Continent.

The nearer ranges are penetrated at three points—by railway from Melbourne through Ringwood and Fern-Tree Gully to Gembrook;

of trec-fern, blackbutt and native beech. From various points of vantage panoramas of southern Australia at her beautiful best are unrolled beneath him.

The higher rainfall of these hills is responsible for a richer vegetation than that immediately around Melbourne. Blackwood and mountain ash (*Eucalyptus sieberiana*) probably achieve their greatest height and beauty on these ranges.

The prosperity of Warburton is largely based on mountain ash. Here, on an area of 12 acres, one mill with 24 hands has sawn out £5,000 worth of timber in nine months. At Neerim a single trunk yielded 10,000 6-ft. palings, worth £115. Members of this branch of the great Eucalypt family have achieved a measured height of 300 feet. They stand among the forest monarchs of the earth. Despite their tall trees, these hill regions are no-wise gloomy or repellent. They are forever sweet with blossom and musical with birds. Acacias and sassafras, starry-petalled clematis, tecomas, and



Mathinna Falls, Healesville



Olinda Road, Sasafra



The River Yarra at Warburton.

other native flowers bloom from season to season, while the singing birds of the South are rarely silent throughout the day.

Mount Dandenong, the last of a long line of ancestral peaks, is over two thousand feet in height. With the intervening twenty-four miles towards Melbourne laid out in checker-board squares below him, the visitor gains from its summit a view which will not fade from inward vision in a lifetime. Mount Dandenong can be reached by regular coach service from Croydon, on the Healesville line. Other vantage places have been made accessible. For a healthy summer holiday, these nearer mountains are not to be surpassed within the Commonwealth or beyond it. Beautiful streams of ever-running water, river-heads, cascades and creeks, magnificent vistas of range and valley, titanic forests, glades of tall tree-fern, groves of myrtle, sassafras and wattle, farms, orchards make travel in these districts a day-long delight.

With knapsack, gun or Kodak, one might jog along from sun to sun, over a tumble of hills, exploring side tracks, visiting places of interest for weeks, and still find each day more pleasant than the one that went before. In this way a pedestrian may at his leisure enjoy the beauties of Mount Olinda, Monbulk, Montrose, Croydon, Sassafras, Upper Fern-Tree Gully and the Na-

tional Park; he may climb to Sherbrooke and Bayswater; wander out to Belgrave and Emerald, on to Warburton, Wood's Point, Healesville and Marysville, and go even farther afield through the hearts of many ranges into the very fastnesses of the Australian Alps.

By Warburton stands Mount Donna Buang, 4080 feet high, where winter snows are slow in melting. Many prominent peaks lift their rugged crowns within the splendid mountain circle of which Donna Buang is a commanding centre.

From the township of Dandenong in the south, across to the pretty railway suburb of Spring Vale, there is much delightful orchard and harvest land. Glen Waverley is an idyll wherein ripened cherries and briar roses by the wayside leave fragrant, colorful memories of bounteous Spring. These outer edges of Melbourne are charming in their sunlight and shadow, their clearings between spaces yet covered with scrubs and forests; their open fields and native coverts.

Pleasant homes of fruitgrowers, and onion and potato fields testify to their fertility. They will ultimately become one continuous agricultural colony.

Striking across country by Tally Ho and Black Flat, through vistas of English seeming, one comes to Mitcham and Ringwood by a rising road. The hillsides are gay with growing or-

chards. Stream and slope, field and farm make bright the way to Lilydale, famous as the Australian biding-place of Madame Melba. In a district gladdened by many delightful homes, the world-famous Victorian Bird of Song has built a beautiful nest.

Coming on to Healesville from Lilydale, one sees the hazy mountains, which, from Melbourne, are no more than blue silhouettes, taking on more

Crossing the fertile flats of Upper Yarra from Healesville to Christmas Hills, the traveller will see Victoria in one of her typical moods. The Yarra, beyond the actual city radius, to its head-waters in the mountains, is one of the loveliest rivers in the Commonwealth. With clear waters swept by willows or shaded by ornamental trees; with graceful bends and sparkling reaches, it pursues its purling, laughing, singing way over



On the Road to Sassafras, Mount Dandenong.

definite form. Spaces along the range have been cleared and converted into farms. A line of tall trees with slits of blue sky between them marks, perhaps, the summit of a range whose lower slopes are green with tilth. Perched on a shoulder of hill will be the out-of-town house of some Melbourne man of means; lower down an orchard, further on a little farm.

Healesville is full of quiet Australian charm. Englamored by forested hills, with a clear mountain atmosphere and cool summer nights, it has become one of the great resting-places of the South. The Graceburn Weir, part of Melbourne's water supply, is located near the township.

sand and pebbles—green water-weeds waving in its pools, gay flowers mirrored in its depths. It is difficult to believe that the turgid stream churned by the screws of Trade, which impresses the visitor so unfavorably on entering its mouth at Hobson's Bay, is the same daughter of the mountains that flashes a silver mirror to the sun by Launching Place and Warrandyte.

The steep climbs up Christmas Hills are repaid by glorious panoramic views of Yarra Flats, with mountains on one side and Melbourne and its districts on the other.

A road goes down on the west to Eltham, which is reached from Melbourne through Heidelberg and Greensborough by rail.



Sturt Street.



Botanical Gardens



Eureka Stockade Monument.



A Ballarat Gold Mine.

BALLARAT



Lake Wendouree.



Suburban Ballarat.



A Vineyard at Lilydale.

A little way from Greensborough are St. Helena and Diamond Creek, rural places of a type only to be found in Victoria and Tasmania.

Heidelberg was one of the first settlements along the Yarra. The adjoining district, on which Melbourne suburbs are now encroaching, still preserves the flavor of Old Colonial days. Old vineyards and orchards, old houses sweetened by alder and rose, pear blossom, tall pines, oak trees, and trim gardens, feature the landscape. St. Helena was named by one of the original settlers, who had been associated with the mid-Atlantic captivity of Buonaparte.

At Diamond Creek, one of the first Victorian gold mines was, until recently, working. About here are many young orchards, where apples are profitably grown. Further inland, among the hills, are raspberry gardens, giving heavy returns. All this pleasant country-side is adapted for small holdings. With city markets and wharves at a reasonable distance, good fruit, butter, crop and stock will give the careful block-holder a decent living and something more.

The Yan Yean Reservoir, which supplies Melbourne with pure water, has been constructed by damming the Plenty River, a tributary of the Yarra, at a convenient storage point 24 miles from the city. A railway goes to Whittlesea, four miles further. At the foot of the Plenty Range, supplementary storages have been established among very beautiful surroundings.

The embankment of the Yan Yean is 3,200 feet long, the reservoir eleven miles in circumference. This pine-bordered lake with background of blue hills is among the many creditable public works which have been established in Victoria during the half-century since gold was discovered on the banks of the Plenty River.

With a good hill-climbing car, the tourist will do well to cross from the pleasant clearings of Whittlesea towards Kinglake—another mountain district of attraction, where cold-country fruits bring growers good profits. Kinglake is on the edges of forests which have yielded an enormous quantity of marketable timber.



Mitchell Falls, Kyneton.



The River at Yea.



Pall Mall, Bendigo



River Goulburn, Alexandra.

Through Kinglake West a heavy road goes on to Yea, following down King Parrot Creek, and passing through the pretty hamlet of Flowerdale. By pinches, levels and slopes, one gradually climbs into the heart of mountains where lordly panoramas of billowing hills, vividly green flats, ravines, forests and precipices await the enthusiastic tourist. It is worth any amount of "top-gear" work and hard climbing by muddy road to get into these mountains. They will give you an impression of Australia which you cannot find in books of travel written by casual globe-trotters.

Along King Parrot Creek, which empties into the Goulburn River, are quaint old homesteads dating back, no doubt, to the days of first Victorian settlement.

Touring eastward from Yea, the road, railway, and river run side by side through a veritable land of delight. Nowhere in Australia is there a more glorious road than that which winds along the Goulburn Valley from Yea to Tallarook.

The Goulburn, one of the major tributaries of the Murray, enters that river a little above Echuca. Like the Murrumbidgee and Darling, where they join the great river, there is a distinct difference in the color of the water. On my motor-boat journey down the Murray some years ago, I remember that the Goulburn came in unexpectedly like a dark green ribbon unrolling itself over a court dress of silvery silk. The Murrumbidgee was a lighter green, but the Darling ran like a river of milk. One noticed these features the more, perhaps, because the waters of the Murray are so colorless and clear. But the Goulburn—already no inconsiderable stream—is clear enough where the road meets it eastward of Yea. Its swiftly-flowing current is carried along between steep granite hills that open out here and there in rushy swamps or patches of black tilth

lands. Fruit and crops, farms and rustic scenery of especial charm make the winding road to Tallarook unusually pleasant. Dark patches of fern splash the green hillsides with a more sombre green. Comfortable farm-houses surrounded by poplar trees, and old huts of bark and slab engaged by older trees, link the present to the past.

Interstate railway passengers are familiar with the country that lies between Tallarook and Melbourne. Much of it is rich and good: especially about the old settled districts of Broadford, Kilmore, Wallan, Donnybrook and Broadmeadows.

The Sydney Road runs through all these places. By this long highway the diggers poured down when the gold excitement was high. By the Bendigo Road they left Melbourne for the fields.

Inns stand yet by the wayside, where flying coaches changed horses in the roaring 'fifties, where lucky gold-seekers held high-revels and scattered wealth to the winds. Crumbling walls by cross-roads which echo now the hooting of motor horns not so long ago gave back the refrains of songs that delighted the dandies when Dickens and Thackeray were revising the proof-sheets of their earlier novels.

The railway takes more prosaic generations through Macedon and Kyneton to Castlemaine. Macedon has during many years been a habitat of the well-to-do. Rich men's homes lie along the hillsides. Mount Macedon is 3,325 feet high and from various points unfolds panoramic views rivalling those of the Dandenongs. Another railway has opened the country to Lancefield. It junctions with the main northern line at Kilmore.

Kyneton is a further example of a solid Victorian township, centring a good agricultural district. But the rich lands of Kilmore, Lancefield and Kyneton are not yet supporting a sufficient population. With the inevitable subdivisions which are coming, these bounteous agricultural soils will carry a far greater number of people, and the local towns will benefit in proportion.

Castlemaine is a place of manufacturing importance. Much staunch Victorian machinery has been turned out in this little town on the outskirts of which the signs of old diggings—in the shape of mullock heaps, pot holes, rotting timbers and rusty iron—are still in evidence.

From Castlemaine across to Creswick and on to Ballarat the present agricultural landscape is dotted with poppet-heads and dumps where reef-mining has been pursued with varying success. Luckily for these old Victorian mining centres, they were surrounded by some of the finest farm lands in the Commonwealth. As their mineral



Jubilee Park, Daylesford.



Coliban River, Kyneton.

resources were exploited, the more permanent wealth of the soil was developed.

Ballarat is no longer a great mining centre, but a proud, prosperous modern city, whose commercial stability is mainly based upon dairying, general farming and manufacture.

From Castlemaine to Daylesford is only a short run. Daylesford makes a convenient health district for Melbourne and Bendigo and Ballarat. High hills, water-falls, trout streams, mineral springs, are among its well-advertised attractions.

Daylesford, with a population of 4,000 people, is one of the brightest towns in Victoria. In none of these many brisk and cheerful country places within a hundred miles of Melbourne will the most pessimistic visitor discover that "weird expectancy" which strangers have been taught to believe is typical of the Australian bush. It would be indeed difficult to find within a hundred mile radius of any other city in the world so much fertility, so much varied natural beauty, such a contented and healthy population.

Between Ballarat and Melbourne is Bacchus Marsh, interesting from both geological and agricultural view-points. Here one of the most successful of the State's smaller irrigation schemes has brought prosperity to a number of settlers. Bacchus Marsh is synonymous with agricultural

values and excellence of production. Apart from its celebrity for high-grade dairy products Bacchus Marsh is a most attractive resort. The Werribee Gorge—now converted into a National Park—is within three miles of its railway station. This place holds particular interest for geologists.

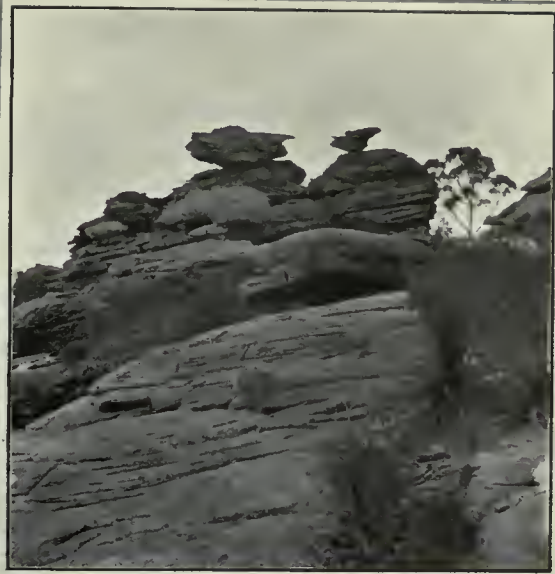
Ballarat is also reached by a trunk line from Geelong. This route takes the traveller through some fine agricultural districts. The rapid settlement of the State has in a great measure been a direct result of the construction of lines and loop-lines in all directions. No part of Australia enjoys such a complete and effective railway system.

Since the opening of the line to Bendigo, in October, 1862, western and north-western Victoria have been cobwebbed with railroads.

* * * *

There is no fairer place in Australia than Geelong, which fronts Port Phillip at the head of Corio Bay. The western shores of this great Port are intensely fertile. Geelong itself is rich in groves and gardens, busy and modern, but yet a city of flowers. It is most happily located on sloping hillsides, with a back country of exceptional beauty.

From Geelong to Queenscliff is a delightful journey—one to loiter over with a good car upon a long October day. The villa and cottage gardens



In the
the
GRAMPIANS



In the Public Gardens, Bacchus Marsh.

of Geelong will be full of flowers about that time—parks a vivid green, fields emerald and golden. Imported gorse will make the roadside hedges seem like the walls of the new Jerusalem, although the farmer loves it not. The fruit trees will be a-smother with pink and white. On undulating hillsides fat sheep and cattle will remind the wayfarer that he is passing along a fringe of the famous Western District. The great bay will glitter; white sails against a background of Aegean blue and the smoke of steamers will shew that it is one of the world's busy ports; Barwon River will gleam across the farmlands, and Lake Connewarre flash its silver. There will be glimpses of blue mountain-peaks in the distance; peaceful hamlets with shaded streets to glide through slowly, a clean little inn to offer gossip or refreshment. There will be scent of roses, clover and hay, song of skylarks and carol of magpies—all the elements of a joyous journey through green expanses that have never borne the cruel burden of Want or War.

At Portarlington the first page of Victorian settlement was turned nearly eighty years ago. Then the aboriginal hunted emu and kangaroo across those pastures, waving like wheat-fields, which Batman saw and coveted.

Batman and his dusky friends have sped thence. New red-roofed cottages, and some old ones with the stains of early nineteenth-century wea-

ther upon them, face the Bay where the little *Rebecca* lay at anchor only a life's-length ago.

Farther on is the little marine hamlet of St. Leonards, where clean incoming tides bring shoals of hungry fish to gladden the sportsman's soul.

Let the man whose mind has been filled with harsh impressions of our lovely South-land go down by Clifton Springs and Drysdale and Portarlington, and recant!

When he has grown tired of emerald pastures, waving crops, and flowering orchards, he can glide out of this rapt demesne to where waves of the Tasman Sea break on beaches of Barwon Heads, Torquay, or Anglesea; he may even wander as far as Lorne, and loiter upon the beach or explore the damp recesses of Cape Otway forests. He will find shores full of beauty and grandeur, fields and farms, stretches of hushland swept by invigorating winds, fragrant with wattle blossom, sunlight and spray—but nothing to remind him that Marcus Clarke wrote his dismal preface to Adam Lindsay Gordon's poems over in Melbourne across the Bay.

It is amusing to hear returned Australians speaking in raptured voices of the Sunny South of Europe, of English lanes and Irish meadows, and Caledonian braes. Within the radius of a hundred-mile arc, drawn east and west of Melbourne, glows a wide verdant land, resplendent and glorious with mountain and meadow, stream

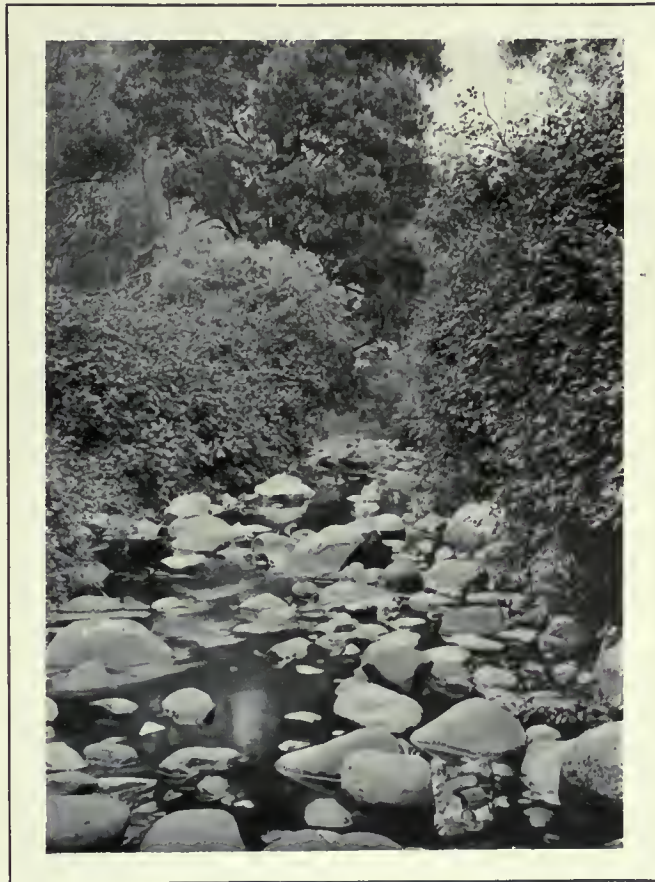
and cascade, blue tidal waters and brave sunshine—entirely healthy, entirely free, which enjoys all the blessings of peaceful production and still holds thousands of untilled acres and hundreds of opportunities for the establishment of comfortable Australian homes.

In Melbourne already there are 650,000 people, or a little less than half the population of the State. The city itself does not need to increase its numbers; but the adjoining rural districts should be able to support many times their present total. Judicious land laws, sub-division and intensive culture on small areas, the establishment of new rural industries under attractive conditions of labor and residence, will help to solve

this passing problem of centralization. The tap-roots of a tree are naturally strongest; but the whole root system must be given room to develop if the growth of the tree is to have a normal continuance.

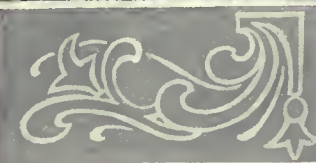
Professor Cherry, formerly Director of Agriculture for Victoria, asserts that not one-tenth of the available land of the State is under cultivation. It may be seen how the present population of 1,400,000 could be multiplied by ten without exhausting Victoria's agricultural strength.

The opening of an autonomous transport, with a deep-sea harbor at Portland will help to relieve Melbourne. This great national work has already begun.



On the Erskine at Lorne.

In the VICTORIAN BUSH





Warrnambool.

THE WESTERN DISTRICT.

THE city of Geelong has a population of 35,000. On the outskirts of the town are several fine woollen mills, where the incomparable fleeces of these districts—sought annually by purchasers from all over the world—are made into most durable tweeds, flannels and blankets. Immediately beyond the town there begins the fairest belt of agricultural country in the Commonwealth. Furthermore, it is traversed by what, at the end of the year 1915, was decidedly the best main road in the State.

Geelong being the natural capital of the wonderful Western District of Victoria, we will make it the starting-point of another journey.

To travel through this agricultural Utopia in spring, when the crops are rustling against the top-rails of the fences, is to behold Australia in one of her most prolific aspects.

Richest volcanic soils, visited by copious rain-falls, with a temperate climate, make Western Victoria from Geelong to Port Fairy a natural garden. Land has sold for over £100 an acre within this belt, the output of which in wheat, wool, dairy produce, has reached a tremendous total. Some of the wealthiest agriculturists in Australia have made their fortunes here. If it were the ambition of graziers to become farmers, rather than vice versa, the Western District would be still more productive and closer settled. When the men of larger holdings see the wisdom of sub-division, either on share-farming principles

or as landlords or financiers, this corner of the Commonwealth will swell the figures of Victorian production further still.

Despite this prevailing tendency to large estates, the Western Districts are highly progressive and prosperous. Some of the best towns in the State have put civic roots deep into their basaltic soils, and are destined to grow.

The first of these considerable places along that pleasant western road is Colac. The town has a present population of about 4,250 people, with 14,500 in the shire. Dairy farming and its by-products have proved most profitable. The average holdings are about 100 acres. It is said locally that fifty acres properly worked make a good living area. The present capital value of the land about Colac may be calculated at from £40 to £60 an acre. Land suitable for the growing of onions brings as much as £4 an acre annual rental. Such land was yielding (in 1912) six to seven tons an acre, worth £20 a ton at the time. Ten-acre men were making a fair income. It must be remembered that living in this class of country is very cheap. Hitherto, beef and mutton have been procurable at prices that keep them on the table of every working-man: country house-rents are low, commodities comparatively cheap, vegetables and fruit grow readily, and a household cow or two are easily kept. Taking into consideration climate, constant rainfall, convenience and company, the small farmer may be better off on

ten or twenty or fifty acres here, than men with 1,500 acres elsewhere. With the wages paid to agricultural laborers in Australia, any ordinary farm hand, without capital, can look forward to becoming a proprietor.

It has become the recognised duty of each State Government to encourage and assist this class of settler as far as possible—the greater the number of agricultural proprietors the better for the effective occupation and future development of the whole Commonwealth.

erally, dairymen at least could greatly increase their returns. Even in these splendid districts the most casual observer will see idle lands and neglected opportunities. Still there are plenty of good farmers and well-worked holdings. As the Agricultural Colleges get in their good educational work and European and American settlers with up-to-date experience and the necessary initial capital take up Australian lands, there will probably be a vast improvement in the handling of farms.



Thunder Point and Shelly Beach, Warrnambool.

Farmers of the Western District have paid great attention to their dairy herds. Oats, barley, onions and potatoes, without fertilizers, may be the standard crops of the Western District, but the production of butter and cheese, the curing of bacon, are constantly-increasing industries. Grazing, of course, has always been successful; in fact, the pastures of the Victorian volcanic belt carry a majority of the sheep and cattle of the State.

Drought is unknown. For half a century oaten crops have never failed. Despite these advantages, experts like Dr. Cherry, Professor of Agriculture in Melbourne University, still contend that Victorian farmers are not getting anything like the possible returns from their holdings. There is no doubt that, with conservation of water and fodder, culling and more scientific methods gen-

The town of Colac—electric-lit, with telephones, cars, linotypes and most of the minor conveniences of civilization—like other Victorian towns of to-day, presents no extremes of poverty and wealth. One finds great equality, fine friendliness, general comfort and well-to-do-ness, and keen local spirit among these prosperous little rural communities.

Lake Colac, a fine sheet of fresh water, 22 miles round and averaging eight feet in depth, is the scene of an annual regatta. Colac prides itself on the fact that its Lake offers the biggest field for eight-oars in the Commonwealth, rather than on the certainty that its sale yards pen on an average a thousand pigs a week.

The Shire of Colac would carry at least twice its present population.



Tower Hill and Lake, Koroit.

As we go, still westward, through halcyon land of fields and farms, with good macadamized roads under us, we see green crops as even as a billiard table, higher than the fences, or stooks of ripened crops standing in the paddocks with reapers and binders at work. Black soils, basaltic soils, limestone soils, chocolate soils, spread everywhere.

Otway Forest is marked by a heavy cloud-bank to the southward. Creeks and freshwater lakes, lipped by a scarlet weed, are frequent. Orchards of apricots and other fruit look prolific and healthy. Sheep and dairy cattle graze along rolling slopes in lush green herbage. Glossy cows munch contentedly over rich pastures. Lucerne fields hold bounteous promise of winter hay. Potato plants lift their purple-flowering heads down long even rows. Dark green squares of onions patch the hillsides. Fine dwellings, creameries, smart buggies and new motor-cars indicate that, whether the land is cultivated to its full extent or not, the Western District men are neither shiftless nor poor.

This description applies to all the country between Geelong and Port Fairy, and takes in Warrnambool, Koroit, Colac and Camperdown. The latter is a smart, progressive town of about 3,000 inhabitants. It is the capital of a shire about 900 square miles in area, holding a present population of 10,000, which might be increased to 100,000 with closer settlement. Some of the larger estates are now being sub-divided into 200 and 400 acre farms. The writer heard of men in the "Butter Belt" netting £800 a year from 50-acre blocks. This district is watered by many lakes, based in old volcanic craters, some of which are of very great depths. It may be regarded as the heart of the future closer settlement and intensive-culture area of Western Victoria.

Warrnambool, Koroit and Port Fairy, all lie within a few miles of one another, and make the fertile boundaries of a garden over a hundred miles in length.

The first is a solid little city with wide, well-paved and clean streets, sandstone houses, good stores, manufactories, and other outward evidences of long-standing prosperity. Famed for its astounding crops of onions and potatoes, Warrnambool is also a depot of supply for a large dairy-farming area, than which there is nothing richer in the Commonwealth. Warrnambool, like Port Fairy, is a favorite seaside resort, both with rocky ocean-shore and sandy bay-beach.

Koroit is a smaller repetition of Warrnambool, some of the most productive mixed farms in Victoria being located on the green volcanic slopes around it. It is here that a long-extinct volcano belched forth the richest soil deposits known in Australia, and made the land worth from £80 to over £100 an acre.

Port Fairy is the terminus of the western railway system, and a shipping centre. Considerable port improvements are being effected both at Warrnambool and Port Fairy. They are both live towns, with active municipal councils who see to it that the civic credit of a growing population is sustained.

Between this town and historic Portland the coast lands are not of such unvarying excellence, but even the poorest in seeming are capable of high production with proper treatments, as the heath lands are now proving.

Portland, among many Australian towns with high ambitions, deserves particular attention. It claims the proud historical distinction of being the first place in Victoria where European settlement definitely began. Two hundred and fifty-two miles from Melbourne, it is already the



Loch Ard Gorge, Port Campbell.

terminus of a railway system which taps the north-western parts of the State and the adjoining border districts of South Australia.

It has been patent for many years past that Melbourne, like Sydney and Adelaide, is called upon to accept more carrying trade than is good for her development. It is natural in the opening of new countries that first-established ports along their seaboard will attract large populations, but the expansion of Sydney and Melbourne as ports has been out of proportion.

Both New South Wales and Victoria have now determined upon a policy of developing their outer ports and inland railways in order to prevent further centralization. Serious problems of transport have arisen which need not be discussed now. It is a sufficient guarantee for the future of the south, west and north, that the expansive harbor works at Portland recently commenced will create a new deep-sea port of the first magnitude.

Portland Bay is 24 miles by 12, with 32 feet of water and upwards for berthing at low tide. It should become an outlet for the Wimmera and a large section of the Victorian Mallee. Local production in the shape of timber, grain, potatoes and the fruits of the temperate zone are already exported. The Nine-Mile Forest, near Portland, boasts of producing 15 tons of potatoes to the acre. Large stretches of heath land, some thrown open for close settlement, are located in the district. Unpromising in appearance, these heath-covered coastal plains give payable returns of 5

to 10 tons of potatoes from an acre. Strawberry clover, cocksfoot, rye and other grasses thrive even in the poorer-looking soils, which extend across towards Mount Gambier. For their own especial purposes they are just as valuable under the high rainfalls of this corner of Australia as the fat lands in other parts of the State.

Freezing works make one of the existing industries of Portland, whence a hundred thousand lambs a year are already exported. Farm lands have a present value of £15 an acre, and are increasing in value. As inevitable export trade is developed at Portland Bay, settlement will doubtless increase through all this extreme south-western division of Victoria.

The north-west Wimmera and Mallee produce sixty per cent of the total wheat grown in Victoria, beside a fair proportion of wool and fat lambs. It is expected that this output, or a greater part of it, will ultimately be shipped direct from Portland. Once direct railway communication is established between the port and the highly productive districts northward, their products will naturally gravitate to Portland, saving thereby freight distances of 60 and 100 miles.

The linking of Portland and Mount Gambier by rail will drain the production of that fertile pocket also by a much nearer channel to the sea.

Between Mount Gambier and Casterton to the northward, and from Glenelg to Portland on the coast, there is a large block of Victorian territory yet but sparsely settled. The writer crossed into Casterton from Mount Gambier west



In the Grampian Ranges

and east in the beginning of 1912, and crossed at the end of the same year through Hotspur and Digby—south and north—from Portland to Casterton again. The rainfall along this route is the same as that of Mornington Peninsula—30 to 40 inches. Nearing Casterton, the country improves in appearance; yet the more southern part of it is by no means sterile or unfit for production. Like the heath lands above Portland, it can be turned to very good account, as patches of cultivation here and there are already testifying.

Coming across from Mount Gambier—the place where good South Australians go to when they die—one leaves the black ploughed lands before reaching the border and enters what to the average layman seems a desert by comparison. I remember that particular journey rather well, because I had for coach companions a blithe colonist of 70, named Cawker—an old friend and associate of Adam Lindsay Gordon—and a pessimist, who was travelling on account of his health. We left Mount Gambier while the church bells were ringing and rattled along briskly behind a fair team of horses, first through a magnificent avenue of pine trees and then out on to open country with rolling hills of a vivid green; a most striking contrast to Hergott Springs, where I had just spent a few dry but interesting days. We left the onion farms presently and crossed into rich swamp lands yet undrained. Fine spreading gum trees and flat open spaces featured this region.

The coach stopped just over the Victorian border at a little place called Ardno to change horses. Here we got an unexpectedly good cup of tea. The pessimist had complained about the country from the moment we crossed the border line. He kept on complaining until the coach reached Casterton late that afternoon. Although they gave us a splendid lunch in the inn at Strathdownie, he was not happy. He said there were too many swamps; the people couldn't be healthy and the food couldn't be good.

After leaving Strathdownie, the road rises into country of no seeming quality. There were patches of heavy sand, which gave the pessimist an opportunity to talk about Australian deserts. His heart was not in Australia. Still we reasoned with him. But as the sand grew heavier and the stunted forest thicker and more unpromising, a tone of greater satisfaction entered into his criticisms. He said they called Victoria the garden of Australia—was this any garden?

We had to admit that it was not. But, I ventured to suggest, out of a profound belief in Australia, that it might be good for something.

"What!" demanded the pessimist fiercely. "What is it good for!"

I replied that I had not enough local knowledge to enable me to say. Still, my experience told me that this unpromising soil, covered with poor-looking timber, was perhaps the very best land in the world for some particular agricultural purpose!

The pessimist laughed derisively.

The next place for changing horses was at a little clearing in this ugly forest, where a lonely hut and a paddock were the first evidence of human occupation for many tedious miles. The hut-keeper was a solitary old man who looked after the coach horses; a tidy ancient whose domestic surroundings bespoke the clean methodical habits of a typical bush bachelor. He had the beds ready for the horses and each animal's feed waiting in its trough.

Cawker, Gordon's friend, was the proprietor of that line of coaches. He had listened quietly to the argument as we came along. He professed to know little about farming, but he knew the birth-place and history of every horse on the road. He said the old hut-keeper had been trying to make a garden. We might get down and have a look at it. It should be some indication of what the country between the border and Casterton was good for. The old bushman was pleased to lead us towards a sloping piece of ground which he had cleared and planted, mainly, he told us, to fill in spare time. It faced towards a creek and seemed to be no more than a quarter-acre of gray unfertile sand. The tidy man felt called upon to apologise for its appearance. He said it looked barren, but he had found it would grow crops as well as the richer soil of Mount Gambier or Casterton. In proof of this he had, among other things, splendid beds of strawberries, patches of green lucerne, and an excellent crop of tomatoes!

The pessimist was thoroughly annoyed. It hurt him to find his desert actually yielding ripe strawberries at the mere call of a casual hut-keeper who modestly disclaimed any professional knowledge of gardening; who was, in reality, only paid to look after Cawker's coach horses and merely cultivated a quarter-acre of available sand to keep himself from loneliness. We made full use of this object lesson on the deceptiveness of Australian appearances. It was a cold day. The pessimist sank into his overcoat for the rest of the journey. Even when we surmounted the last hills, and saw the superb undulating plateau of the Upper Glenelg lit with sunset radiance, he did not reappear.

Casterton is pleasantly located on the fertile fringes of Major Mitchell's "Australia Felix." It is one of Victoria's active inland centres. Red-brick buildings, fine tree-planted streets, a background of vividly green hills, swept by cool

healthy winds, black flats, richness, cultivation, electric light, art furniture, a good hotel and the carpeted comforts of civilization—these finished the impressions of another day along the border. This day had brought the author into the fourth corner of Victoria—he knew the other three—and it was a consolation to find it capable of growing strawberries and lucerne at least.

One sees along the western road from Geelong to Portland, old-fashioned farm houses, with golden fields of dandelion sloping away to willow-bordered creeks. Like the stone houses of Portland, surrounded by formidable walls, they belonged to a generation which has gone. Smaller villas on the hillsides, spanking motor cars and petrol waggons on the roads, proclaim a newer era.

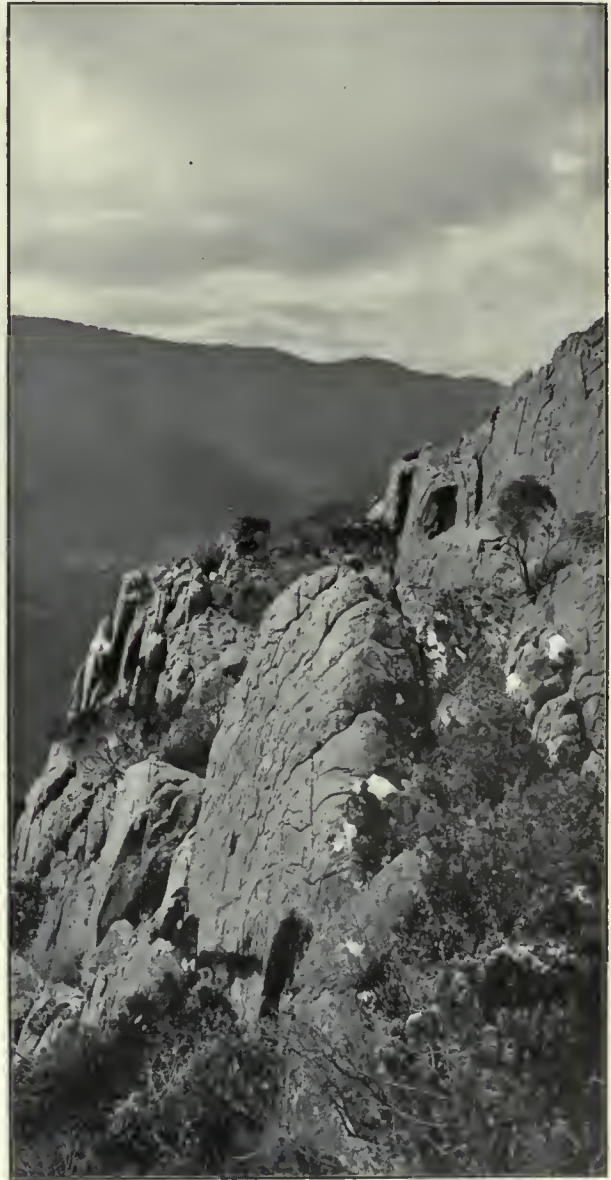
About Casterton and along the line to Branxholme, where the railway branches for Portland, the old stone dwellings are fewer, but the land is still lush and green. Rounded hills, spreading trees, clear-running creeks, bespeak the happy conjunction of good rainfall and rich soil. Trucks filled with fat stock go down the rails, boxes of butter await shipment at the sidings and polished cream cans rattle toward the factories. Agricultural prosperity is evident, even in the slowness of the trains, which stay to pick up trucks of live stock, bags of potatoes, and "empties" at each little station.

The distance from Casterton to Melbourne is 200 miles. The ordinary train completes it in 14 hours. This is not entirely the fault of the Railway Department. The leisurely habits of a population with nothing to worry about are a contributing factor.

From Branxholme the railway takes across to Hamilton, and then through good open pastoral country to Ararat. Coming from Casterton towards Melbourne on this line, the passenger has the picturesque and striking peaks of the Grampians on his left hand, for some distance.

These hills are of particular interest to Australian botanists; no less than 1865 varieties of native plants have been classified as indigenous to them. For lovers of mountain scenery they also hold a peculiar attraction. They can be reached at Hall's Gap in 16 miles from Stawell, on the Melbourne-Adelaide line. The Grampians differ in some respects from any other Australian mountains. Rising precipitously out of level plains, their timbered sandstone heights have been the bed of some ancient sea, whose warm waves beat on vanished southern shores unimaginable years ago. High painted cliffs facing the solid plain roughly mark the borders of this primal sea. Deep gullies, filled with moss and fern, pillars and monoliths of naked stone, high

peaks from which the wheatfields of the Wimmera and the broken volcanic peaks of the southern seaboard are visible, make of the Grampians a sort of watch-tower for Victoria. These rugged sandstone ranges, still sparsely settled, aloof, remote and unusual, reach



In the Grampians

their greatest elevation in Mount William, 3830 feet high. The orchard settlement of Pomonal is located on the east slope of Mount William range. Major Mitchell camped hereabouts in 1836. Apples are its principal product; grown almost entirely for export and with considerable success. There is still much Crown land, valued at £1 an acre, in this district, which, when cleared of its heavy timber, is worth £25 an acre. This land has proved suitable for the growth of fruits



Public Gardens, Ararat.

adaptable to temperate conditions and is likely to become not the least productive part of Victoria.

From Hamilton to Lake Bolac there is good pastoral land, and from Lake Bolac north again to the interesting little city of Ararat still more pastoral and agricultural country. The rounded hills and grassy valleys of Australia Felix give place to more open and drier plains, changing again to lands of hill and hollow which, dipping across from Ararat through Maryborough, and rolling off to Ballarat and Bendigo, have made the richest gold-producing pockets in all Australia.

From a sensational mining-field, Ararat has merged into a mature industrial centre, surrounded like Ballarat by districts which have abandoned the miner's pick for the plough. This successful grafting of an agricultural Present on to a mining Past is a pleasing feature of Victorian settlement. While this is being written comes an announcement that the last of the famous alluvial companies of Ballarat has closed down. Yet there has been no dislocation of business, and the prosperity of the city is nowise affected.

This particular mine, the South Berry, in the Creswick group, was the last of a famous family of mines occupying an area of about 4 miles, from which an estimated twenty million pounds' worth

of gold have been taken since 1851. The Madame Berry Company heads the list of gold producers in this remarkable group with 387,314 ounces, valued at over a million and a half of money; of which not less than £855,540 were distributed in dividends. Sinking in alluvial at Creswick has varied in depth from 50 feet to 400 feet in the Madame Berry, the wash beds near the shaft of which were 'about 1,100 feet above sea level.

The Cathcart mine, on the outskirts of Ararat, yielded eleven thousand ounces of gold in 1911, from what was said to be the deepest alluvial deposit in Australia. Much capital has been expended in proving the mineral area of the adjoining Langi Logan and Cathcart groups. This may be a gold-producing region for years to come.

More exciting chapters in the mineral history of Ararat have been written than the slow, scientific probing which has established this possibility; but it will be a golden feather in the cap of this interesting field if the deep leads which trend southerly down the Hopkins Plateau from the Ararat and Cathcart gold-bearing areas, should yet prove as rich as those wonderful shallow workings which made the fabulous fortunes of 1855.

Much unwritten adventure and romance hang over the old workings with which the ground

Some
Australian
Orchids



*Dendeobium
speciosum.*



Caladenia carnea.



Prasopphyllum fuscum.

about Ararat is pockmarked and furrowed. It was in the precious pipeclay at the bottoms of these holes that anxious eyes from all over the earth looked for a fortune in the roaring days.

Imagination can hardly conjure from the Ararat of to-day, with its well-kept streets and gardens, the canvas city of 1856-7, where fifty to sixty thousand people were encamped. Three tons three and three-quarters hundredweight of gold went out of Ararat by the gold escort in the

Farms succeeded claims; wheatfields and orchards followed the fossickers' feverish burrowings, canvas gave way to brick and stone, and in another metre the epic of Australian settlement was heroically continued.

* * * *

Between Ararat and Stawell there are good vineyards and orchards. Stawell is a tidy, busy Victorian town, 150 miles from Melbourne, form-



Stawell

springtime of 1857. In that canvas town, where bygone campfires flickered the shadows of long-dead diggers on long-folded tents, Julia Matthews acted and Lola Montez danced. On gum-trees, long since converted into ashes, the futile proclamation announcing a reward for the arrest of Peter Lalor was nailed, when wounds won by would-be patriots in Eureka Stockade were still unhealed.

There are old men in Ararat still, who remember as children the great rush of 1855, which opened the richest alluvial field the world has known. These worthy citizens have seen the birth and renascence of a doubly-productive district. As the output of metal declined, new wealth, in the form of superfine wool, sound wheat and good wine, was created. The Great Western Vineyard, planted by J. and H. West, in 1863, now the property of Hans Irvine, has in itself given Ararat to fame as a viticultural centre.

ing still another metropolis for a productive district. This is a sheep-raising, wine-growing and mineral region. The town, like Bendigo, still has several gold mines in operation within its boundaries. With the Grampian quarries nearby, the buildings of this little city are more solid and imposing than the structures one sees in most Australian country places.

Leaving Stawell, the traveller shortly enters those flat plains which extend through the Wimmera and on over the Mallee to South Australia. The mining areas are left behind, and at Murtoa over level expanses are written in golden letters two words, "Wheat" and "Wool." Towards Warracknabeal and Minyip the landscape has changed to a sea of wheat or a sea of fallow and stubble, according to the time of year.

There are good farmers out here, mostly 160 to 640-acre men. They have learned the way to make sheep and grain pay, and keep on pay-

AGRICULTURAL EDUCATION IN VICTORIA



SURVEYING
DOOKIE & LONGERENONG



VETERINARY CLASS



CHEMICAL LABORATORY



PRUNING FRUIT TREES



WHEAT BREEDING



SHEARING



Longerenong Agricultural College.

ing. With stump-jump ploughs, scarifiers, harvesters and hybridised wheats the conquest of the Wimmera and the Mallee has gone on rapidly during the last few years. Favored by a wise policy of rapid railway building, the agricultural districts of Victoria have been pushed farther and farther out, until practically the whole of that great north-western part of the State—which was once the despair of governments in Melbourne—has been or soon will be successfully settled.

At Longerenong, between Murtoa and Horsham, the State has established an Agricultural College and station, where constant experiments are carried out in connection with problems of cultivation; particularly with improving the character and yield of wheats. At this college accommodation is provided for 35 resident students. Non-resident students, the sons of district farmers, also attend the classes. In the course of his perambulations over Victoria, through erratic lubrication of his car (and taking the wrong turning), the author was compelled late one evening to thrust himself on the hospitality of the Ballenger sub-household, whose 640-acre farm lies opposite to the Government College. This family, well-known as successful bee-keepers, consists of nine boys and two girls. The 640-acre block, although an old farm, was a new investment for them. We found three fine Ballenger sons in charge; offshoots of the main household which lived and labored on its original holding in another part of the district. These bachelor boys, with joyous Australian hospitality,

fed two belated travellers on good Wimmera mutton, honey from their own hives, and bread of their own baking. Having filled their late and unexpected visitors, these lads drew round the fire and talked. Fine clean-living Australian boys! Their souls were as upstanding as the peaks of the blue Grampians, 20 miles away across the plain. There was no fear of failure in them, no dour complainings about hard life on the farm. They meant to win out, as thousands of cheerful young Australians are winning out on the land.

It was a good thing to waken next morning from a tired sleep on a "shake-down" before the fire, and hear those hard-headed, stout-hearted Victorian lads getting to the work of the day. They had the carol of magpies and the twittering of sparrows for orison. Their four-roomed lined weatherboard cottage was surrounded by shade trees, mostly young sugar gums, which are planted as breakwinds on these plains. Green fields and distant blue hills made their outlook pleasant. They reckoned to average 20 bushels of wheat an acre from their section with good farming, and there was money to be made in various ways—life to them meant something worth while.

What these young men are doing in Victoria thousands of others can also do, if they will face their personal problems fairly and not expect everything for nothing. Victoria, like her sister States, has abundant room and opportunity for people to whom the virtues of frugality, perseverance, and labor have not become old-fashioned.

It seems to the writer, in his consideration of Australian problems of national development and individual happiness, that these qualities are not incompatible with the most radical views on legislation or the most advanced methods of industrialism. The Australian settler can be anything he chooses in politics, an uncompromising Socialist or a fixed Conservative, but if he does not bring ready hands and right working methods, he cannot look forward to winning out like these hearty lads of Longerenong.

Frugality, perseverance, and effort were behind the men who have made the Wimmera one

The town and railway terminus of Rainbow is situated slightly to the north-east of Lake Hindmarsh in what is practically the heart of the Victorian Mallee.

Settlement by free selection began in the Wimmera district, as far back as 1869. Several successive good seasons rooted the small landholder firmly and left the first settlers, the pastoralists, out in the cold; but the progress of these far western districts was hampered for practically the life of the occupying generation, through lack of transport and lack of knowledge.

Railways came in time. The average rain-



Rolling Down the Mallee.

of the most productive regions in Victoria. New country is not conquered otherwise. The earliest pioneers, the advance guard who drove their flocks and herds before them, could not have realized that the good pastoral lands they "squatted" upon were destined later on to also become a granary for the State. The deceptive dryness of Wimmera soils once more caused a fine agricultural country to be classed as suitable only for grazing.

The Wimmera River rises near Mount Cole, on the Divide, receives some tributaries from the Grampians, and, cutting through the deep alluvial plains of north-western Victoria, empties into Lake Hindmarsh in latitude 36 S., long. 142—about midway between Wentworth, N.S.W., and Portland, Vic.

fall of twenty inches was supplemented for town and farm supply by storages established in the Grampians and at Wartook and Lake Lonsdale. Then mixed-farming methods of the second settlement period gave place to systematic wheat-growing. Fallowing, summer working of the fallows, seed drills, superphosphate, and the harvester, improved crops and improved markets, brought prosperity in their train. The staunch settlers who had migrated from South Australia, lived to see their faith justified. They brought some of these innovations with them. The farm lands extended out further and further into the Mallee; new towns sprang up, new railway lines were built, new settlers came in—the great plains of the Wimmera, the mallee scrubs, were covered with hundreds of square miles of waving

wheat; ploughed pastures yielded higher returns of succulent grass, the settlers raised more fat lambs, bank accounts swelled, the capital values of the land rose from £3 to £10 an acre. To-day numbers of the 320-acre 'men, who mostly commenced with very little capital, are worth from £2,000 to £40,000. Horsham has grown from a mere village into a smart little city of four or five thousand people. Murtoa, Rupanyup, Lubeck, Dimboola, Nhill, Natimuk, Minyip have all become places on the map of Victoria. Other towns and villages are springing up, out to Ouyen and the borders.

So far as experiments in irrigation have gone, they prove the Wimmera capable of intensive culture: a factor which cannot fail to affect its future. Australia, like the United States, will pass through several epochs of settlement and production. Hopeful Western District prophets can already foresee another era of increased population and production. Between Murtoa and St. Arnaud the good red and black lands extend. Between St. Arnaud and Maryborough the soils seem more adapted for viticulture and fruit-growing than wheat.

Approaching Maryborough, the face of nature is once more pitted with the remains of old shafts and workings. Gold is still being won around here, although the excitement and the rushes of early days have become no more than memories of oldest inhabitants. Maryborough forms yet another small centre of industry. It may be classed as a progressive, picturesque, and substantial city in a mining, pastoral, and agricultural district.

From this somewhat casual review of the Western Districts, it may be gathered that Victorian settlement is not faced by radical difficulties of indifferent soils or extremes of climate.

As a comprehensive statement of fact one might say that *all* the Western Districts are good for some kind of agrarian production; that certain portions of them, such as the belt between Colac and Warrnambool, are the best in the Commonwealth. One of the Scottish Commissioners, who had the widest international experience, told the writer he regarded the Western Districts of Victoria not only as the best agricultural lands in Australia, but the best in the world! Coming from such a proverbially cautious source, the assertion receives additional weight.

With the exception of the northern fringe of the Wimmera and the Mallee, into which they merge, these districts have a comparatively high rainfall. Experience is now showing that the extreme north-western portion receives the necessary quantity of moisture to ensure the success of wheat. In regard to the Wimmera and Mallee, it has been argued that the successes of latter years are due to increased rainfall. Scientific investigation reveals the opposite. The rainfall of 1889-96 was heavier than any eight-year period in the last 24 years, but the heaviest harvests have resulted from the driest years—due to better farming systems and the conservation of water in the soil by fallowing. It is not the climate which has improved, but the methods of Australian dry-farmers.



Saw Mill. Warrandyte.



The Lakes Entrance

GIPPSLAND.

IT was a doughty Scotsman from the Isle of Skye, named Angus McMillan, who seriously attacked the virgin recesses of Eastern Victoria in 1839. McMillan was overseer for a squattage on the high, cold plains of Omeo—where New South Wales cattlemen were already established. After an adventurous journey of exploration through trackless ranges, in May, 1839, he viewed from a mountain peak the land spreading from the Australian Alps towards the seaboard, and realized that it was good. He came back later in the year and established a station on the Tambo River, about forty miles south of Omeo. Using this as a base, in January, 1840, he penetrated the new country as far as the present site of Maffra; discovering and naming the great Gippsland Lakes, and the Nicholson, Mitchell, Avon, McAllister and Latrobe Rivers.

His next station was formed on the Avon: from which, in 1841, he opened a route to Port Albert.

Count Strzelecki entered Gippsland in March, 1840. Although he has been credited with the actual discovery, he was not the first in the field. Nor did the sensational experiences of his somewhat amateurish expedition forward the interests of settlement in what is undoubtedly one of the fairest provinces in Australia.

Between Warragul and Bairnsdale one sees some of the best of Victoria. Gippsland in 1915 produced 5,323,000 pounds weight of wool, supported 264,564 head of horned stock, averaged 21.99 bushels of wheat to the acre, and contributed one of the largest quotas to the sum total of Victoria's dairy products.

The development of Southern and Central Gippsland has been comparatively recent. Much of this territory—originally covered with forests—was set down as unsuitable for occupation. The struggles of early Gippsland pioneers are an interesting part of Victorian history.

A few years ago the fastnesses of nearer Gippsland were untraversed by roads, innocent of railways, and sparsely settled. On rich alluvial flats along the rivers there were farms, but even the volcanic hillsides were still covered with mighty trees. The Hill Country proper is now only partially occupied. It forms a section, averaging about 1,500 feet in height, extending from the coast of South Gippsland to the Upper Murray. Its soils are stiff loams for the greater part, with friable clay subsoils; convertible when cleared of forest into excellent pastures and the best of orchards. The average rainfall is over 30 inches, well distributed.

South Gippsland soils, red and gray, are equally famed for their fertility. Potatoes, onions, root crops generally, enrich the settlers in these young districts. But dairy farming has so far returned the bulk of profits. After the heavy trees have been felled or killed and the undergrowth cleared by axe and fire, a mixture, usually composed of rye grass, clover, and cocksfoot, is sown broadcast. After the first rain this land becomes payable pasture.

About Leongatha one may study the process of Southern Gippsland settlement to advantage. Leongatha is on a railway line which runs down from Melbourne to Port Albert. It is 78 miles from the capital, and 273 feet above sea level. From here a road goes across to picturesque Inverloch and Anderson's Inlet. Coming over from Wonthaggi in the direction of the coast, the traveller will cross a narrow belt of unconvincing sandy loams and clays. But the coal-fields of Powlett River are a valuable mineral asset—further proof that Australia is a land of compensations. Inverloch is another delightful place to spend a holiday. As one approaches Leongatha, the change to rich alluvial flats and volcanic hills is remarkable. After crossing through silent and somewhat monotonous bush for about sixteen miles, the traveller suddenly glides into a fair and fertile land, where rung timbers, vividly green hillsides, young fields, and new houses announce that civilization has attacked the wild. Cattle are grazing everywhere. The cowyard and dairy, with milk cans in rows, are an inseparable part of this landscape.

Leongatha is typical of other towns in South Gippsland. The history of one is practically the history of them all.

Not many years ago it was primal forest awaiting in aeons-old solitude for the advent of man. The first Gippsland settlers approached their tasks with heroic courage. Their lives, in some instances, were literally given to the cause of progress, and passed without recognition or reward. They buried themselves among the darkened trees, remote from railways, unblessed by roads in the sense that ordinary citizens regard the word. With steel and fire these outposts grimly entered upon the conquest of a territory, whose ultimate value they may have dimly seen but rarely lived to realize. Their descendants look out in comfortable possession over green pastures, which they knew as grassless forest wilds, overhung by canopies of tree-tops, which shut out the light of the sun; whose midnight darkness was dense as that of a coal-mine.

The Government sold them land in 320-acre blocks for £1 an acre; which was currently-regarded as beyond its value. So they battled

along slowly, opening out the tall timber, slaying their giants one by one; agitating the Government at times for greater facilities, keeping their district member's nose to the parliamentary grindstone, slowly improving their farms, forming little nuclei for townships—living altogether rough and strenuous but healthy and hopeful lives. These were the men of 25 years ago. Now forests are pastures and groups of huts have grown into thriving towns.

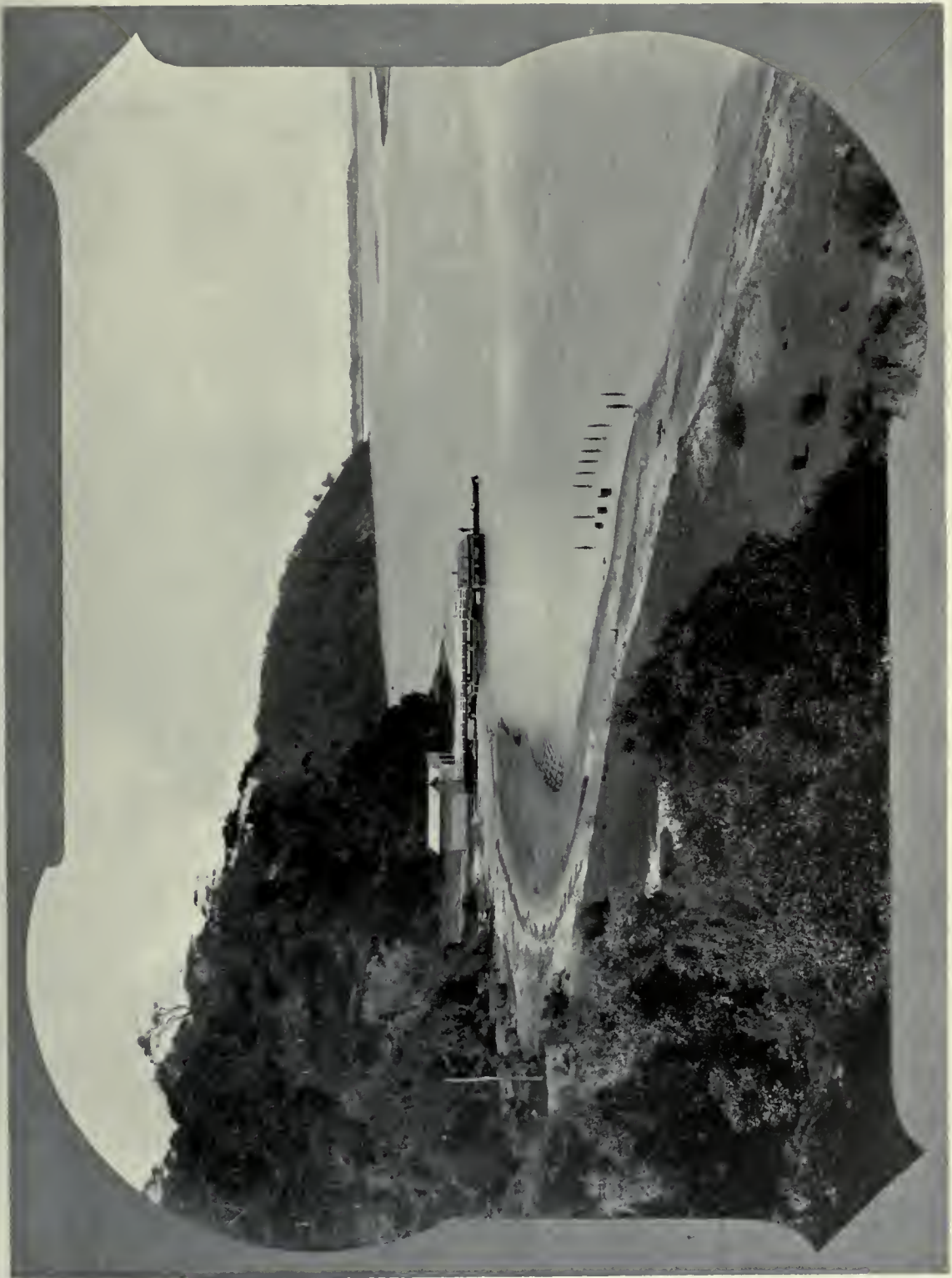
Agricultural land at Leongatha, for example, is worth £25 an acre. As far back as 1909, a 320-acre block was sold for £22/10/- an acre. In 1912 this block—one of the original selections—was bringing £640 a year rental as a dairy farm. Onion-ground right through the district was worth £2 an acre rental. There were no longer any Crown lands in that Shire—which carried a well-established and extremely prosperous population, not so great perhaps as it will be later on, when farms of 200 acres have been cut down to 20 and 50 under more intensive cultivation, for which they are best adapted.

One man has already cleared £2,400 as his year's income from 40 acres. Under these circumstances the thousand-acre farm—there are still a few—is a losing proposition.

Taking the Post Office as a centre, from a circular area of ten miles, Leongatha sends 40 railway-truck loads of fat cattle away each week.

The co-operative creamery at Leongatha, worked on the three-loft gravitation system, with its receiving room, cooler, chilling room, and giant churn, could hardly be imagined by Gippsland dairymen of 25 years ago. Science and organisation, tiled floors, and daily milk tests, did not have a place in the old system. Now the creamery butter, piled high on its wooden trough, after the machinery has done its work, proclaims the golden wealth of Gippsland!

There is an interesting Labor Colony near Leongatha, capably conducted under Government auspices. It fills the dual function of a reformatory for inebriates and an experimental farm. This establishment possesses a carefully-culled dairy herd. For 46 cows the milk test night and morning has averaged 4.46, which compares favorably with the famous Western Districts, declared by a member of the Scotch Agricultural Commission to be "the finest dairy country in the world." The best cow in this herd, a cross-bred Jersey (Holstein sire) in the 1911 season yielded 8,000 lbs. of milk, worth £16/6/8 in butter values. When the author of *Australia Unlimited* was introduced to this Gippsland matron in her seventh year, she had been milking for 305 days, after her fourth calf, and was then giving 23 lbs of milk daily on a 5.1 test.



Kalimna, Lakes Entrance, Gippsland

The management of the Labor Farm gives some attention to orcharding. The manager invited my ten-year-old son to examine a fifth-of-an-acre strawberry plot, which had returned £30 net for 1911. The fruit was just beautifully ripe. I greatly fear the revenue for 1912 from that plot fell short of the expected sum.

The cherries that ripen by Leongatha are "as big as plums." When we were leaving that exceedingly pleasant Australian town, a local

watered and fertile as these rich, radiant forest lands newly won from Nature. They, too, will have their butter factories and apple and pear orchards, their raspberry gardens and piggeries and cow sheds in order.

Lest we should leave this sunlit land with an impression that the monotonous country by which we reached it is good for nothing, we pause to peruse a report which our newspaper friend has brought along with his superb cherries.



"Bull-frogs," Eastern Gippsland

newspaper man, who is also an agriculturist, came down to our hotel with a sample box to cheer us on the way.

We dealt with them next morning as we toiled up-hill towards Mirboo on second gear. Below us lay Leongatha—a happy memory. The dead timber left standing in thin, skeleton groups, the green patches, rolling dales, flowing creeks and fields with clumps of tree-ferns standing among the crop, were all a delightful part of that good memory. Beyond these, the forest still rolled, first in broken patches, and then in dark, densely-wooded distances. "Where the vanguard camps to-day, the rearguard rests to-morrow." The wooded vistas outside these occupied places will be converted in turn to blue-black squares of onions and green squares of crop; for the land beyond the radius of the railway is as well-

The report sets forth how one Phillipson, with rape and paspalum, has turned an area of that dull-looking coastal belt between Inverloch and Leongatha into excellent pasture. Sixty acres, we are told, treated as this settler—and a few others who follow his example—are treating it, prove better than 1,000 acres in their natural state. This land will fatten three sheep to an acre, and proves extremely profitable—more proof that Australian productive values are well-balanced.

Looking across Southern Gippsland from the hill-tops, one sees that it is destined for mixed farming on 110-acre blocks; the feeding of cattle on "siloed" maize, the growing of onions, potatoes and fruit—that it is, in fine, another Western District, and one of Victoria's most valuable assets.

From Leongatha to Mirboo North a more-than-usually bad car-road winds and climbs through new country, from which the original forest has not all been removed. The cuttings show the richest of rich chocolate land, with friable soils to any depth; the flats are green and moist,—it is as good as anything in the world. Go through it, as I did, on a dew-wet morning with the magpies carolling and the lorries flashing their splendid plumage from tree to tree, willows waving gently by many a creekside, smoke issuing from the chimneys of farm-houses one comes upon in corners and on tops of hills! Go through it while the wind is soft and cool before the heat of the day, when you can smell the new-cut hay and hear the cream-cans rattling along the roads!

You will see that some of the hillsides are yet forested; but you will know that every acre is good, and that soon it will be all occupied and fenced and covered with grass; that there will be more sheep in the dales and more cows on the pastures, more polished cream-cans waiting by the roadside in the early morn.

There is another creamery at Mirboo North. From here a branch railroad goes over to join the main Gippsland line at Morwell, where, and at Narracan, there are practically inexhaustible deposits of brown coal—destined, no doubt, to be an important factor in the future of Victorian manufactures.

The way to Morwell is adventurous-going for motor cars. Of steep hills and ruts there is no lack. The writer's impressions of this back-track are that it is very sandy in some places, that "crab-holes" are not good for front axles, and that hauling automobiles out of bogs prevents people getting anything like a reasonable impression of scenery, no matter how interesting it may be.

Between Morwell and Traralgon is open downs, with distant views of mountain ranges, which include the Baw Baws. Traralgon is another prosperous Gippsland township. The country from here to Sale continues good. Bairnsdale in the north, on a corner of Lake King, and Sale, not far from Lake Wellington, are two little capitals of importance. Both are busy local centres of about 3,000 population.

Coming up from Lakes Entrance by steamer, after some hours' journey across the waters of Lake Victoria, one runs down a narrow seven-mile strait to Lake Wellington, and out of this by the Latrobe River into the Thompson, and so to the town of Sale. It is a most interesting journey, with smooth water and scenic breaks to make it more enjoyable. Lake Wellington covers about 120 square miles: Lake Victoria, much narrower and longer, about 90. The distance

between Lakes Entrance and Sale is over 80 miles. At Paynesville, fifty miles from Sale, Lake Victoria junctions with Lake King. From here boats go down to Bairnsdale. The Victorian Railways and Tourist Department issues circular tickets, which will take the tourist by rail to Bairnsdale, thence by boat to Lakes Entrance, by second boat to Sale, and back to Melbourne—or the other way about. The Lake boats are comfortably appointed, and supply meals and light refreshments to passengers. They leave Lakes Entrance for Bairnsdale and Sale respectively at eight o'clock in the morning and reach their respective destinations in time for travellers to catch the afternoon Gippsland express to Melbourne.

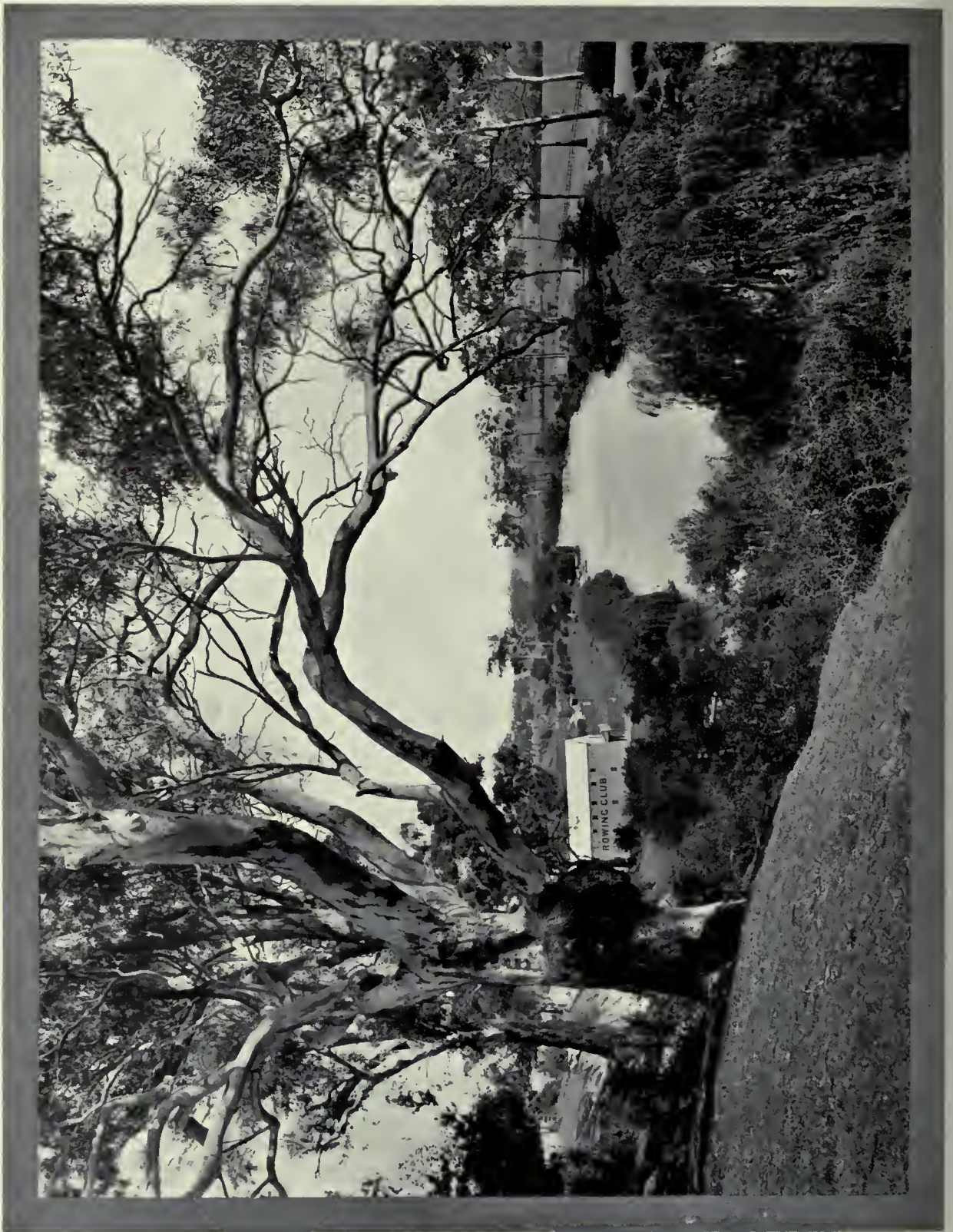
The Gippsland Lakes' region contains some of the most attractive resorts in a State particularly blessed with pleasant places. In eight miles from Lakes Entrance, Lake Tyers may be reached, with its Aboriginal Mission Station, where remnants of Victorian tribes are closing the last chapter in neolithic history.

Beyond Lake Tyers lie Orbost and Marlo, on the beautiful Snowy River, and the remote splendors of Eastern Gippsland.

Gippsland Lakes are Thule to adventurers in motor boats, who will find many a land-locked haven with fresh water and level ground for their



Lake Tyers



Mitchell River, Bairnsdale.

camp, game, fish and the joys of wide and narrow waterways. Into these lakes are emptied the Tambo, the Nicholson, the Mitchell, the Avon, and the Latrobe. Just across their seaward margins runs the Ninety-Mile Beach, and all the swamps, backwaters and lagoons that hide between Lakes Entrance and Port Albert.

Maffra (1915) £1/7/6 a ton. Ten tons of beet are required to produce a ton of sugar. Maffra mill is now fitted with the latest machinery, and a 1,250 h.p. boiler plant for the expression of sugar from beetroot. The grower usually combines general farming with the cultivation of beet; he has leaves and pulp as a by-product for stock.



A Backwater of the Mitchell.

From Traralgon to Bairnsdale by road—one sees that Gippsland is continuously good. Midway is Maffra, where the Victorian Government has endeavoured to put the beet-sugar industry upon a profitable basis.

Maffra climate and soil, are said to be particularly favorable to the growth of sugar beet. The road from Traralgon takes largely over granitic ridges covered with ironbark—good sheep lands. Maffra is more agricultural, rich and swampy in places. Between Maffra and Boisdale and around the latter township most of the beet farms are located. The average crop is 15 tons to the acre; price paid at the mill in

Beet fields about Boisdale alternate with lucerne fields and maize. There is a cheese factory here, and the district has a fine butter average.

The soils are rich as far as Stratford. Beyond that, on to Bairnsdale, until one comes to the celebrated Lindenow flats, they do not strike one as particularly good for agriculture, though scattered settlers state that they possess excellent growing properties.

It is appropriate that the village of Stratford should be on the Avon, and that its principal inn should be proudly called The Shakespeare Hotel.

Bairnsdale, 171 miles from Melbourne, nestles comfortably in an elbow of the beautiful Mitchell

River. Like Sale, it has a vigorous business life, and makes a depot of supply for the settlements as far away as Cann River and Mallacoota. Bairnsdale is to East Gippsland what Mecca might be to the pious Arabian. Fat river lands, growing maize, silky oaks and willows, give it beauty and tilth. Its foundry and School of Mines, banks, stores, canning factory, wharves and railway station invest it to the bushmen out of Croajingalong with an air of metropolitan activity. A pilgrimage to "Barns-dale" is not a thing to be lightly undertaken, and a good many bushmen and bushwomen from the border lands rarely get farther than Orbost, which should be connected to Melbourne by rail by the time this volume is issued—converted into a metropolis further out!

The climate of Central and Eastern Gippsland is benign. Cool, invigorating winters and summers, never too severe, produce cherry-cheeked girls and handsome lads. Prosperity is universal. Good dwellings, flower-gardens, clean broad avenues and fine public buildings in the towns, and comfortable well-appointed farm-houses, testify to this.

Settlement in Gippsland is yet young. There are still thousands of good acres to carry increasing population and thousands of acres from which yields will be vastly increased. Not for agriculture alone is it famous. Walhalla, on the overlooking hills, has weighted the green gown of Gippsland with golden bullion. The celebrated Long Tunnel mine has yielded, since 1868, roughly £2,700,000 worth of gold, of which more than a million and a quarter have been distributed in dividends to shareholders. The adjoining Long Tunnel Extended has been an underground treasure-chest from which a million and a half have been drawn.

Owing, mayhap, to engineering difficulties, a large section of interesting country, known as East Gippsland, between the Tambo River and the border of New South Wales, remains unsettled. There are yet within this belt three million acres of unalienated Crown lands, covered for the most part with hardwood forests, which in themselves are a valuable asset to the State.

Leaving Twofold Bay, in New South Wales, travelling towards Victoria by a rough bush road one enters a region of tall trees and sparse settlement. The straight border line surveyed by Black and Allan in 1870-2, beginning at Cape Howe, crosses constantly over hills and gullies, which become mountains and ravines as the line approaches nearer to the point where it meets the Murray River.

Among all the Australian bush lands there is none with greater appeal to the eye and the imagination than that which rolls upward from the Victorian coast into the heart of the Australian Alps.

From the summit of the trigonometrical cairn on Howe Hill, you may look down and see the actual corner of a Continent. Facing seaward, you behold the coastline on your left hand, making off towards Thursday Island, and falling away on your right towards the Leeuwin.

You may stand at this south-eastern angle of Australia with the tall pillar of Gabo Island lighthouse right under you, and overlook the State of New South Wales on one side and the State of Victoria on the other.

Inland, an impressive panorama faces you. Over a foreground of fresh and saltwater lakes, forested hills rising into blue forested mountains make the picture as far as your vision carries.

Below you, like mirrors in the sun, glitter the ever-changing, ever-beautiful Mallacoota Lakes, with their wooded shores and islets.

Southward are Red River, the Wingen, Tamboon, all the lone, mysterious, coastal creeks and inlets that follow one another from Bastion Rock to the Snowy bar.

Sometimes in winter a fishing cutter feels a cautious way over their uncertain bars, and a camp fire reddens the foreshore for a few nights. Sometimes a bushman rides down from Mallacoota to Cape Everard. Beyond the visits of these passing strangers, this first hundred miles of Victorian shore faces the Southern Ocean in greater quietude than when Captain Cook sighted it. The coo-ees of dusky huntsmen are no longer heard in the bloodwoods, or their shouts over its heathy plains. It is a region filled with the voices of wind and wave, the making and turning of ocean tides, cries of whimbrel on sandy flats, howling of wild dogs in the scrub. Wreckage of unknown ships strews its beaches, and spindrift sweeps over lone white sand-dunes; restless waves leave their tributes of red coral, kelp, and shell along untrodden shores.

Westward, Genoa Peak and the Drummer Mountain stand out in near prominence. Once a week the mail coach leaves Genoa for Orbost, a link that binds a handful of far-distant Victorian settlers to their seat of government in Melbourne. Their few frontier farms are on good black river flats, but the difficulties of transport hamper their progress. Apart from these fertile patches, Eastern Gippsland is heavily timbered. When cleared it will grow excellent grass.

With a rainfall of 40.59 inches, the swamps and the coastal plains and occasional jungles of tree-fern and vine, can

all be made productive. Along the coach track between Genoa and the Cann River one sees thousands of yet unoccupied acres similar to and equally as good as the best Tasmanian apple country. Outside its forest reserves Eastern Gippsland will yet become a money-getter for the State. Apart from any undiscovered minerals it holds, it is essentially a timber and fruit and dairy district of the future.

The border line touches the edge of Nangatta, a rich pocket amid granitic hills, and runs west by north over the coast range at Bondi and across the Delegate and Snowy Rivers, till it reaches the Murray just beyond the Main Divide. For eighty miles or so the Murray, which now becomes the border line, runs almost due north; then it turns between Towong and Tintaldra on its long western journey towards the Southern Ocean.

Midway between The Pilot and Towong, the rich flats of the Upper Murray begin. Corryong and Cudgewa are comfortably tucked away in this corner, which lies outside the boundaries of Gippsland proper.

Returning to Delegate River, the border track takes in from the open plains of Monaro to hilly and forested spaces which have yet attracted little permanent settlement. About Bendock and Bonang a considerable quantity of gold has been recovered. The country right through from Wangrabelle and Yambulla to the coast is auriferous and no doubt contains some payable deposits of mineral. There is a prospect of an alluvial field about the Muller River. The Spotted Dog mine at Mallacoota Inlet is said to have yielded about £20,000 worth of reef gold, while it was working. Gold has been found about Mount Carlyle, the Wallagurah, Genoa Peak, Club Terrace, and several other places throughout Eastern Victoria.

From Bonang to Orbost, on the Snowy River, the chance wayfarer will find habitations few and far between. At Goonegerah, Jensen's and Sardine Creek, he may obtain a meal, but the remainder of his journey will be through dense hardwood forests devoid of settlement or clearings.

But there will be compensations of commanding mountain views, running creeks, green jungles of similar quality to Combenbar, Cann, and Murrangower. Along the headwaters of the beautiful Brodrigg River, which joins the Snowy near Marlo, there will be places where clearest waters cascade under canopies of foliage sub-tropical in character. The summit of Mount Buck or Mount Ellery will reveal a prospect of wonderful mountains, rolling over Dargo and Tambo and Croajingalong.



The Citadel, Buchan.

The Snowy River has brought down to the flats of Orbost a detritus won from the limestones, basalts and granites through which it cuts its way. Between Mount Kosciusko and the sea it gathers a fine volume of clear water from ranges in New South Wales and Victoria.

These Orbost flats are exceptionally fertile. Owing to remoteness, maize has, until recently, been their principal product. Of this they yield enormous crops, sometimes 120 bushels to the acre, but with the extension of the railway from Bairnsdale they will no doubt be turned to still more profitable account.

Between Orbost and Marlo the Snowy is navigable for small craft, and visitors with any sense of beauty will be gratified by views of river banks bordered by ornamental native trees, ferns, willows, and flowering creepers, with glimpses of green maize fields or fields glowing with herbage beyond them. Marlo—a pleasant tourist place—faces the Snowy bar at the end of the Ninety-Mile Beach. The Buchan Caves, only a few miles from Orbost as the crow flies, are usually reached from Bairnsdale through the village of Bruthen. The railway will soon traverse this green pocket at the foot of half-cleared hills—one of many such places along the creeks and rivers of this well-watered corner of the State.

The flats of Bruthen yield tremendous crops of maize. There is illimitable scope for the establishment of orchards through these districts. Stone fruit, especially peaches and plums and apricots, should be most successfully grown.

The remaining 32 miles to the Caves run through monotonous forests of stringybark and mountain ash. Occasional teams come in from these back-blocks laden with wattle-bark and wool, and go back into the mountains with stores and supplies.

The view from the last summit over Buchan is some repayment for a dull drive through the bush. The Buchan River, a tributary of the Snowy, has cut the hills and sliced their sides in ancient chafings for the sea. . . . It winds its way far below, through green flats and over sandy shoals.

The hillsides opposite are dotted with trees that seem like the trees carved by Swiss toymakers for the delight of children. Behind them the mountains are tossed and piled. Their higher peaks rise triumphantly out of this confusion into calm blue skies. The limestone in this region seems to be honeycombed with caves for miles. Some of the underworld which has been made accessible to visitors is exceedingly beautiful. The ventilation is much better than one usually finds in these underground places, and the passages and byways of earth smoother and drier-going. Shawls, mysteries, chandeliers, alabaster pillars, marble statues and images follow one another, as cavern after cavern is lifted out of Cimmerian night by the magnesium lamps of the guides.

It gives one a curious sensation of unreality, this descent through a hole in the hillside into a region of glamor and mystery, beautiful but weird. The magnesium light is obscured for a second and the timid stranger enjoys the sensation of being immersed in soundless night. He is enveloped in a blackness more intense than the night of a coal-pit. The ribbon splutters again and this aching darkness is, by its magic, transformed into a glittering wonderland filled with beautiful and fantastic forms. In shining grottoes, whose roofs are supported by semi-transparent columns, cisterns of placid water, filtered into perfect clearness through the purifying limestone, wait like baths prepared for white nymphs of the underworld.

From chamber to chamber in this enchanted Palace of Night the bewildered stranger is led through lofty vestibules and mysterious corridors. He enters banquet-halls of giants, boudoirs of goddesses, workshops of mountain gnomes. In what might be the frozen feast-room of a Viking, there is a splendid Christmas tree, laden with jewelled gifts. In another place "Pompey's

pillar" stands to mark the slow achievement of those underground sculptors who have fashioned strange forms with lime and water in the studios of night. The Victoria Cave, containing a robed image, bearing strange resemblance to the late Queen, is a feature in this gallery of subterranean marvels.

Beyond those caves which have been made accessible to visitors, others of greater splendor are being found. The Victorian Government is spending a reasonable revenue in improving and making more accessible one of Australia's greatest nature attractions.

After a couple of hours spent in this fantastic underworld at Buchan, one emerges to hear the river singing to the hills, to behold with a sense somewhat of relief the normal world of sunlight and shadow. Here tree-tops redden with tender leaves of springtime, granite peaks watch like seneschals over green bastions, and blue vistas of forest-covered mountain, unbroken yet by any clearing, proclaim the vastness of this unsettled Australia.

Beyond that picturesque belt of clearing which makes all the civilization of Buchan, roll eternal spires and battlements of the Australian Alps. They sweep northward—Australia's greatest mountain range—towards the birthplace of her greatest river, the Murray. They contain many fertile pockets, many lovely valleys, many grassy flats and rolling slopes which will some day be converted to settlement.

Three-quarters of an acre of such land at Bruthen is reputed to have yielded £200 worth of edible beans in a year.

From Bruthen to Omeo a winding mountain road follows the course of Tambo River, up and ever upward into a very sea of mountains. The bed of the river is sandy and broken by water-worn boulders of granite. The deep, bass voice of Tambo recites an unending monologue of darkened forest and deep ravine; of icy winters when its channel is filled with roaring snow-waters, escaping from the Arctic grip of their parent hills; of summers cooled by mountain airs, sweet with perfumes of flowering acacias, dog-wood, and musk. Following the Tambo upward towards its source, the road takes many windings—through narrow cuttings along the hillsides, over white bridges, round steep elbows and across razorback ridges. There are views of distant mountains seen through gaps which the river has worn out by endless action; there are red basaltic hillsides, suitable for cultivation. An occasional settler has established his home here and lives as comfortably and hopefully as our remote settlers do. At Tambo Crossing the traveller finds some pretty patches of wheat and maize, and

he will come upon one or two wayside inns within a hundred miles. Grapes and peaches indicate that this rugged backbone of our continent is still hospitable, still fertile, still full of promise for future production.

He draws near to Tongio and beholds a few mountain farms located among colored hills, on whose steep sides scattered trees are growing. A sandy river runs over flats where sheep are grazing. Scarlet lories, with wings of deepest azure, fly up into drooping gum-trees, and, around the farmhouses, Australian black wattles and European oaks are planted.

over which the writer pioneered a cautious way in December of 1912 with a motor car. Superb are the views along that hazardous track—mountain is piled upon mountain, and, through gorges of wonder, the Mitta chants his defiant songs of Youth. These streams abound in English trout. If a man would have cool summer sport and breathe an atmosphere that is all oxygen, if he would live the healthful life that brings soul-satisfying days and nights of infinite restfulness, let him come out into these indescribable Alps. The very difficulties he encounters will spice his travels like a well-seasoned dish.



In the Buchan Caves.

The road leaves the Tambo near Cassilis, and crossing over a steep and difficult mountain range, strikes the Mitta Mitta River by Omeo. The waters of the Tambo flow into Gippsland lakes, but those of the Mitta Mitta join the Murray near Wodonga, and do not reach their bourne in Lake Alexandrina for seventeen hundred miles. The range which makes the divide between them runs northward into New South Wales. Its highest peak is Mount Kosciusko, the tallest mountain in Australia. It is a Land of Big Things.

Omeo produces gold and grain. From Omeo to Glen Wills there is a narrow mountain road

Here in this rare mountain air, so buoyant, so exhilarating, everyday worries of life are seen through the big end of a telescope. They become miniature and remote. Here again is another Australia, wherein one sees snow-covered trees in the middle of December. Communication with the outside world practically ceases in winter.

Mount Wills is 5,700 feet high. Above the snow-level its summit is bare. Beyond it lie the mysterious Bogong Plains—a wind-swept region given over to the genii of the hills. The Bogong, Feathertop, Mount Wills loom like nearby objects from the summits of Mount Buffalo, which is to the Victorian Tourist Department what Mount



Mount Wills in Winter.

Kosciusko is to that of New South Wales—a sanctuary of high places.

The village of Glen Wills is perched in picturesque disarray along a tumbled mountain side. It depends on gold-mining for its prosperity. In long winter nights its population pores over printed pages—it is a well-read, patriotic little community. Between Glen Wills and Lightning Creek there are some miles of mountain road that will fill the hearts of those who travel them with mingled feelings of anxiety and delight. At Christmas Creek a view suddenly unfolds before them which, if they possess the faculty of wonder, will make an ineffaceable memory.

On broad canvases of Australian Nature pictures magnificent and tremendous have been painted, but this picture is among those hung "on the line." From an angle in the track one beholds a titanic sea, whose wave-crests are mountain-tops, whose hollows are mighty gorges. The mountain slopes steeply down to the shore of this blue expanse. A strip of spectral trees slain by the snows comes first; then a forest of tall, straight woolly-butt, and then the enthralling panorama of a thousand cerulean hills, billowing away as far as the eye carries into distance. The last of the major peaks upon the skyline is Kosciusko. Drifting clouds make moving patches of shadow over forests that have never known the axe. In harmonious quiet—a flawless world dreams beneath a flawless heaven. Its keynote is—immensity.

A queenly radiance, Amazonian yet virgin, englamors it. As I beheld it, the clear air rendered actinic by recent rain, with just enough of cloud in light fleecy patches to break the bald beauty of the sunlight, I thought it was the finest mountain view in Australia—the most impressive panorama I had had the good fortune to enjoy.

Although we were travelling an anxious road, taking our motor car over a track which had never been crossed by a petrol-engine before, or probably since; although we had lost two hours of a short afternoon clearing a fallen tree from our path, and did not know what further obstacles waited for us in the long downhill that lay between Glen Wills and the Mitta—we lingered over that scene.

My companion, Dyer, said it brought him as near to Heaven as he could ever expect to get. But I do not think St. Peter will be too severe on a motor-man who navigated his car without serious mishap from Omeo to Tallangatta, by an unknown mountain track, too narrow to let two vehicles pass anywhere in six or seven miles.

Our hands were blistered from chopping at the dead woolly-butt which we had encountered in a cutting where there was no going round. The tree was fully eighteen inches in diameter. It was necessary to hack through it twice with a light axe of indifferent edge.

In sharp angles of steep grades our half-road overhung precipices of appalling steepness. The tree-ferns in gorges below them looked like green

mushrooms, the creeks like glittering aluminium bands. It was a world of wonder and beauty—and apprehension.

That half-track was overgrown in some places with wild hop-bush which threatened our eyes. Snows of the previous winter had rutted the surface on ticklish grades, where straddling ruts meant putting our outside wheels within a few inches of the edge. At slowest speed we were

any thousand feet or so of sheer drop. One slight mis-movement of the driver's hand would be enough.

The Genii heard our prayer. We braked unthinkable grades, we rounded incredible curves, and having glided like a black spider down seventeen miles of precarious web, we bumped into a camp of astonished road-menders at the bottom. They told us the road over the mountain had been



Winter in the Victorian Alps.

making great risks. We consoled ourselves with philosophy based on the axiom that men die only once. While agreeing in subdued tones that every individual lives only under sentence of death, we decided that motoring into the abyss must be a decidedly unpleasant method of putting the sentence into execution.

So Dyer called up all his nerve and skill, and I made an invocation to the genii of the Alps that no boulder in our path would cause the front wheels to buck that narrow margin between them and the outer edge, that no slippery corner would cause the back wheels to skid; that no overhanging branch would strike Dyer's eye rounding one of those impossible corners; that no mischance or error of judgment would precipitate the outfit over

pronounced unsafe for vehicular traffic. We had come over it at our own risk. We replied that we were thankful the risk lay behind us.

After that came the crossing of Lightning Creek—a brawling tributary of the Mitta Mitta.

I can still see Dyer (he was a little man) grimly chewing a pepsin tabloid as he crouched behind his steering-wheel, shoulders hunched and eyes glittering like points of well-burnished rapiers, as he precipitated his little American car at that creek. The bank was steep, and he did not know the depth of water or the character of its foundation. The latter proved to be of fairly-large boulders. The bumping was not good for a cheap American car, but we won the opposite bank at sundown and found our cheerful little



Carting Timber from a Bush Saw-Mill.

bush inn and its compensations of food and rest after the most strenuous day in our exploration of Victoria.

That night we fell asleep to a lullaby of running water. The little hostel was located at the junction of two snow-fed streams wherein speckled European trout were numerous.

Opposite his front door was the tunnel of a hillside mine where the innkeeper dug for gold in his spare time. It was his own mine, and he worked it all by himself, buoyed by the eternal hope of fortune which burns in every gold-miner's heart. Adjoining hills have yielded golden tribute from year to year, and why not his? Nearby one saw the remains of the Mammoth mine's flume—once 660 feet long and 120 feet high—a proof that golden tribute had also been paid to the hills. The innkeeper's tunnel was already 150 feet in length. Who knows what another stroke of the pick may bring to light in auriferous Australia?

We saw much evidence of successful mining in our journey down the beautiful Mitta valley.

From Lightning Creek to Tallangatta is one of the loveliest motor runs in Australia, albeit rough travelling. Road and river keep close

company all the way—a sinuous road that dips over comely shoulders of hills and runs out as the river broadens, upon levels of gracious pasture. Sunlight and the sparkle of water, cool and shady reaches where floating lilies bloom and blue rushes sway, black farm lands fresh turned by the plough, grazing lands green with grass and clover; birdsong and fragrance of wild flowers—so this singing stream takes the long road to Spencer's Gulf.

Splendid are the white rivers of our Victoria. Splendid is the Snowy, bringing to the Pacific tide strengthened and sweetened by outpouring from a thousand hills; glorious is the Goulburn feeding the irrigation farms with its bounteous flood; majestic is the Mitchell, sweeping through fertile flats by Bairnsdale; the lazy Loddon has her charm; the Yarra its history.

Under banks of the Glenelg are deep mysterious reflections; the yellow waters of the Ovens tell of fine gold won by busy dredges; the Wimmera sings his epic of wheat and wool, but the Mitta Mitta is a lyric poet whose lays, like *Lycidas* or *Endymion*, leave a taste of pastoral sweetness. His rippling natal songs are freighted with couplets from the Alps, his adolescent metrical

re the metres of the cavaliers; but, grown to vigorous riverhood, he sings with the splendor of Milton and the art of Keats.

The poetry of our rivers has never been saddened by the note of battle. It is a poetry of peace and peaceful human endeavour, filled with voices of undefiled Nature, and echoes of pioneer effort. By the singing rivers of Victoria there

Tallangatta is 212 miles from Melbourne, and enjoys a daily train service. Coaches go to and from Corryong, on the Upper Murray, and down the Mitta Valley. Some day Victoria may construct a loop line from Tallangatta to Bright via the Mitta Valley and Omeo, and thus make generally accessible the most picturesque mountain district in Australia.



A Selector's Hut in the Gippsland Forest.

re homestead sites for those who would forget the reddened rivers of Europe and all their dreadful stories of destruction and strife.

Willows and alders grow by the village of Mitta. The traveller makes good going over fertile flats to the railway township of Tallangatta, terminus of a branch-line which meets the Sydney-Melbourne railway at Wodonga.

This line will, no doubt, be pushed forward until it meets the Murray at Tintaldra and Wodong, where there is much rich agricultural land, well-watered, blessed by abundant rains, and rendered pleasantly habitable by the mildest of mountain climates. Cool winters and balmy summers make blessed the regions of Upper Murray, where settlement thrives and industry increases.

By going out to Corryong through Cudgewa, one may reach the Yarrangobilly Caves and Mount Kosciusko, and return through the lovely valley of the Upper Murray—which, after construction of the proposed Cumberoona dam—will be rendered lovelier still by irrigation.

Over all this remote east of Victoria still hangs a glamor of the unknown. Swift feet of settlement, lured first by glint of early gold, have gone rapidly westward and left the East yet largely unoccupied and difficult of access.

But there is a future for eastern Victoria which the writer fondly believes will be one of close, prosperous settlement. Millions of feet of commercial hardwoods make a valuable asset in its forest reserves and maybe a million acres of pro-

ductive lands await treatment. What wealth of precious and useful metal remains to be won from highly-mineralized regions of vast area time will determine. This very chapter is being scribed upon the edge of an East Gippsland forest. Between the author's camp and Snowy River spread a hundred lone miles of coastland without a single homestead, exclusive of Cape Everard lighthouse. Northward to the border line the country is still empty. But it will not always remain so. East Gippsland will yield marine wealth of its shores and estuaries, wealth of its forests, wealth of its soils, as other less-favored parts of the Commonwealth are already doing. Good roads are a first essential for opening this country, which will be best settled in small areas of, say, fifty acres.

The experience of settlement in East Gippsland is that 160 to 320 acre selections in heavily-timbered country are beyond the strength of the average settler. Forest growth is so rapid that family effort can only effectually clear a small area at a time. Prolific soils and heavy rainfall ensure a constant crop of scrub and undergrowth until the land is permanently cleared. For all fruits

of the temperate zones, East Gippsland is ideal. Pigs, dairy cattle, potatoes, agricultural produce, must ultimately come from a land where maize, lucerne and paspalum already flourish.

Out of 4,920 square miles of Crown lands in East Gippsland there will be some unproductive acres; but, with a rainfall ranging from 40-45 inches at Mallacoota to 32-40 at Orbost, the poorer soils are brought almost to the standard of richer land in less-favored districts.

Transport and scientific treatments are necessary. Local experience and local conditions will make settlement profitable. Without ports, without railways and practically without roads, the proved possession of gold, silver, copper, lead, tin, iron, molybdenum and manganese alone will not insure the progress of this virgin area of over three million acres. Nor will its forests of grey box, bloodwood and silver-topped iron-bark find markets. Nor will it produce the wool and butter that it could; nor its coast yield marine wealth yet unexploited; nor its sunny slopes be covered with orchards nor its volcanic and alluvial patches be universally converted into farms.



“Good roads are a first essential”



Mount Feathertop and Ovens River

THE VICTORIAN ALPS.

BETWEEN Tallangatta and Yackandandah is a fine strip of vineyard, agricultural and pastoral land. Sluice, dredge, and shaft also tell of gold-mining enterprise. Brown hilly country, breaking into grassy flats, where willows and drooping gums give shade for sheep, stooks of wheat in cleared paddocks, frequent creeks—are all indications that North-Eastern Victoria is a contributor to the general wealth of the nation. Kiewa lies midway between these towns—a delightful hamlet on a pretty little river. A combined hotel and grocery supplies stout farmers with beverages and breakfast foods of well-advertised brands, while their horses wait patiently under the acacias, whisking away summer flies with busy tails.

Yackandandah, despite its peculiar aboriginal name, is a progressive inland town. The stranger, judging it by the number of its hotels, might imagine its population to be of poetical Persian temperament. They are not more bibulous than our singularly-sober population in general, but as the centre of a mining district, Yackandandah provides accommodation for a shifting community.

Hydraulic sluicing has helped to increase the

prosperity of this exceedingly healthy township. The pumping machinery is installed on barges, which are floated from point to point.

Between here and the ancient Victorian town of Beechworth, the clear dry airs of nearly two thousand feet elevation edge the stranger's appetite. One remembers the run across from Yackandandah before breakfast, through country viewed too early in the morning to carry any special appeal; the little motor mishap that made breakfast still later, and finally the compensation of a solid Australian meal in an old-fashioned Australian hotel.

One likes Beechworth, not for the "pleasant walks to the Cemetery grounds, the Hospital for Insane and Mount Misery," as enumerated on the printed cards at our old-fashioned hotel, but for avenues planted with mulberries and spreading shade-trees, for old churches and trim gardens and the balmiest airs that ever brought gladness to one's soul. There is no loud clamor of industry in this town, which may be reached by train twice a day from busy Melbourne. But wide streets and handsome public gardens, substantial stores, Council chambers,



Eurobin Valley, from Mount Bufalo.

museum, hotels and residences show that there is no civic poverty either.

As a centre for many tourist attractions, which can be reached by good roads, Beechworth is well and justly advertised.

From Mount Stanley, 3,450 feet, the visitor's eye commands the Alps, Strathbogie and Dividing ranges, and the valleys of the Ovens, Snowy, King, and Mitta Mitta rivers.

From Beechworth to Wangaratta downward slopes take us into level wheat and sheep lands, and a warm dry climate like that of Southern Riverina. Among many prosperous inland towns Wangaratta, with 5,000 population, wears an air of confidence. It is a cathedral city, and the proclaimed capital of the North-East. Wheat and wool its surrounding districts produce in abundance. Fruit, tobacco, and potatoes are profitable local products. When Australia becomes a manufacturing country, the growth of little cities like Wangaratta will be greater than their oldest or youngest inhabitants have ever dreamed.

Wangaratta, with its two bi-weekly newspapers, its foundry, brewery, creamery, butter, bacon, soap and brickmaking industries already established, with raw products at hand, could be and doubtless will be a capital of importance.

The Government has established an Agricultural High School here.

At night the well-lit streets of this little inland city present moving pictures of sober citizens, country visitors, boys in khaki uniforms, girls in white dresses, all that passing phase and character of young colonial life which our artists and writers should endeavour to retain—because the spirit of Change heralded by the horns of Invention is rapidly modernizing the Bush. . . .

By good road from Wangaratta, one enters the Ovens Valley—a land of gold and glamor with historical memories of old "rushes," rapid "finds," and frequent fortunes. The sluicing dredge robs the river of clearness until one gets above the radius of its operations; but towards Porepunkah and Bright the Ovens is a clear and beautiful stream.

Road, river, and railway run down the valley in parallel lines. They wind through a land of tall poplars, trim farms, hop gardens, and green paddocks with hedges of roses.

As the traveller nears the happy village of Myrtleford, he beholds on the south-east a bald, granite hump rising precipitously from the edges of the valley. This is the famous Mount Buffalo, which calls the tourist with equal attraction summer and winter.

That first sight in the distance is somewhat disappointing—Buffalo in perspective is neither tre-

mendous nor impressive; it is only when one gets under the shadow of the mountain or begins to ascend its granite sides that its mighty bulk is realized.

The ascent practically begins at the little railway township of Porepunkah, on the banks of the Ovens. The Government has constructed a solid road up the mountain, which is now open to motor cars under reasonable restrictions. Owing to the precipitous nature of this mountain road the car was interdicted at first, for fear that the bones of bush horses at least would whiten



North Wall of Buffalo Gorge.

under the cliffs. The road is narrow but well graded. As it mounts towards the Government Hospice it opens up preliminary scenery of great beauty. After one gets accustomed to gazing down into abysses that seem miles in depth, the excitement of gradual ascent is less poignant.

From a distance the north-eastern face of the mountain bears a peculiar white scar, as if an avalanche had swept down it and left a glittering cleft on its bare granite cheek. Coming nearer, it is seen that the white scar is really a stream of water which, reaching the brink of that precipice, up in the clouds, takes a preliminary header of 750 feet into the gorge.



The Chalet on Mount Buffalo

Though Buffalo is, in the distance, like most great objects, somewhat of a disappointment, as the visitor mounts its bastioned flank it becomes more and more impressive. Ravines and precipices gather beneath him on his upward climb; the level world sinks lower and lower; the great upper world of mountain and cloud unfolds like a mysterious scroll.

Again the air is heavenly and the sunlight divine; one's blood tingles in one's veins; life's difficulties seem easy of conquest, a curious sense of courage and well-being lifts one's spirits into the skies—towards which Mr. Catani's narrow road is carefully winding.

Climbing out of Eurobin Valley this road offers a halting-place at a junction of streams. Continuous shouting, murmuring and argument goes on between these gossiping rivulets at their meeting place. One of them is that white torrent which marks the face of the mountain from afar—still ruffled and tumbled from its high dive over Buffalo. The little mountain river noisily plunges under a bridge and hurries away to join the Ovens in its lovely valley below.

As our road goes up we glimpse the valleys of Eurobin, Buckland and Ovens at intervals. At a height of 3,600 feet, it swings round a mighty precipice and a lordly panorama brings us our first realization of what natural treasures this hunch-backed giant has locked in his rocky domains.

Here is no pastoral painted in conventional lines and curves, but bold vigorous expanses of primal nature with little squares of cultivation let in to make proper contrast between occupied valley and unreclaimed mountain.

Here is another of Australia's splendid distances, ruffled by the hand of Time into wonderful contours and amazing curves.

On the southern wall of Buffalo, close to the Gorge, is a comfortable Government chalet, with accommodation for a hundred guests. There is no more delightful holiday place in Australia, summer or winter. Good and sympathetic management and a reasonable tariff have increased its popularity. Within a minute's walk guests may weary themselves with mountain pictures. The Gorge is a masterpiece in this gallery of the gods. You stand on the edge of a sheer cliff, which is the southern wall of Mount Buffalo—and look down, if you have the nerve, into an amphitheatre of infinite vastness, where constant changes of scene lend endless interest to the drama of Nature. Out towards the skyline is the dress circle of this mighty theatre—Bogong and Kosciusko, snow-capped in winter, but bottomless blue in summer-time. There is nothing like the blueness of these glorious Australian ranges, so deep, so calm, so exultant.

The valley below you—so far below that it seems to belong to another world—is laid out in



Eurobin Creek in Buffalo Gorge

red and green squares of cultivation. From the granite seats of the gods you can see shadows of clouds travelling over cleared fields whose still beauty, miles beneath you, glows with such distant mystery.

The road in the valley winds like a thread of golden silk on a robe of green and blue. The road down the mountain hangs like a silver cobweb between earth and heaven. Forest-covered spurs radiate into altitude from their foothills around the valley. You can follow their outlines until they are lost in far-off skies. They are part of our world's oldest mountain system, worn down to half their original height by the erosions of incalculable years. Buffalo was once 5,000 feet higher. On its granite base rested a superstructure which pierced the clouds of bygone winters, in aching aeons, ere Atlantis sank beneath the waters. In this age of men and machines, its sheer sides of time-worn rock are the wonder and admiration of summer maidens in Melbourne-made gowns and picture hats. The snows of winter whiten its wrinkled forehead for the pleasure of scientists and skaters—lured thither by the attractions of snow sports and a gaslit hotel! Its leaning towers and battlements are still assailed by cyclopean forces; weakened mayhap by everlasting assault but still strong enough to brave and turn aside ten thousand storms.

One sees where downfalling waters have grooved out a channel in the hillside—a gutter, yards wide, which drains the roof of Buffalo. Through it pours with sound eternal that torrent which seems like the white track of an avalanche down the mountain side when viewed from Ovens Valley. Looking down, one sees it smashed into a veil of spray arched by mimic rainbows.

Gaunt snow gums, moss-covered boulders, pulpit rocks, lovers' seats are part of the chalet's outdoor appointments. Inside are lounges, dining halls, hot and cold baths, the little conveniences which civilized Man finds essential to his happiness.

For his benefit and pleasure snow, wind, water and sun have done their work. From May to September the winter-guest skates, skis and toboggans; from October to April, the summer-guest engages in what exhilarating pleasures the season offers him. Not the least of these will be his inevitable excursions to the Horn; which is the commanding summit of the Buffalo Plateau, and readily accessible from the Chalet at the Gorge.

Here, 5,645 feet above the everyday world, he can enjoy the finest panoramic view on this continent. On a sublime pinnacle of rock, as a pilgrim from some sacred minaret, he looks out over Victoria and a part of New South Wales. Eighty-

six miles north-east stands Mount Kosciusko, 127 miles to the south and west Mount Macedon, both easily visible if the day is fine.

A mountain world lies at his feet. Grey snow grass—thick and springy—purple heather and buttercups adorn its slopes. Patches of snow gums, killed by over-rigorous winter, give the necessary touch of desolation to this singular land. He hears clear springs bubbling and the song of crystal creeks making immemorial music over their eternal boulders. Other round granite boulders, smooth as cannon balls, scattered around the landscape, show where creek and glacier did their work long before ape-men gibbered the rudiments of speech. Leviathan rocks 25,000 tons in weight are poised on axes of ancient granite. Grey moss beards limbs of trees, lichens cling to stained rocks. Where are now the poincianas of Port Darwin, the screw palms of the Gulf? Instead of florid jungles, Australia the Unlimited presents here sombre galleries between snow-clad hills, cyclopean chambers, gigantic archways, gargantuan plum-puddings, huge pebbles, cantilever rocks projecting 40 feet, underground cellars, cubes, squares, cannon balls, pinnacles and a debris befitting the older foundations of the world.

Instead of tepid lagoons lipped by pink and purple lilies, she gives us clear cataracts leaping into chasms 1,700 feet deep, and falling away to silver threads in a vertical perspective. Tropical stillness gives place in season to a stillness of snow. An Australian in fur-lined coat, on ice-skates, takes the place of the Australian in a white linen suit.

From the Horn a complete horizon of view takes in the Baw Baws, Bogong, a great part of Gippsland, and southern Riverina.

Sunset seen from this superb summit is a Wagnerian opera of light and color; but sunrise is a glory beyond all expression. There is a camping-place at the foot of the Horn where enthusiasts may spend the night and rise betimes to bathe their spiritual senses in the ineffable. Be well in body, be reasonably contented in mind, and behold the coming of Day over two Australian States. See its first beams redden the snowy cap of Kosciusko, and five minutes later purple the Wodonga plains. See this, and you will see Australia in one of her tremendous moods, and realize that this is the Land of Great Things. . . .

* * * *

Under Buffalo, a few miles down the Ovens Valley, is Bright, one of the prettiest villages in the Commonwealth. It is not altogether shade trees, running waters, and shadows of the hills that make the charm of this little township. It has a particular atmosphere of peace and good-

fellowship and easy-going contentment. In the cosy hotel where I bided with Dyer after ascending Mount Buffalo, with our American car, in defiance of regulations, one was struck by the unusual merit of the pictures—all Australian subjects—which adorned the walls. Enquiry revealed the fact that the landlord's daughter was an artist, possessing such genius for form and color as one might expect from the very quality of her native surroundings.

It hardly came as a surprise to learn that there was a true artist in Bright. Aesthetic gentleness of river and hill, infinite mood of Nature, quietude, and call, such influences in places like these must bring response in artistic expression. The future of Australia in art, music, and poetry is as certain as her future in power, wealth and industry.

Bright has some celebrity as a producer of gold. There were, at the end of 1914, several hopper dredges at work in the vicinity. These dredges were each recovering a good average of 19 to 25 ounces of fine gold per week. They employ ten or eleven hands to each plant, and, although greatly condemned as polluters of streams and destroyers of agricultural land on the banks of water-courses, they have proved a highly-profitable investment. The precious "dust" is washed out of the river silt by a simple hydraulic system and snared on a piece of ordinary coir matting. Once a week the alluvial gold, fine as flour, is washed out of the matting. The outlay on a dredge plant is not beyond the possibility of a small company, and dredge-mining is by no means the riskiest of Australian mineral investments. Where it can be proved that the dredge is not a destroyer of more valuable assets in the shape of agricultural lands, there should be nothing to prevent its extension.

Myrtleford is another delightful Victorian village, where shady elms throw grateful shade and a pleasant low-roofed inn invites the passing traveller to rest. Leaving Bright Road at Everton the latter may take a westerly track through Oxley to Benalla, crossing good level agricultural wheat and wool lands on the way.

Benalla is another important district centre. Near to Melbourne, on a main trunk line, it wears more of a metropolitan air than most country towns. There is a growing volume of business in all these embryonic cities of Victoria, and they are the pleasantest of places to live in. Where transport is established, prices of commodities are little more than Melbourne; living is low, and wages high. Ordinary workers, if they be frugal and secure permanent employment, are sure of being able to establish comfortable homes at least, and rear their families under healthy and con-

genial surroundings. Business openings continually present themselves, nor do these require the initial capital which is essential in more crowded centres.

One will look in vain for poverty in such places. Go down the main streets of these country towns, on a Friday or Saturday evening, and you will see a well-dressed, well-fed, happy-looking population. There are no mendicants, no gutter urchins, no pale work-worn faces, no rags,



At Bright

no personal appeals for help; none of those outward and visible indications of a "submerged tenth" which seem inseparable from centres of population in most countries. Go into the stores and you will find that credits are generally sound; go into the Savings Banks and learn that nearly every householder has an account!

What conditions in Europe will be like when this book goes forth on its mission, at the conclusion of the greatest war in human history, no man can safely prophesy. But this salient fact stands out, that during the continuation of that tremendous struggle, the prosperity of Australia suffered no decrease. Involved with the British Empire in conflict, she has been enabled to send her contributions of men and money to the Mother Country, while pursuing her ordinary

course of settlement and development. The stability of Australian securities has been amply demonstrated. In future we are less likely to hear that the British investor fights shy of Australian enterprises.

The financial soundness and prosperity of the Commonwealth are nowhere made more apparent than in an analysis of business conditions in our country towns. Little centres like Benalla are certain to grow as settlement is extended.

With an irrigation and wheat-growing district northward in the direction of the Murray, with rich agricultural lands southward towards the ranges; with vineyards and orchards and a market within easy distance, Benalla, Wangaratta, the townships of north-eastern Victoria generally are destined to thrive.

The traveller, continuing his journey through this section of the State, may turn off southward towards Mansfield, which is the present terminus of a branch railroad passing through Molesworth to join the main trunk line at Tallarook. This cross-road between Benalla and Mansfield gives a variety of forest and open, hill and river, not yet too closely settled to have lost its native charm. Small villages occur, with long intervals between them. Towards Mansfield, the way is through well-watered pastures and fertile fields suitable for cultivation.

The town of Mansfield stands over a thousand feet above sea level. Like all Victorian towns along the Great Range, or its many spurs, it enjoys an equable climate. The warmest summer days are followed by cool nights. Extremes of heat or cold lead to neither exhaustion nor discomfort. Natives of these districts are noticeable for their color and physical development.

The most artistic monument in Australia has been erected at Mansfield in honor of police troopers Kennedy, Scanlon, and Lonigan, slain by the blood-thirsty Kelly gang of bushrangers in the Wombat Ranges nearby, in 1880. The fine marble column on its granite base marks a phase of Australian life which belongs to an adventurous past. The tourist of to-day who gazes curiously at this obelisk in the main street of peaceful Mansfield, can hardly realize the conditions which made the lawless reign of the Kellys possible.

Some of the most rugged mountain regions of Victoria lie within a few miles of Mansfield. Among scenic attractions for which it is a centre are Mount Buller, nearly 6,000 feet, and the Tolmie Tableland. Forest and fern, hill, mountain and valley make interesting the roads which lead away to Jamieson, Alexandra, and Whitfield.

Many tributaries of the Goulburn River have their sources in this part of Victoria. These snow-fed streams drain a wide area of the eastern watershed.

Beyond Jamieson to the southward is Wood's Point. Between these villages, thirty-six miles of exquisite scenery will make amends for a slow coach journey.

The Continent does not present anywhere else such a continued stretch of lofty mountains. Matlock and Wood's Point are the highest towns in Victoria. If this country could be rendered more accessible, it possesses attractions which would make it probably the most popular resort, or series of resorts, in Australia.

Wood's Point is the small and lofty capital of an auriferous district, containing many little mining villages. Gold is constantly being won along this part of the great Dividing Range. Wood's Point can be reached from Healesville, Walhalla, and Warburton by bridle tracks through invariably picturesque country. But the adventurer will do well to take the summer season for his journey. Forty miles from Walhalla or Warburton may easily enough be negotiated during summer months, but when winter snows lie deep on Mount Buller, and the Baw-Baws have changed their robes of summer blue for white, it is quite another matter.

Between Mansfield and Alexandra is a very beautiful agricultural district, watered by tributaries of the Goulburn. If clear, perennial streams, the mildest of mountain climates, blue hills, grassy fields, green pastures, tall forests, vineyard slopes, orchard sites, fertility and tilth make for human contentment, then the people who have been fortunate enough to secure holdings in this favoured land should be able to enjoy a maximum of that blessed gift.

Throughout the Victorian hill country there is room yet for thousands of settlers to whom the possession of a large preliminary capital is by no means necessary. From Omco to Healesville one sees that Victoria has yet hardly approached the problem of closer settlement, while much of the eastern division can still be regarded as virgin. Between Bairnsdale and Harrierville, following the course of the Mitchell River, lies another hinterland in which a vigorous population will some day find establishment and prosperity.

Alexandra is one of those pleasant Victorian townships which visitors are loath to leave. Located in a hollow of the hills, with broad tree-planted avenues, trim gardens and the abundant growths of rich soils favored by temperate climate and copious rainfall, it sparkles like a goblet filled with some rare vintage. If, in sooth, a man would drink the true wine of life, let him



Walhalla: a Victorian Mining Township



On the Acheron River

rise, as Dyer and I, "ere Dawn's right hand is in the sky," and glide out of the sleeping town of Mansfield, before a single spiral of smoke has begun to curl from a cottage chimney.

Let him be well along a comparatively good road before the rim of a golden sun shows above the most easterly hillside. Let him pull up his car on the next summit and watch that golden disc slowly mounting into a sky glorified by a chromatic arrangement of heavenly colors. He sees the earth marching forth with banners of rose and emerald, to greet the Conqueror.

He listens to orisons the bush birds are pouring to the day, canticles of running waters, soft hymns of trees, the harmony of Morning breaking over a land that has never heard a discordant shout of war.

His heart-beats are tuned to this joyous excitement of Nature; his pulses respond to her gracious exhilaration. As his car sweeps downward into the next hollow and rattles over a rustic bridge where a passing whiff of mint and briar-rose greets him, reminiscent of God knows what forgotten dreams, he feels that the morning prayers of childhood are, after all, among life's most beautiful things.

If readers find in this volume descriptive repetition, let it be forgiven by the fact that Australia is filled with such a plenitude of delightful places.

Any writer attempting to deal at length with its natural attractions must claim such an indulgence.

If that road from Mansfield to Alexandra has left a special memory of morning sweeping over a land glorified by Nature, one may be sure that every Australian carries in mind similar memories—which are not the lesser gifts in his heritage.

As this is being scribed armed Australians, in the shadows of the Pyramids, will vision, across desert sands where slaves of departed Pharaohs labored, beyond the date palms of historic Nile, roads that wind around Australian hillsides as pleasantly as the road from Mansfield to Yea. Australians, by their camp-fires in African jungles, will hear in fancy magpies carolling by creeks such as those that glisten under canopies of tree-fern from Acheron to Marysville.

Rubicon forest and Rubicon Falls are among the many beautiful and wonderful assets of Nature with which Alexandra is enriched. Being only 102 miles from Melbourne, with a daily train service, this comfortable little town makes a pleasant base for a holiday. Through all this mountain country, drained by the Goulburn River, fish and game are plentiful. Within a wide circle, taking in Trawool, Yea, Alexandra, Jamieson, Marysville, and Toolangi, one might spend a whole summer without wearying. If one had a summer to spare I can imagine no better enjoyment than the exploration of those wonderful tablelands which spread from Mount Dandenong to Kosciusko, and from Beechworth to Bonang.

From Alexandra down to Marysville, along the Acheron River, the road runs through mountain and meadow land as fair and kindly as any on the Continent. Good volcanic and alluvial soils prevail throughout the ranges, and along the river beds on the north-eastern side of Melbourne. Fine forests of hardwood, considerable minerals, add to the wealth of districts which are favored by their proximity to a great city. A prosperous rural population is gradually pushing its way into the hearts of those blue hills which loom upon the north-eastern horizon of the southern city-dweller's view.

Within 40 miles of Melbourne, in those ranges, is Mount Donna Buang (4,080 feet) about five miles to the north of Warburton. Donna Buang is higher than any point in England, Wales or Ireland, and now gives metropolitan people an opportunity to enjoy snow sports between July and September. As an instance of what a still-unexploited country Australia is, it may be remarked that the existence of this mountain was practically unknown to the people of Melbourne until Professor Kernot read a paper on it before the Royal Geographical Society of Victoria in 1907. Since

then a road has been opened to its summit, and, having been made accessible from Warburton and Healesville, it is possible to make a week-ender's trip to the snows.

Within these ranges lies the famous Blacks' Spur with its hot-house vistas of tree-fern and vine. Timbered hills that will yet know the touch of cultivation, perennial waters, sassafras and beach and flowering myrtle; roads which wind often like the avenues of gardens through forests and jungles of smooth and glossy growth—Australian nature in one of her happiest aspects—wayfarers through these hills will find these delights and more. From the Hermitage on Blacks' Spur to Narbethong, and from Narbethong to Marysville will give these wayfarers pictures which will cause them to wonder where writers have gleaned their melancholy impressions of Australia. Here is a typical stretch of Victorian forest and hillside whose beauty and value cannot be exceeded in any part of the world. Streams about Marysville are reputedly good for trout fishing; Marysville is a place of lovely valleys, fern-lipped streams, high waterfalls, cool mosses, scented acacias, noble forests and superb mountain views. From the summit of Lake Mountain (4,000 feet) one looks out over a land of mystery and wonder, and hears the wind in the tops of forest giants 280 feet above the ground proclaiming the glory of Australia.

On its way home from Eastern Victoria our little American car, much travel-stained, came over the Blacks' Spur and ran out by a difficult

road along the edge of that blue wall of mountains which one sees from various parts of Melbourne on a fine day. Thus we beheld Melbourne and its environs and the plains and hills behind them in constantly-changing view-points, but far and away below us. Near to Warburton we turned down over the mountain to Launching Place, where the River Yarra is no more than a clear-watered sparkling stream.

Through Lilydale, with a cool south wind blowing in our faces, by that lovely orchard and garden country that circles Melbourne on the north and east, past Mitcham, where cherry-trees were laden with red fruit, through the shady market town of Dandenong, and back to breezy Mordialloc, we came so laden with happy recollections of a long journey through picturesque Victoria that our mental films in places were doubtless like photographic negatives doubly exposed.

Behind us—from San Remo to Buchan, from Buchan to Buffalo, from Buffalo to Eltham, there glowed a cool, gracious Australia filled as the jewel caskets of an empress with so many precious things that their individual values were overlooked, in general wonder and admiration.

The greater part of this scenic East remains to be exploited. Its possibilities have not yet been developed, and its attractions are imperfectly advertised. Its values are not scenic alone; they include large areas of virgin lands suitable for settlement, and great natural resources of forests and minerals.



“The Hermitage,” Blacks' Spur



A Victorian Hop Garden.



A Settler's House, Rochester District.

VICTORIAN AGRICULTURE.

VICTORIA'S future progress largely depends on the extent to which her agricultural resources are utilised and developed. Though it is the most densely populated State in the Commonwealth, its vast agricultural resources hitherto have only been partially exploited. With its uniformly rich land, favorable rainfall, its magnificent water and timber resources, it is destined to become a State of surpassing prosperity. Increased population, extension of the area under cultivation and the development of more intensive methods of cultivation are needed to properly utilise Victoria's rich natural resources.

For decades past it has been called the Garden State of Australia, because its soil and climate are such as to permit more intensive methods of culture to be practised than is possible in any other State. The rich stretches of volcanic soil in the Western District and the fertile alluvial and peaty areas of Gippsland are probably as rich as any virgin soil in the old world. These lands are destined in the future to support a dense population of contented settlers when intensive methods of farming are substituted for the existing extensive methods of culture.

A comparison of the agricultural production of Victoria, the smallest of the States on the mainland, with that of other States will convey some idea of the agricultural development here as contrasted with other States. Although the area of

Victoria is only one-thirty-third that of the Commonwealth, it produced in 1913 approximately—

One-third of the wheat,
 Over one-half the oats,
 One-half the barley,
 Two-fifths of the potatoes,
 One-third of the fruit,
 And approximately one-half the hay produced in the whole Commonwealth

This is a fine record for a State which occupies only one-thirty-third of the total area of the Commonwealth.

The Government is pursuing an enlightened policy of development by (1) pushing ahead with the construction of railways to bring every settler within reasonable distance of a railway, (2) conserving in storages the immense volumes of water which hitherto flowed into the sea and utilising the water for irrigation purposes, and (3) subdividing lands purchased under Closer Settlement Acts, and allotment to settlers under the liberal Credit Foncier System.

It is estimated that the present and projected storages will impound sufficient water to irrigate 700,000 acres of land. Some idea of the added wealth which such an area will ultimately mean to the State may be gained by considering the annual output of a single isolated irrigation colony—that of Mildura. Mildura is a compact

irrigation settlement of 12,000 acres. It supports on this area a population of 6000 souls, and the standard of living of the community is as high probably as any other town of similar size in the world. The value of its products is £400,000, or an average return of £33 per acre over the whole area. If only half this return were secured from the 700,000 acres of irrigation land that will be available with the projected storages,



Crossbreeding Wheats, Rutherglen Experimental Station

It will mean an ultimate return of £8,000,000 from the irrigated areas of the State.

Industries capable of considerable expansion and improvement are (a) wheat growing, (b) dairying, (c) lamb-raising industries. At present less than 10 per cent. of the total area of the State is under cultivation, in spite of the acknowledged richness and abounding fertility of Victoria's soils.

The area under wheat is approximately 3,000,000 acres. In every wheat district of the State large areas eminently suited for wheat culture are still supporting only the roaming sheep and the occasional steer. The cultivated area could, if adequate labor were forthcoming, be easily increased to five to six million acres. In 1915, in response to a special appeal by the Government, the farmers of Victoria put in and har-

vested 1¼ million acres more wheat than had ever been sown before, even though labor was scarce and fodder expensive. Not only could the area be increased by two to three million acres, but the average yield per acre could most certainly be increased by at least 50 per cent. if the best methods of cultivation were universally adopted.

This means that Victoria's annual wheat production could be permanently raised to 60-70 million bushels instead of 25-30 millions bushels.

In dairying the State is in the midst of important changes. Dairymen are now beginning to appreciate the three fundamental factors for success in dairying—breeding, feeding, weeding. Systematic herd testing, involving the elimination of the robber cows, combined with rational feeding, and rigorous culling, are increasing the profits from dairying, and with increased profits will come a healthy expansion of the industry.

Finally, the natural pastures of Victoria are eminently suited for the production of a high class type of export lambs. Hitherto, Victorian settlers have depended too much on the natural pastures and too little on providing fodder crops for feeding their herds. With the inevitable expansion of cultivation, the wider use of fodder crops for feeding to sheep and the extension of lucerne growing in the irrigation settlements, lamb-raising will become a great industry in Victoria, and numerous freezing works being erected in town and country provide the necessary guarantee of a suitable market.

The agricultural production of Victoria is steadily increasing year by year. In 1915 the total value of products in Victoria amounted to £55,000,000 sterling, made up as follows:—

Cultivation	£19,765,128
Dairying and pastoral	10,510,954
Mining	1,946,697
Forest produce	881,360
Miscellaneous	1,990,003
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Total primary products	£35,085,142
Value added by manufactures	20,053,552
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Total value	£55,138,194

In a young country like Victoria, depending almost entirely on the export of primary products for liquidating interest on national indebtedness the stimulation and rapid acceleration of her agricultural industries is a paramount necessity. The climate and the liberal rainfall, together with the abounding richness of the soils, place Victoria in a very fortunate position in regard to offering attractions for overseas settlers. The range of



Farmers attending a Demonstration of the value of Top-Dressing Grass,
Rutherglen Experimental Station

soils and climate permits a great variety of crops to be grown. Wheat, barley, oats, potatoes, hay, lucerne, and all classes of fruit thrive to perfection, and already in the production of these Victoria outstrips the other states.

Then there are many industries which are almost untouched—maize growing, tobacco, flax, broom corn—all of which offer abundant opportunity for exploitation. Transport facilities, which mean much to the producer, are unexcelled in Victoria.

The Government have realised that the most effective means of accelerating settlement and intensive culture of the land is to provide adequate transport facilities, both by road and rail, for the primary producers. Victoria contends that nowhere in Australia are the men on the land so well served with railways as in this State. The policy of successive Governments has ever been to drive these arteries of traffic through the agricultural areas of the State until the whole State has been completely and fully served with transport facilities.

Side by side with the development of rail traffic has been the improvement of the country roads. A Country Roads Board has been created and endowed with adequate machinery to improve the roads, and, above all, wise and healthy legislation, from the country stations.

The abounding richness of Victoria's soil enables her to carry a far greater population per square mile than any other State in the Commonwealth. Farms are closer, towns are nearer, and there are abundant opportunities for social intercourse. A high standard of material comfort in the rural districts is thus possible.

With fertile soil, bracing climate, abundant rainfall, an excellent railway system, good roads, and, above all, wise and healthy legislation, Victoria's agricultural future is assured.

Recent Victorian Governments have given much attention to problems of close settlement. The State Department of Agriculture has become a highly specialized organization, working side by side with the Chair of Agriculture at Melbourne University, the Agricultural Colleges, and the Education Department, for the betterment of the man on the land. No matter how Victoria's settlement policy may be regarded by political critics, the settler who has secured a living area is sure of expert assistance and advice. The author has before him a comprehensive synopsis of departmental functions and articles courteously prepared for this volume by Dr. S. S. Cameron, Director of Agriculture.

The Agricultural Division proper comprises the following seven branches — Experiment

Farms, Chemist's branch, Science branch, Field branch, Horticultural, Viticultural, Farmers' classes and lectures.

The objective of the Division—to quote the Director of Agriculture—"is briefly to assist in raising the standard of cultivation and production in every part of the State where agriculture is carried on, by means of demonstration plots, demonstration and experiment farms, regular courses of lectures, periodical visits and inspec-

results. Expert officers, skilled in different branches of production, are attached to the various farms, and give personal advice on all agricultural matters free. The results of the researches and experiments are published as they accrue in the monthly journal of the Department, and so are made available to all farmers in the State.

"The State Research Farm at Werribee has for its objects three main lines of investigation:—



Pot-Culture House, Rutherglen Experimental Station.

tions by expert officers, and by the distribution of pamphlets, bulletins, etc., bearing directly on the work of the farmer. Investigations of plant diseases and of soil and manurial problems are also a marked feature of the work of the Division.

"There are four Experiment Farms—Werribee, Rutherglen, Wyuna (irrigation), and Bamawm.

"Hundreds of permanent experimental plots have been laid out at these Experiment Farms, and the intelligent settler who visits these plots may learn from the results achieved those practices which are likely to give him the best financial

1. Exhaustive experiments with cereal crops.
2. Study of irrigation problems connected with agriculture. 3. The improvement of stock, and experiments dealing with the breeding of lambs suitable for export.

"The Wyuna State Farm carries out various demonstrations and experiments in irrigated agriculture.

"The Bamawm Farm is situated in the Rochester irrigation district, and is devoted more particularly to the culture of tobacco and citrus fruits under irrigation, and the propagation of citrus trees for distribution.



Buildings and Water Supply, State Research Farm, Werribee.

"The Rutherglen Experiment Farm and Viticultural Station deals with the culture of vines, the raising of phylloxera-resistant stocks, both grafted and ungrafted, for sale to intending planters, and experiments on wheat culture and lamb raising.

"Comprehensive records giving full details of the experiments in progress and the results obtained are issued from time to time.

"Chemist's Branch.—The functions of the chemist's branch are:—1. To administer the Artificial Manures Act—and to see that farmers are protected against fraud and adulteration, in purchasing artificial manures. 2. To analyse soils submitted by the public, and to offer helpful advice on the mode of treatment of such soils to make them more productive. 3. To conduct laboratory investigations on specific problems bearing directly on the improvement of farm practice. 4. To make such analyses of butter, cheese and other farm products as will lead to an improved quality in manufactured products.

"The work of the laboratory includes investi-

gations and analyses of soils, manures, fodders, waters, and milk for the benefit of the settlers.

"An examination of the manures retailed throughout the country districts is made yearly for the purpose of detecting adulteration.

"Examination of waters as to suitability for watering stock, domestic, or irrigation use, and reporting on same. Examination of all products grown on the soil as occasion demands.

"The Science Branch includes botany, entomology, vegetable pathology and biology.

"The general aim of this branch is to assist farmers by directing their attention to the pests and diseases which attack various farm crops and animals, and to offer such advice as will be helpful in preventing losses of stock and crops.

"The Government Botanist controls the National Herbarium, Melbourne, which contains over a million sheets of plant specimens arranged and listed for reference, comprising not only a unique type collection of the Australian flora and New Zealand, Papuan and Polynesian collections, but also a very large collection of the plants of the

whole world, in which American, South African, Indian and Malayan plants are especially strongly represented. Owing to the purchase of the Sonder and other collections, the Herbarium possesses type and co-type specimens of the flora of other countries, notably from South Africa in regard to flowering plants, while in regard to Algae it contains type specimens from Kutzing

surrounding him, since the absence of such knowledge may often cause him considerable loss or waste of effort.

"The Vegetable Pathologist identifies fungus pests attacking farm crops, vegetables and fruit trees, and prescribes methods for overcoming these pests. He also furnishes to farmers, fruit growers and others, entirely free of cost, infor-



A Wool Class, Sale Agricultural High School

and others. The character and scope of the Herbarium is therefore such as to make it a centre of reference in regard to Australian plants generally, and also to give it an international standing.

"The Herbarium identifies all plants sent in for examination and gives information in regard to them free of charge.

"The investigation of scientific problems in connection with plant life is rendered easier by the existence of a library comprising some 9,000 volumes—mainly technical.

"It is of importance to a settler in a new country who finds himself surrounded by a flora of whose names and properties he is entirely ignorant, that he should be able to obtain information when necessary as promptly and expeditiously as possible in regard to the new plants

regarding diseases of crops, and undertakes methods of control.

"The Entomologist performs a like service with regard to noxious and destructive insects, his work comprising mainly:—Destruction and control of insect pests. Identification and classification of insects. Advising farmers, horticulturists, orchardists, and the public generally re No. 1. Field and other experiments with insecticides. Breeding insects that are parasitic on the injurious species. Instruction in economic entomology and ornithology by means of lectures, field excursions and literary articles.

"A Government Biologist investigates the diseases wrought by bacterial foes, and deals with the means of overcoming them.



Landscape Gardening, at the Botanic Gardens, Melbourne

"Field Branch.—The Field Branch assists settlers by—

"Carrying out experimental and demonstration plots on private farms to show the variety of wheat, oats, barley, roots, etc., best adapted to local conditions, also the kinds and quantities of manures and fertilisers that can be most profitably applied to various crops, and the cultural practices most likely to lead to success.

"Giving advice on the cultivation and utilisation of various farm crops by correspondence, personal visits, and by lectures under the auspices of the local Agricultural Societies.

"Many of the Agricultural Societies hold farm competitions each year with the object of encouraging farmers in the districts to improve their methods of cultivation. The judges of these competitions are usually members of the Field Branch, and these officers are thus enabled to come into close contact with the farmers of the district and assist them in their work.

"Officers with an expert knowledge of such special crops as tobacco, flax, potatoes, scent plants, have been appointed by the Department to encourage the growing of these crops.

Horticultural Branch.—The work performed by the Horticultural Branch covers three distinct industries, viz., fruitgrowing and marketing, viticulture, and potato growing. Dr. Cameron's report shows the objective of each section and its scope, the methods and means adopted in carrying out the various duties, and also the helpful relationship in which the section stands to those engaged in the industries referred to. We will take, for example, the fruitgrowing industry. The officers of the orchard-supervision section render advice as to the choosing of localities, planting and cultivation of orchards, treatment for prevention and eradication of diseases, etc. At the Burnley School of Horticulture intending growers are furnished with all the information likely to be required by them during their participation in the industry. The fruit inspection section deals with all matters in connection with the marketing of the produce (advice re packing, suitable markets, requirements of other States and oversea countries, etc.), while at the various Government Cool Stores growers may keep in storage their surplus fruits until such time as they can obtain a suitable market. It will be seen from this that there is little possible assistance which the Department does not render to fruitgrowers. As it is in

this industry, so with the others dealt with by the Horticultural Branch.

"The duties carried out by the Orchard Supervisors (12 in number, one located in each of the fruitgrowing districts of the State) may be summarised as under: — 1. Advising intending growers respecting the most suitable localities,

of any persons desiring to avail themselves of the opportunity. Each of these officers is thoroughly conversant with the most suitable districts for fruitgrowing, and by experience is well able to indicate what classes of fruits and what varieties of each are best suited to any locality. This proves of great benefit to settlers from other



A Lily Pond at the Botanic Gardens, Melbourne.

varieties of fruits, etc. 2. Advising growers and enquirers re methods of planting, pruning, cultivation, etc. 3. Advising respecting treatment and methods of eradicating disease. 4. Inspecting orchards and gardens and enforcing the provisions of Vegetation Diseases Acts. 5. Lecturing on the various branches of horticulture and on insect and fungus pests, and the best methods of dealing with same.

"With respect to the matter of advice to intending growers respecting localities, varieties, etc., any information desired is furnished upon written or personal application to the Department. The services of the Chief Orchard Supervisor and a staff of ten officers are at the disposal

countries who are unacquainted with local conditions. The same applies with regard to advice concerning methods of planting, cultivation, pruning, etc., and also with respect to treatment and eradication of diseases. In addition to the orchard supervision staff, growers and intending growers may avail themselves of the services of the Government Entomologist and Pathologist previously referred to.

"The State has been divided into eleven districts and an Orchard Supervisor has been stationed in each of these. These officers are in constant touch with the growers in their districts, and should a grower at any time desire information, all he has to do is to communicate with the Dis-



Crossbred Wheats undergoing trials.



Permanent Rotation Test
RUTHERGLEN EXPERIMENTAL STATION

strict Supervisor, who will immediately furnish it and, if necessary, visit his orchard. Lectures are delivered on the various branches of horticulture and on insect and fungus pests, and the best methods of dealing with these. Where practicable the lectures are accompanied by field demonstrations.

"To give the Department power to protect careful and painstaking growers against careless neighbours and to compel these latter to keep their orchards free from disease, a measure termed the Vegetation Diseases Act was passed in 1896. This Act gives power to any properly authorised inspector to enter on any land whereon any tree, plant, or vegetable is grown, to inspect such trees, plants or vegetables, to advise the grower as to the best means of eradicating any disease, and, if he neglects to prevent such disease after receiving due notice, to inflict penalties.

"In connection with orchard supervision there have been and are being established a number of experimental orchards for the purpose of demonstrating to growers and others the beneficial effects of scientific methods of planting and cultivation.

"There is no phase of viticulture on which a grower may not obtain advice from the Department. The Government Viticulturist advises vignerons on all matters pertaining to vinegrowing, wine-making, etc. Experimental work is carried out at the Rutherglen Viticultural College and, under Departmental supervision, at some of the private vineyards.

"Some years ago practically the whole of the vineyards in Victoria suffered severely from the ravages of phylloxera. A vigorous campaign was instituted by the Department to cope with the disease, and since then the work of reconstitution of vineyards has been sustained to such an extent that the majority of vineyards are now planted, in part at least, with phylloxera-resistant varieties. All that was possible was done by the Department to assist the growers in this work. Large quantities of phylloxera-resistant stocks are raised annually at the Rutherglen Viticultural Station and supplied to the growers at about one-half the cost of production. In the year 1916 over 400,000 phylloxera-resistant rootlings were distributed at the low prices of £6 per thousand for grafted and £1/10/- per thousand for ungrafted rootlings.

"Potato Growing.—The chief duties carried out by the Government potato expert are of an experimental nature: testing of new varieties and their suitability to various districts, carrying out experiments to determine the effects of artificial fertilizers, testing the effect of various spraying mixtures on Irish Blight and other potato

diseases. In addition to this, his advice and experience are always available should any grower desire to obtain information on any point connected with the potato industry.

"In addition to experimental work, lectures are delivered by the expert in potato-growing districts, and field demonstrations in various branches of potato culture are carried out.

Burnley School of Horticulture.—This institution, comprising 35 acres of a Government reserve within three miles of the Melbourne Post Office, has been in existence for a number of years. Tuition may be obtained on all subjects pertaining to horticulture, on bee-keeping, poultry raising, fruit drying and preserving, and kindred subjects.

"In addition to the ordinary curriculum, free lectures and demonstrations on various subjects are given. These enable persons desirous of obtaining information on one subject only, to do so without paying for a full course of instruction.

"In conjunction with the school there are large gardens and orchards which serve for field instruction and demonstrations and for practical training in horticulture. Scholarships are granted which enable students to continue their studies at the Botanical Gardens.

"In connection with the instruction in poultry raising, experimental work in various methods of housing and feeding is carried out. A number of egg-laying competitions have been held at the school, and record results have been obtained.

"Special provision has been made for instruction to women desirous of studying horticulture. Numbers have already availed themselves of this provision.

"Theoretical tuition given at the Burnley School of Horticulture is supported by practical field demonstrations. Students at this school have not only the advantage of being told how the work should be performed but are shown how to do it and permitted to take part in the field operations.

"The work of the Live Stock Division may be summarized under the following heads:—Dairy supervision, stock diseases, stallion examinations, sheep industry, pig industry, poultry industry, cheese industry, honey industry, general.

"The Milk and Dairy Supervision Act, which came into operation in June, 1906, provides for the inspection of dairies and dairy herds in districts defined by proclamation under the Act. In 1912 approximately one-fourth of the area of the State had been proclaimed, each district being under the control of a Dairy Supervisor, versed in all aspects of dairy farm operations, who passes a searching examination before appointment. His duties are to become acquainted with every dairy farmer, confer with and give him advice in regard



Portion of the Burnley School of Horticulture.

to the better methods of producing milk or dairy produce, inspect premises, utensils and animals; encourage him in improved methods of cultivation of fodder crops, in purchasing and breeding of dairy cows, testing and culling, and in construction of farm buildings.

"In 1912 160,000 dairy cows were under dairy supervision—an average of 13.67 per dairy farm. The average daily yield per cow, while milking for a period of nine months, is 6.6 quarts. This is an increase from 5.64 quarts, the average amount which was given during the year 1910—such result being mainly due to the advice given by dairy supervisors having been followed, and culling having been extensively practised. Power is given under the Act for the Governor in Council to extend the provisions thereof to new districts. Every year fresh areas are brought under such operations, and ultimately the whole of the State will become subject to inspection by Government officers.

"A scheme has recently been introduced for the purpose of testing pure bred herds of the State, and for the issue of a Government certificate

to those animals which yield a given amount of butter fat per annum.

"Victoria," says the Director of Agriculture, "is particularly free from contagious stock diseases. There has been no outbreak of swine fever for two years; anthrax occurs in isolated areas only, and the outbreaks are few. Pleuro-pneumonia outbreaks average about 4 or 5 per annum. The aim of the officers of the branch, in checking or repressing these diseases, is to conserve the interests of the individual as far as possible.

"The procedure for the prevention of the introduction of diseases from oversea into Victoria is carried out by the veterinary officers of this division. Under the Commonwealth Quarantine Act, Stock are only permitted introduction from Great Britain and America, and have to carry the necessary certificates of health, and undergo a period of quarantine on arrival in this State. The certification of stallions is carried out by the veterinary officers of the branch.

"An expert is attached to the branch, whose duties are to lecture and demonstrate upon all



Ploughing, Rochester District

phases of the sheep industry, and breeding for both wool and carcase production.

"This industry is being taken up by a large number of farmers and small landholders. Lamb raising blends well with wheat and cereal growing, and has become a regular and increasingly marked feature of mixed farming. Hence the necessity to have available for those entering on the industry, reliable information and advice.

"Co-operation is being entered into by farmers of the State, which will mean the regulating and ensuring of more equitable returns from the Victorian pig industry. The Gippsland farmers have opened a co-operative bacon factory at Dandenong at a cost of £22,000, with a capital of £50,000, which has a capacity for treating 1,500 pigs per week. Another Company has been registered (1913) with a capital of £100,000, in which producers in the Western, North-Eastern, and Kyneton districts are joining forces with the object of building a factory in a central position. The amount of bacon produced in Victoria (1915) was 13,659,974 lbs., valued at £850,000. Victoria being essentially a dairying country, there is room for great improvement. The State should be able to obtain a larger portion of the £24,000,000 paid by Great Britain for pig products.

"Lectures are given throughout the State by the Department of Agriculture on feeding, breeding, and general management of pigs.

"The value of the poultry industry in 1914 was about £1,750,000; practically without an export trade. The industry is one which has great possibilities ahead of it—the average price of eggs throughout the year being 1/4 a dozen. Egg-laying competitions are held annually by the Department, with the result that a considerable amount of enthusiasm has been induced and better methods of breeding and management are being followed.

In 1914-15 a world's record was created by a pen of six White Leghorn pullets which laid 1,699 eggs, averaging slightly over 2 oz. in weight. During the progress of the Burnley egg-laying competition, the following world's records have been attained: 1913-14, White Leghorns (wet mash) winter test 565 eggs, summer test 1667; 1914-15 W.L. (dry mash) 1699, Black Orpington (wet mash) 1562; 1915-16 W.L. (wet mash) 1661; 1916-17 winter test, B.O., 570 eggs. Another world's record was attained in the 1915-16 competition by 570 hens laying an average of 219.5 eggs each for the twelve months.

The most popular breed of fowl in Victoria is the White Leghorn, which is a prolific egg producer. The last Burnley egg-laying competition was won by a pen of six White Leghorns with a total score of 1661 eggs, giving a gross return of 18/- per bird. The heavier breeds, whilst not laying the same number of eggs, gave a greater return by 1/7 per head, and this, without taking into consideration the amount obtainable by the sale of cockerels, indicates the heavier breed to be the more payable by reason of the fact that they are better winter layers, when eggs are dearer.



Grading Land, Shepparton

"In 1915 3,497,278 lbs. of cheese were manufactured in Victoria. More attention, however, is latterly being paid to the industry, services of the cheese expert attached to the Department being eagerly sought for by cheese-makers through the State. Instruction given by this officer is very thorough. He remains on the farm for three or four days to demonstrate the manufacture through all stages. As a result, considerable improvement is reported in quality of the article now manufactured.

"A bee expert is attached to the branch, whose duties are to encourage the keeping of bees under

proper conditions. This is done by means of lectures and demonstrations throughout the country; also by means of inspections under the Bee Diseases Act, which has for its object the suppression primarily of foul-brood. The average yield of honey from about 53,000 hives may be taken as 2,500,000 pounds, the bees-

licence costs 2/6 per annum; whilst a bee range, which must have a minimum radius of one mile, is let at $\frac{1}{2}$ d. per acre, i.e., £4/3/10 per annum. Under the Lands Department, on Crown Lands, bee farms may be obtained on payment of 1/- per acre per annum; and bee ranges at $\frac{1}{2}$ d. per acre per annum.



A New District: Tongala in 1913

wax returns being about 40,000 lbs. Owing to the difficulty, however, in collecting figures by reason of the scattered location of the industry in forest country, it is regarded as an under-estimate. The average estimated return per hive is 20/-; in many cases, however, 80/- per hive is obtained per annum; whilst only recently 392 lbs. of honey were gathered in a month from one hive of (approximately) 40,000 bees. The future of the industry holds great possibilities, as there are large tracts of forest country entirely untouched by apiarists.

"Considerable reductions have been made by the Railway Department in the carriage of bees and hives, thus enabling apiarists to move their bees according to season and follow the honey flow.

"From the Forests Department a bee-farm

General.—The staff consists of the chief veterinary officer (in charge of branch), 6 veterinary officers, 41 dairy supervisors, 13 stock inspectors, 7 experts, and a clerical staff 12. The services of the whole staff are always available to advise and assist farmers on any portion of the industries which have been referred to.

"Additional functions of the branch are the administration of the Shearers' Hut Accommodation Act, and the Sheep Dipping Act. The former provides that shearers shall be supplied with proper accommodation, under sanitary conditions; the latter, that sheep, except under certain conditions, shall be dipped annually, and that sheep found infested with ticks or lice shall not be exposed for sale.

"The veterinary staff is always available to give information to farmers on questions relating to



Maize grown by Irrigation.

health and management of stock, and large numbers of replies to queries are despatched annually."

From the foregoing facts, officially supplied, intending immigrants and would-be Victorian settlers generally, will learn with what paternal solicitude a splendidly organized and scientific Department of Agriculture looks after their interests, and aids them at every turn to find the pleasant paths of profit. Facts are proverbially dry until the reader finds some personal application for them. For further enlightenment of prospective settlers some facts compiled by the Lands and Immigration Departments, and issued in 1914, may be ventured.

"The total number of holdings in the year 1912 amounted to 68,703, and the land held, 37,218,798 acres. The land utilized for cultivation totalled 5,706,579 acres, under sown grasses 1,085,346 acres, and 30,426,873 acres were under natural pastures.

"Victorian official authorities estimate the minimum amount of capital necessary for an experienced agriculturist to start upon at £300.

"Owing to low cost of feeding, dairymen in Victoria are able to make more money on lower average milk returns than dairymen in other countries. During 24 years £30,365,181 were received from butter *exported* from the State. Co-operation among farmers has greatly reduced costs of manufacture and marketing, leaving a larger profit for producers. As more scientific methods of cultivation, breeding, and feeding are adopted, this great national income will be vastly increased. Oversea markets are still under-

supplied, there is room for the widest expansion that increased settlement can bring."

Victoria claims to be the granary of the Australian Commonwealth. "It has," says Mr. A. E. V. Richardson, M.A., B.Sc., Superintendent of Agriculture, "produced more wheat during the last decade than any other State, no less than 241,807,960 bushels of golden grain having been gathered in Victoria during the past ten years, or a yearly total of over 24 millions. The value of this wheat was nearly 40 millions sterling.

"The wheat industry in Victoria is in its infancy, and is capable of enormous expansion. Some idea of the development possible may be gained from the fact that of the total area of Victoria, namely, 56,245,740 acres, only about 10 per cent. of the total is at present under cultivation, and only one acre in twenty is under wheat. Vast areas ideally suitable for cereal culture and lamb raising are at present held under purely pastoral conditions, support merely the roaming sheep, and have never yet felt the plough. Many of these pastoral properties are cut up from time to time into farms, either privately or by the Closer Settlement Board, and afford excellent opportunities for new settlers to acquire cheap land on reasonable terms.

"The principal wheat-growing areas are the Mallee, the Wimmera, and the Northern districts, all situated north of the Dividing Range. In 1912-13, 2,157,171 acres, or 87 per cent. of the total area under wheat in the State, were harvested in these three districts. There were, in addition, 20 million acres of land uncultivated in these three districts last season, the greater portion of which is ideally suited for wheat-growing.

"There is probably no country in the world where wheat can be raised so cheaply as in the wheat areas of Victoria. Inventive skill and ingenuity of Victorian implement-makers have evolved types of machines which, for efficiency and economical work, could hardly be equalled. Multiple-furrow ploughs, running to fifteen furrows, four-horse seed drills, and complete harvesters, have enabled farmers to till and crop large areas with greatest economy and efficiency. This low cost of production, together with the favorable prices for his produce, has placed the

assured. Most Victorian wheat-growers now associate sheep-raising with their farming operations, and find the business exceedingly profitable.

"Over the greater portion of the wheat area farmers sow their seed on well prepared fallow. The main object of fallowing is the conservation of the soil moisture. Practical experience has shown that by judicious fallowing the yield has been increased by bushels per acre. Indirectly, fallowing leads to the unlocking of the dormant supplies of plant food in the soil. It also enables the farmer's work to be more evenly distrib-



A Hay Crop at Rochester.

Victorian farmer in a secure financial position, and the beautiful and substantial homesteads, now characteristic of our wheat-growing areas, reflect the prosperity attendant on this branch of production during the past few years.

"There is every reason to believe that high prices for wheat have come to stay. The world's consumption of wheat is increasing. Wheat is gradually displacing rice and other cereals in the East. Moreover, the United States, which formerly dominated the wheat markets of the world, will soon cease to be a wheat-exporting country. The controlling factor in the world's markets of the future will be the harvests of Australia and Argentina.

"During the past decade wheat-growers of Victoria have been materially assisted by the development of the lamb-raising industry. Freezing works established at the seaboard and in the country have been the means of securing a staple export trade in frozen lambs. Glutted markets are thus avoided and high prices for lambs

uted throughout the year. Thus, the farmer has ready at seed time large areas of land in the best possible condition for sowing.

"At seed time about 60 lbs. of superphosphate per acre, costing 2/6, are sown with the seed.

"No nitrogenous or potassic manures are wanted. Practical experience has demonstrated that Victorian yields are not increased by such applications. Consequently, our Victorian farmers do not need to apply costly nitrogenous manures so necessary in some wheat areas of the Northern Hemisphere.

"The seed is sown in May, and is ready for harvesting in December and January. The wheat when ripe is taken off with a complete harvester. This machine strips the heads, thrashes, winnows, cleans, and bags the grain ready for market at the rate of 10 acres a day, and can be worked by one man.

"As wheat-growing is invariably associated with the rearing of sheep, it is the general practice in the wheat areas to leave about one-third of



Dookie Agricultural College

the area in pasture, one-third in crops, and the balance in fallow. This practice, of course, can only be followed in a country where lands are cheap and individual holdings large; land values are still low enough in the wheat areas of Victoria to enable this method to be followed with considerable profit. In the future, more intensive methods of cultivation must prevail, but economic pressure has not yet been sufficient to necessitate a change in this system of farming.

"Profits in wheat farming will depend naturally on the nature of the soil, the skill and judgment displayed by the farmer in the handling of his resources, and on his business ability. Including preparation of the land, cost of seed, manure, harvesting, and marketing, the average total cost of production may be taken at 20/- to 25/- per acre. In the Mallee districts the cost will be less than in the Wimmera and northern districts. The cost will vary, too, with the nature of the soil and the mode of preparation given to the crop. The average crop of the State may be set down at 11 to 12 bushels, but individual crops of 20 bushels and 30 bushels are common enough with careful farming in the wheat areas. Then, of course, there are the returns of the wool and the lambs."

With commendable foresight the Government in 1884 reserved as an endowment for Agricultural Colleges and experimental farms no less an area than 150,000 acres. From the revenue received from this land the Council of Agricultural Education has established the Dookie Agricultural College.

Dookie College is picturesquely situated on the confines of the famous Goulburn Valley. Mount

Major forms the northern boundary of the College lands, which comprise some 6,000 acres. In the distance may be seen the outline of Mount Buffalo and other well-known peaks.

Provision exists at the College for 100 residential students. Of the 1,200 who have been enrolled, the names of approximately 300 appear on the Roll of Honor of Dookie students now serving their country somewhere in France.

The College was established to teach the principles and practice of agriculture, and in the lecture halls and laboratories the student is taught these principles, which are correlated with the practical work carried out by him on the farm.

It is realised that successful farming demands more and more that the cultivator of the soil be an intelligent, well-educated man, understanding not only the best methods of carrying out farming operations, but also the underlying scientific principles.

A farm with 2,000 acres of land under cultivation—of which 1,000 acres are ploughed each year and cropped with wheat, oats, barley, peas, beans, rape, flax, maize, sorghum, millets and lucerne—also over 5,000 experimental plots, indicate the extent of the practical work which is carried out by the students under skilled instructors.

On the 4,000 acres which remain, sheep of various breeds, cattle, horses, pigs and poultry are raised. The sheep consist of Lincolns, Leicesters, Merinos and Shropshires. In addition to the Ayrshire dairy herd, Herefords and Short-horn stud cattle are kept.

Dairying is a prominent feature, and factory management is taught. Neighbouring farmers

bring their cream to the College for manufacture into butter, of which a proportion is sold on the Melbourne market.

Pigs bred from a strain imported by the Council from England are greatly in demand—particularly those of the large Yorkshire breed for crossing with the Berkshire.

The general education of the student at this College is in no way neglected. English, arithmetic and commercial bookkeeping form part of the curriculum, and chemistry, natural philosophy, botany and zoology are important subjects of the course.

Domestic arrangements are well provided for, each student having a separate bedroom. Meals served in the spacious dining hall are of the best. Sports and gymnastics afford recreation, and the

social side of the student's life are also catered for.

Students over the age of 14 years are admitted. The only charge made is an amount which just actually covers the cost of the food supplied.

With the opportunities of education offered at this College and the labor-saving methods of farming to-day the inducement for boys to become agriculturists is very much greater than in former years. Many city men have of late years purchased land for the settling of their boys after giving them a preliminary training at the College.

The prospects for a trained farmer in this country are very bright. The demand in the countries of the old world for our staple products—wheat, wool and meat—is largely increasing year by year. There is no fear of the market being overtaken.



A Veterinary Class at Dookie College



A Victorian Forest.



Cohuna Main Channel.

IRRIGATION SETTLEMENTS.

GENERAL possibilities of Australian irrigation are treated elsewhere. Victoria deserves particular mention from the fact that it was the first State to undertake irrigation on a large scale.

It is an interesting history, recording some losses and many gains. Its final chapters are, however, illuminated with pages of success. Since the first storages were created, policy and method have undergone changes.

Local trusts have been abolished. Nowadays the State works for irrigation and water supply are under control of a commission of three members, which also exercises authority over all streams, and issues licenses and permits for private diversions of water. There are in Victoria (1914) 18 irrigation and water supply districts, 26 waterworks districts, and 32 township supplies served by the Commission. The Government, after experience, decided that small farms and individual proprietaries were best. Closer settlement and intensive culture are now the base of its irrigation systems. Problems which beset irrigationists in other countries are absent in Victoria. To quote Dr. Elwood Mead, under whose expert

supervision Victoria's State irrigation schemes were administered until his return to the United States in 1915: "For the last ten years there has not been a single water-right law suit in this State. Victorian works are also free from the abuses and excessive charges which are frequently manifest where private ownership of water, or rights equivalent to such ownership, are recognized. *In Victoria the price which irrigators pay for water is measured by the cost of supplying it; no charge is made for the water itself, and no profit is derived, or expected to be derived, from irrigation works.* The State is the sole riparian proprietor, and those who wish to divert water must obtain State consent."

The most extensive irrigation works and areas in the State are those connected with the Goulburn River, which has an average annual discharge of about two million acre feet of water per annum.

The area of land commanded thereby, and suitable for intensive culture is between 600,000 and 700,000 acres. The costs of the Goulburn Weir, the Western Main Channel, Waranga Basin, and Eastern Main Channel, have reached a total of £1,293,000. In four years, after the

beginning of closer settlement, the irrigated areas increased by 65,040 acres, equal to 80 per cent.

The Goulburn Weir is constructed of granite, and rises 50 feet from the bed of the stream. Its width from bank to bank is 400 feet. Above the granite sub-structure are a series of flood gates extending right across the river. These gates are operated by turbines, and when raised provide a storage in the basin above the weir equal to 20,661 acre-feet of water.

On either side of the weir is an irrigation channel. The eastern one is 38 feet wide at the bottom and 56 feet at the top, with a carrying depth of 6 feet. The western, or main channel, is much larger, being 110 feet wide at the bottom and 131 feet at the top, with a carrying depth of 7 feet. The latter channel supplies the water for the Tongala, Koyuga, Rochester, Nanneella, and Bamawm irrigation districts, and it can be seen how adequate the supply is for the land now being opened up.

After leaving the weir the main channel conveys the water a distance of 24 miles to the Waranga Basin. This artificial lake has a storage capacity of 196,000 acre-feet; and this can be increased, by raising the level 10 feet, to a total storage of 326,000 acre-feet. The basin was created by building an earthen wall $4\frac{1}{4}$ miles long and 31 feet high. It has two outlets, one supplying the Rodney channels, having a capacity of 300 cubic feet per second, and the other supplying the Waranga-Mallee channels with a capacity of 1,000 cubic feet per second.

The main western channel from the Waranga Basin is 92 miles long, and from it water is taken off to supply the Tongala, Rochester, and Bamawm closer settlement districts, and will be the source of supply for the Stanhope Estate, an area of over 20,000 acres acquired for closer settlement.

The whole of the main, subsidiary, and distributing channels are operated by means of gravitation only.

In addition to the great Goulburn River system, the Coliban scheme, with reservoirs at Coliban and Malmsbury, supplies the city of Bendigo and a large area of orchard and garden district between that city and Castlemaine. Lower down on the Loddon River, Laanecoorie Basin, with the works of Tragowel and Boort districts, irrigates 20,000 acres. In the southern part of the State, Werribee scheme provides water for 3,500 acres at Bacchus Marsh, and 6,000 acres at Werribee. Land at Bacchus Marsh has changed hands at £100 an acre, and rented for £5 an acre per annum. Werribee irrigation lands—which promise to increase in the same ratio—were being sold in 1914 by the Government at from £25 to £29 an acre.

Victorian irrigation works completed and in construction will irrigate a grand total of 400,000 acres, of which, in 1913, 250,000 acres were already being irrigated.

In addition to these irrigation works the State has constructed an extensive system of channels for supplying farms of the north-west with



Laanecoorie Weir, on the Loddon River



Goulburn Weir, Nagambie

water for stock and domestic purposes. In some cases the supply is sufficient to irrigate small areas. This system of channels provides a supply sufficient for thirteen millions of acres. From 1887 to 1914 the total cost for irrigation and water supply works was £7,750,000—a creditable expenditure for a young State which began its career something more than sixty years ago.

Dr. Elwood Mead claims that irrigation will multiply the population of the State from 10 to 100 times, and give a corresponding increase in the value of products.

He points out that "an irrigation district is freed from the vicissitudes and losses that come with recurring years of drought; that a densely-peopled rural area enjoys good home conditions and attractive social life. With irrigation two farm crops can be grown in the year—maize in summer, wheat in winter; four to six cuttings of lucerne may be obtained, a continuous milking season sustained, and all fruits made to yield a maximum crop."

Under irrigation a ten-acre orange grove will bring a larger return than a 300-acre wheat-field, and one acre of lucerne will fatten more sheep than 20 acres of native grasses.

The oldest of Victoria's irrigation settlements is Mildura, on the Murray, where 6,000 people are being maintained by the products of 12,000 acres valued for 1913, at £400,000.

The State permits settlers on irrigable areas to take land to the value of £2,500 unimproved, and up to £4,000 in improved value.

The usual size of fruit blocks is from 20 to 40 acres, and of dairying and mixed-farming blocks from 30 to 200 acres. The State provides blocks for farm laborers of from two to five acres. These are scattered throughout the irrigation districts. It will also erect houses for settlers on payment of a deposit varying from 10 to 30 per cent. of cost. From the beginning of closer settlement, 1909-10 to

1914, population on twelve principal irrigation districts had been multiplied by eleven. An enormous increase in the value of production had taken place, and there is every indication that progress in the future will be still more rapid. A number of important conservation and irrigation schemes have been under consideration by Government. In some cases plans and surveys are made. It is proposed to create a new reservoir on the Upper Murray to contain 750,000 acre-feet of water, sufficient to irrigate 250,000 acres. Another scheme which will doubtless be carried out is that for the construction of a reservoir at Camberooona, on the Upper Murray. This is to be the joint work of New South Wales and Victoria. This storage would contain one million acre-feet of water, and supply another 250,000 acres of most suitable Victorian land between Yarrawonga and Numurkah.

Plans and estimates have been made for a storage on the Upper Campaspe to hold 100,000 acre-feet, and irrigate 40,000 excellent acres between Rochester and Elmore.

In South-Eastern Gippsland there are 100,000 acres of rich river flats, which it is now proposed to irrigate.

These schemes—with 20,000 acres already irrigated by private diversions under Government permits—bring a proportionately large area of the State under the benign influence of scientific storage and application of water. When the history of irrigation in Australia is written, tribute must be paid to the faith and enterprise of Victoria.

Within the northern irrigation area—which now covers that of a small European province—the thriving towns of Bendigo, Rochester, Kyabram, Shepparton, Kerang, Cohuna, Swan Hill and Echuca are located. These centres of local trade and industry are greatly benefited by the settlements of which they have become convenient business centres. Victorian irrigationists are for the most part within a day's railway jour-



Pumping Station, River Murray



Currants, Shepparton.

ney of the metropolis, and have their district towns and cities for local markets. Local creameries and butter factories are also increasing the prosperity of the settlers, among whom one finds many shining examples of success. It stands to reason that the State, having invested large sums in irrigation works, is anxious that its policy should be justified in fact. Settlers profit by the solicitude of the Government. The fertility of Australian soils under irrigation is abundantly proved throughout these Victorian areas. In the Cohuna district one partially-irrigated holding of 40 acres has returned during seven years an average income of £1,000 a year. A 50-acre holding at Mildura has produced 10,000 cases of oranges in one year. In the Rochester district an acre of tomatoes gave a return of £110. Elsewhere lemons to the value of £229 were returned by 1¼ acres. Maize 16 feet high has been grown at Cohuna, estimated to yield nearly 50 tons to the acre. On another settlement, on 21 acres planted with *paspalum dilatatum*, 350 sheep were maintained from March until July. The same area, after the sale of these sheep at satisfactory prices, was restocked with 25 blood horses, which it kept in good condition throughout the summer. Potatoes have given £50 an acre value and beans £64. A settler on Shepparton No. 1 estate, who has a five-acre block, picked, in the season of 1913-14, from trees three and a half years old 700 cases of peaches, giving him a return equal to £30 an acre. Victoria will become one of the greatest fruit-growing countries in the world. In ten years her export grew from a value of £5,826 to £150,000. Out of thirteen million acres of Crown land still unalienated vast acreages are suitable for fruit-growing. Physical and climatic conditions are ideal for production of all fruits which may be grown in the temperate zones—the world's markets are expanding yearly, and difficulties of transport are being rapidly conquered. Vic-

toria can grow fruit for export nine months of the year.

Experiment has proved that, with proper care, in addition to apples, soft fruits, such as apricots, cherries, grapes, lemons, oranges, peaches, pears, and plums, may be successfully transported to all parts of the world.

In 1915-16 the State produced a record fruit crop, only a small portion of which was exported. Prices obtained are a proof of quality. Pears have realized 32/- a case on the London market. Pears from 12/- to 15/-, apples 10/-, oranges 12/- upwards, plums 10/- to 15/-. Good prospects are ahead of grape exports. The best variety is the Ohanez. This season (1916) 1,712 packages (28 lb. boxes) were exported, and these have mostly landed in good condition and will average profitable prices.

Greater profits per acre may be realized on fruit-growing than from any other branch of rural industry. Instances may be quoted where upwards of £100 per acre per annum has been returned from orchards. A fair average profit of £20 per acre may be placed to the credit of the fruitgrowing industry in this State.

The irrigation areas will yield constant crops of valuable fruit. The author visited the thriving town of Rochester, and from there began a



Navel Oranges, Mildura



Measuring Water to the Irrigators.

tour of Victorian irrigation districts, beginning with the younger settlements of Bamawm and Nanneella. The total area purchased for closer settlement in the Rochester district, exclusive of the Echuca estate, is 24,000 acres. This district was first made available for settlement in 1911. In 1914 water rights had been allotted to 15,000 acres, and practically the whole area was under cultivation. In three years 21 families on Bamawm increased to 150, mostly on 20-acre blocks. All the sub-Murray country across to Tongala is level, and easily watered. Its soils are red to yellow, somewhat stiffer than the lands across the Murray, and further west along the river basin. Much of it was being reaped for hay when the author crossed it in midsummer. The season had been poor, but there were wide areas of browning crops alternating with closer settlement blocks and open spaces sparsely timbered by drooping coolibah trees. Little houses located on square blocks, irrigation channels and vivid green patches of lucerne made a feature of this rapidly-changing Australian landscape.

The young settlements were looking forward hopefully and were generally prepared for the

usual effort of pioneering. Everything was in the melting pot. The advent of irrigation had brought about revolutionary changes. Where one pastoral family had previously lived on 2,545 acres, there were now 32 families of irrigationists. Rochester district had been practically open and untilled. Already there were 6,500 acres of lucerne. When occupation under the new closer settlement system was complete there would be a multiplication of population by ten. Railway traffic was increasing, towns were rapidly growing, industry had claimed another great Australian Plain.

The State had greatly aided the district to such rapid progress. Few of the settlers had sufficient capital to improve and cultivate their blocks without some financial assistance. Still fewer were experienced irrigators. To meet the needs of these settlers 65 per cent. of the houses had been built by the State. The State had also in three years graded and seeded over 6,000 acres of land to lucerne and other fodder crops. The handicap of small capital has been overcome in large measure by the State making advances on improvements up to 60 per cent. of their value, and

furnishing horses and cows where the circumstances seemed to warrant this action. In all, 188 out of the 255 settlers in the Rochester district had been given such advances, and 28 had been supplied with either horses or cows.

Advice and direction were free to them at all times, a district inspector having the settlements under constant supervision, and being constantly in touch with block holders. Experts of the Agricultural Department and experienced irrigationists from older districts made frequent visits, and gave demonstrations and lectures on proper methods of planting and cultivation.

What this particular Australian plain is capable of may be deduced from the fact that it is already growing 30 cwt. to the acre of lucerne; hay, clover, maize, oats, beans, tomatoes, asparagus and strawberries, where only irregular crops of native grasses were expected under original conditions.

On the 1,200 small irrigation farms which had been established in Victoria by 1913, there was no longer any fear of drought. Green fodder, ripe fruit, green vegetables were to be had all through the irrigation districts of the north from lands that, under other circumstances, would have been sere and brown. The ten millions that Victoria has spent on irrigation may not all have been laid out to bring the highest results, but the expenditure will ultimately be worth while.

Half a dozen Milduras have been established; 70,000 acres have been converted to intensive culture, and the task of turning arid lands into oases each year becomes easier from the experiences gained.

Figures, compiled by the State Rivers and Water Supply Commission, show that population has greatly increased on the irrigation districts.

Not every man who has taken up an irrigation area has succeeded. There are failures among irrigationists, as there are among ordinary farmers. The natural tendency is, by the gradual elimination of the unfit, to evolve settlements which contain the highest type of settler. Irrigation is establishing compact, prosperous settlements in



3-year-old Orange Tree, Cohuna

districts having low rainfalls, making production and population possible in unexpected places. It evolves a most desirable class of family blessed with intelligence, industry and thrift. Consequently the capital investment of Victoria must not in this connection be regarded altogether as an



A Home in an Irrigation Settlement



Pear Trees, 32 months old

interest-bearing proposition. The national gains must be reckoned in something more than actual cash values.

The problem of how much capital a man should command to get a good start on one of these Victorian irrigation blocks is difficult to solve. A great deal depends on the man. Some men have begun with £50, and are treading the main roads of success. Other men have had £1,000, and are still in the lanes. Generally speaking, if one has £300, energy and good judgment, there ought to be an independence at the end of the journey.

The population is cosmopolitan—Britishers, Americans, French, Australians. Few had any previous experience of irrigation. Some were professional men, some farm laborers. Sailormen and tailormen and gentlemen, they are all working side by side, or fence by fence, upon this newly-won Australian plain. The Commission watches over them with a paternal eye. It is anxious for their success, it aids them all it can, hears their complaints, investigates their failures, and endeavours to be lenient where the settler of grit and promise makes leeway with his payments for water or instalments of purchase money.

The State renders the following assistance to settlers in the grading of land:—

1. It rents settlers grading tools at the nominal charge of 2/6 a day, thus saving the settler a large expenditure on these implements.
2. It furnishes at a nominal cost contour plans showing the direction of the slopes, thus enabling the settler to tell how his land should be graded.
3. It grades from 5 to 20 acres on about one-third of the blocks in advance of settlement, and adds the cost of this to the price of the land.

The settler, therefore, has the option of either doing his own work or of taking a block where a part of the work has already been done.

The man who, in this way, goes on to a partially-improved area of 50 acres, with £500 capital, works reasonably hard, and exercises ordinary business ability, is on a very safe investment, which will return him a satisfactory interest in from two to six years. Meanwhile, he is establishing what may be a beautiful and comfortable home; he lives the healthiest of lives, and commands more of the essentials that make for human happiness than the average citizen elsewhere.

The Commission has reduced irrigation settlement to an exact science. Its carefully-revised data are nowadays at the disposal of the new settler, who thus holds an advantage over the older pioneer.

To settlers dependent on their own labor, and with limited capital, the Commission strongly recommends a 20-acre fruit block or a 40-acre farm block devoted to lucerne and other farm crops. Settlers who intend to grow fruit must plan to make their living and payments out of other crops for three years. Dairying, the growing of small fruits and vegetables will all work in with the earlier years of an orchard.

Experience shows that small holdings are the best. The average cost of the land is about £15 an acre; annual interest and payments on principal 18s. an acre, irrigation rates and taxes about



Peach Orchard, 22 months old

7s., making an annual total of 25s. an acre. Thus the settler with idle acres is on a losing investment—intensive and complete culture on small blocks is the policy that leaves the yearly balance on the right side of the ledger. The following official statements of receipts and expenditure taken from actual settlement on recently subdivided irrigation areas are interesting:—



Measuring Water, Mildura.

The block is 10 acres. The settler came on the block two years previously. The land at the time was new, unfenced, entirely uncleared, and unimproved. He had never had experience in farming before he came on this block, but had kept a small kitchen garden for home supply. His entire capital was about three hundred pounds (£300). He has cleared the whole place, and the improvements made by him to date are—a house, poultry houses, hot-beds for plants, shed for horse and cow, fence of wire-netting around the outside, and cross-fence, besides the fruit

trees, which are planted on all except about $\frac{1}{2}$ acre. The fruit trees consist of—500 oranges and lemons, 250 apples, 100 pears, 25 figs, 25 plums, and mixed. Sixty per cent. of these trees are now in the second year, and 40 per cent. are one year old. The whole of the place is highly cultivated and successions of vegetables for market, and fodder crops for home feeding, are growing throughout the whole year, in parallel lines between the rows of trees. One general work and driving horse is kept. One cow is kept, which gives more than is required of milk and butter for the



Sultanas at Mildura.



West's, Shepparton, 30 months after settlement

family of five. Ten pigs were kept on the place during the last twelve months, and grown to marketable size, bringing a price of £2 10s. each when sold. Some of the feed for the pigs was purchased outside, leaving a net profit to the place of about one-half, or £12 for the present year (1913). A fine stock of White Leghorn laying

fowls have been bred upon the block, giving a monthly profit of about £2. Besides the fruit trees, some of the principal crops grown are—maize, millet, peas, potatoes, strawberries, beans, beets, cabbages, carrots, lettuce, tomatoes, pumpkins, and melons.

Statement of Receipts and Expenditure for year ended 30th April 1913.

RECEIPTS, ETC.

EXPENDITURE.

To Sales of Tomatoes	£60	0	0
Peas	16	0	0
Beans	4	0	0
Lettuce	6	5	0
Pumpkins	6	5	0
Melons	10	0	0
Pigs	12	0	0
Poultry	20	10	0
	<hr/>		
	135	0	0
Add Improvement in orchard	50	0	0
	<hr/>		
Total	£185	0	0

By Manure purchased	£30	0	0
Wages paid	5	0	0
Land and water charges	20	0	0
	<hr/>		
	55	0	0
Balance representing net gains for year	130	0	0
	<hr/>		
	£185	0	0

This shows the direct profit from the block for the year to be £130. But the principal increase for the year's work is, of course, in the growth of the fruit trees. Besides having made more than a living for the family while the trees are growing, the increase in the value of these trees is not less than £5 per acre, making a sound showing of £180 gain for this man's work for one year, on a 10-acre block.

An inspection of No. 2 Settlement near Shepparton, showed more Australia in the making, an Australia of optimism and opportunity.

American irrigationists here, as on the other Victorian settlements, speak cheerfully of their prospects. They consider Australian physical conditions better for intensive culture than anything in the United States.

Here also they were free from combines, rail-



Peach Trees at West's, (Planted 32 months).

From Nanneella to Tongala there is little variation in the country, and the same newness was apparent when the writer crossed over these areas in 1912. Turning south from Tongala we passed through the older, more picturesque orchard settlement of Ardmona, noted for its splendid crops of apricots; then on through the neat prosperous towns of Kyabram and Tatura down to Shepparton. Shepparton, the centre of a well-established irrigation district, is northern Victoria at its best. Orchards and vineyards surround it. Built on the banks of the Goulburn River, its leafy avenues, gardens, and wide streets make it pleasant homeland for a well-to-do population.

way trusts, and drawbacks which the smaller producer labors under in countries where less attention is paid to industrial and social legislation. They had a beneficent Government for landlord, in control of railways and waterworks. They had good purchase terms, fixed freights, and cheap water supply. All the competent settlers interviewed are satisfied that irrigation in Victoria is a success. Where 6,000 people are sustained on an area which, under previous methods carried one family, irrigation from the national view point also must be regarded as successful.

An examination of the Victorian irrigation settlements shows that the contented men are



The First Year.



Five Years after Planting.

Dr. Wight's, Kyabram.

those who decline to hold more land than they can put to profitable use.

Irrigationists are at present charged 5s. per acre-foot of water a year, which means that a settler can water several times for a payment of 5s. per acre per annum. The cost for watering 50 acres is £12 10s. a year, and 50 acres are sufficient for the average family. So far lucerne seems to be the staple, and will be until such time as the fruit-bearing areas come into full crop. Lucerne gives from three to five cuttings a year, is fed to cows and pigs, and makes the basis of a dairyman's profit. In some places sheep instead of cows are kept, the sheep-men contending that lucerne gives better returns from sheep than cows. The average of milking cows on irrigation farms is about fifteen. This applies to farms of 50 acres, of which 30 acres are devoted to fodder crops—lucerne, maize, millet. Pigs, poultry, and vegetables for family use—with a surplus for sale—are, of course, a feature of every small holding.

Of what this country will grow even without

scientific irrigation, the writer found an illustration in a hotel garden at Murchison on the banks of the Goulburn.

We came in to Murchison from Shepparton late one afternoon. A heavy storm, typical of the Goulburn Valley, had driven us to put up at the first wayside inn; which, like most Victorian country hotels, was clean and comfortable. The storm broke with swishing rain and roaring thunders; poured out its benison, and passed on.

Morning brought perfumes of rain-soaked earth and radiant flowers. While waiting for breakfast I went out as usual to look over the hotel garden. Morning is the proper time to



A Kyabram Orchardist's Home.



Apple Picking, Harcourt.

examine any garden, but a garden refreshed by rain overnight has an especial charm. The hotel people were pardonably proud of their half-acre of cultivation. The abundance and quality of its growths were surprising. Asparagus and rhubarb of the finest quality grew there; figs, strawberries, mulberries, apricots, apples, gooseberries and red-cheeked peaches, lemons, pears, loquats, plums, cherries, walnuts.



Peach Orchard, Ardmona.

There were hawthorn hedges and walks overhung by beautiful shade-trees, poplars and gums among them.

There were plots of vegetables with big white-hearted cabbages, peas, carrots, beets, celery and parsnips. There were salads and herbs. Red roses and white, crimson ramblers, verbena, sweet peas, poppies and oleanders, grew in that wonderful garden also, and, where it came up to the wide verandahs of the house, green drooping ferns, orchids, and hot-house plants added ornament to utility.

Finally, there was a grape arbor. Than the odor of grapes in flower there is nothing sweeter. So much that is historical, aesthetic, romantic, attaches to the vine. One smells the grape in flower, and lines from Omar and Keats drift through one's mind as softly as downy butterflies over meadows lit with spring.

For gentle occupations like the growing of vines, olives, and oranges, Victoria has profitable as well as poetic opportunities.

Practically the whole State is adapted for the vine. Its climate is milder than the South of France, and its dry inland districts carry immunity from parasitic diseases such as European vineyards are subject to.

Soils corresponding to those from which the finest European vintages are won, are classed among Victoria's poorer lands.

Many payable Victorian vineyards are located on unirrigated areas, but their yields are much less than those from irrigated sections.

Under irrigation, yields up to 11 tons per acre of distillation grapes have already been obtained, worth £3 15s. per ton. Proceeds per acre average from £25 to £35 gross. The cost of pro-

duction (with paid labor) amounts at the outside to £10 per acre.

Wineries are in operation, and others are being established. These deal with grapes of different types, calculated to produce various grades of wine, such as the export type (full-bodied, dry), sweet wine for local consumption, and lighter wines. Payment is made for grapes by these wineries at varying prices, according to quality of variety and sugar percentage of fruit. At the present time the prices range from £4 to £9 per ton.

Few fruits lend themselves so well to drying, lose so little in the process, or meet with a more ready demand when dried. At present, the local demand in this direction is considerably greater than the supply.

Then there are wines, brandies, vinegar, cream of tartar and by-products to make viticulture more profitable. The export trade for fresh grapes is rapidly extending. Victorian grapes can be placed on European markets in early summer, long before local fruit has ripened.

Costs of establishing a vineyard in this State are officially given at 1st year £16 3s. 6d. per acre, second year £2 16s., third year £8 1s., all work being performed by outside labor. The Department of Agriculture employs a staff of experts to assist inexperienced growers, and every encouragement is given to this valuable industry.

Under the Closer Settlement Acts, the Lands Purchase Management Board is empowered to expend at the rate of £500,000 per annum in the purchase for the Crown of privately-owned lands throughout the State for sub-division and disposal to eligible applicants. Only one allotment can be granted to each person. Plans and particulars of

areas can be obtained at the Crown Lands Enquiry Office, or from the Secretary to the Board.

Conditions of Purchase.—Land offered for settlement has been repurchased by the State from holders at its unirrigated value, and will be sold to settlers at this price plus the cost of subdivision and transfer. Land may be paid for outright; the payments may be extended over $31\frac{1}{2}$ years; or the balance due may be paid off at any time. The interest on capital unpaid is $4\frac{1}{2}\%$, and to this there must be added an instalment of the purchase price. The payment of these instalments has been so adjusted that a settler, by paying the equivalent of 6% annually on the cost, pays both principal and interest in $31\frac{1}{2}$ years. *The settler will obtain a complete title to his land by paying 6% per annum on the cost for $31\frac{1}{2}$ years.* Lands in the Rochester and Cohuna districts will vary in price from £8 to £15 an acre. A settler purchasing a 40-acre irrigated block at £10 an acre would, on paying to the Government £24 per year for $31\frac{1}{2}$ years, receive a title to his land.

The Water Commission will give advice to beginners regarding irrigation methods, and, when desired, will prepare and grade land for irrigation. The Closer Settlement Board undertakes to erect houses, fence holdings, give expert advice to settlers about the purchase of stock, implements, etc.

The purpose of this assistance is to enable a settler to go immediately to his farm and begin productive labour, thus avoiding loss of time, hardship or discomfort, waste of money in living expenses, or by making unwise purchases through lack of knowledge of local conditions.

The Closer Settlement Board will also advance to settlers amounts equal to 60% of the money

they expend in improvements, such advances not to exceed £500, the interest on these advances to be 5% . Briefly, the State desires to co-operate with settlers in every possible manner, and especially by giving them the benefit of the knowledge and experience of its expert officers.

Every application for a Closer Settlement Allotment must be made on the prescribed form and lodged with the Secretary, Lands Purchase and Management Board, accompanied by the registration fee of 5s., lease fee £1, and a deposit (equal to 3% of the capital value of the land) which is deducted from the purchase money.

The applicant is required to give evidence of suitability and fitness, etc., to occupy the land; if successful, a permit giving immediate possession is issued (followed by a lease as soon as practicable), and no further payment is required for six months. The deposit, less the 5s. registration fee, is at once returned to any unsuccessful applicant.

[The present Commission's plan is to work the loan advances account, always, of course, with the greatest discrimination, so as to make the putting on of improvements a feature of more importance than compelling the settler to expend his initial cash resources at the very beginning in the purchase of his land. In the carrying out of this policy, and always seeing to it that the settler's loan advance account (justified by the permanent improvements he is making) keeps in advance of his land purchase arrears, he is regarded by the Commission as financially sound. In this way the capable working settler is helped, and safety to the State is guaranteed in the fact that the Government does not issue the title to the land until it is eventually paid up.]



Campaspe Weir, near Rochester.

MALLEE LANDS.

VITAL problems of wheat culture having been solved during latter years, large tracts of Australian territory are now thrown open for cultivation which were previously looked upon as non-productive.

The Victorian Mallee is one of these tracts. It occupies an area of 12 million acres, or nearly one-fourth of the State. Regarded in the old days as desert country, it was not taken up in pastoral holdings. The dense scrub which covered it was accepted as a sign of valueless soils: the squatter derided it, the free selector gave it a wide berth. Thirty-five years ago a Victorian Royal Commission described it as "a wilderness in the strictest sense of the term." Covering thousands of square miles, given over to wild dogs and rabbits, patriotic Victorians groaned when their eyes rested on the north-western corner of their

map—so much of the little State could never be profitably settled, so much was waste land which would never be revenue-producing.

So, for decades, that dull Mallee scrub lay untouched, unoccupied; the wild dog continued to prowl its arid recesses. Under summer suns it lay in parched silence—a great lone land extending from the Murray away to the south-west for hundreds and hundreds of miles.

From Wimmera came the first signs of its awakening. Edges of the Mallee go down into this region, which had early been found suitable for pastoral occupation. Some enterprising spirits cleared small areas of scrub and ploughed it. They found that the normal rainfall was enough to return payable crops. They found that Mallee soils were in reality of unusual fertility; that clean Mallee land grew good sound



An Old Homestead at Swan Hill.



Clearing the Land for Grass.

wheat. Then the invention of the stump-jump plough simplified its cultivation—the introduction of fallow and phosphate ensured a certainty—the Mallee farmer was evolved. To-day Mallee farmers are men of importance in Victoria. The Mallee produces one-fifth of the wheat grown in the State. The Mallee is crossed by railway lines, and dotted with prosperous townships. From Swan Hill across to the South Australian border, right through the centre of that region described by a Royal Commission as “a wilderness in the strictest sense of the term,” in early summer there is painted a widening belt of glorious green which later on is turned to gold. The three principal counties of the Mallee, Weeah, Karkaroc, Tatchera, produced in 1915-16 over thirteen and a half million bushels of wheat!

The next good season will see the Mallee's production at ten million bushels, and there are millions of acres as good as any yet cultivated to come under the plough.

One of the last official trips made by the ex-Surveyor-General, Mr. J. M. Reed, before he became Secretary for Lands, was out through country in which his staff had spent strenuous months aligning lands for occupation.

The work of Australian surveyors can hardly be calculated in ordinary values. Men of the theodolite and chain who went out to survey the Mallee were often cut off from the world for months at a time. They had to carry water, provisions and instruments, through trackless wastes. Their work was done in all weathers and under all sorts of trying conditions; their difficulties were legion, their complaints but few.

On his return from the north Mr. Reed favored the author of *Australia Unlimited* with a brief report which illustrates the progress of Mallee districts and the policy of settlement therein.

“During last week,” said Mr. Reed, “I tra-

velled through the area of Mallee country extending from Ouyen, on the Mildura railway line, to Murrayville and on to Pinnaroo, near the South Australian border. The surveyed country comprises an area of 705,000 acres, in 1,042 allotments, and of these 895 have been disposed of, the balance of 147 allotments being now available, and applications have yet to be considered by a local Land Board. The development of this country, from the earliest settlement within it in 1909, has been highly satisfactory. It affords a very striking illustration of the desirability of opening up such country by railway construction in advance of or concurrently with settlement; of the importance of simultaneous water provision, and of the clearing of roads for traffic. A large extent of country is under cultivation on the eastern section, extending westerly from Ouyen, also on the western section, of which Murrayville is the centre, while the central area is rapidly being cleared and made ready for cropping. The western section is that on which bore water is obtainable, and frequently within the range of view, while travelling, six to ten windmills may be seen at one time, each denoting a pure and full water supply for the settler. Some of the homes have water laid on from the elevated tanks. The value of this in the hot Mallee country can hardly be realised. In addition to the fifteen effective Government bores there are



Heavy Sorghum Crop, Swan Hill.

numerous private ones. To this certainty of water supply the remarkable progress of the settlement can largely be attributed. Unfortunately, the eastern limit of the underground water appears to have been reached, and farther east surface catchments and storages will have to be relied on. Very many of the settlers' homes are of a superior type, being good iron dwellings with complete outbuildings. The railway line has been laid for about 62 miles from

Ouyen. In a very brief time it will be extended to Murrayville, its present terminus at 68 miles. Some excellent wheat yields have already been obtained, but this season's crop, while by no means a failure, will not give average results equal to those of last year. Local estimates for the Murrayville portion give an area of 100,000 acres under crop,



Sweeprake. Harvesting Lucerne

with an average yield of 7 bushels. It is estimated that 300,000 bushels are awaiting delivery at Murrayville. Grain sites are now being laid out at this station ground, and will supply a very keen present want. The township allotments surveyed at the various station sites are in great demand. A sale of 10 building allotments at Ouyen on the 5th instant realised £772, an average of £77 per lot. At Walpeup six allotments gave an average of £89 per lot. At Underbool fourteen allotments an average of £70 per lot, and at Murrayville, on the 7th instant, twenty-five town allotments realised £2,617, an average of £105 per lot."

Victorian Mallee land is prepared for cultivation in similar manner to that of South Australia — described in the chapter on settlement in Pinnaroo. In fact, the Mallee is all part of that vast area of wheat-growing soil which stretches across the southern half of the Australian continent from Cootamundra, in New South Wales, to Albany, in Western Australia.

The red, sandy, Mallee loam will grow almost anything on a minimum of moisture. The transformation from desolate scrub to greening field is a romance of Australian settlement.

First come the surveyors making their contour surveys, roads surveys, water surveys, all the work of those busy bush-camps which the traveller comes upon here and there. The Mallee is undulating rather than flat. In the northern Mallee of Victoria sand ridges—some nearly half a mile long—are a curious physical feature. These

nearly all run north and south. Roads and courses for water channels are laid down to avoid these natural obstacles. When necessary preparations have been made by the State, the settler is allowed into the solitude. He attacks the scrub with heavy iron and wooden rollers drawn by bullocks, crushing it down quickly, and burning off as soon as he can.

Parts of the Mallee are covered with pine, box, and belah, which take more clearing. This timber has its value. Large quantities of it have already been used by settlers for building and fencing. North of Manangatang good forests of useful building timbers are still available.

After the erection of a home and the rolling down and burning off, come fencing, ploughing, and harvesting, all the seasonal detail of a wheat-farmer's life.

Supplying certain districts with water has been one of the State's problems. The States Rivers and Water Supply Commission has overcome most of the difficulty.

Nowadays, when a new district is to be opened up, the Engineer for Water Supply and his staff



Two Weeks' Growth of Lucerne.

first go over the country intended for occupation, looking for depressions and suitable catchment sites for Government dams. These are mostly excavated by settlers, and promptly paid for by Government, a system which is of considerable local advantage. In some districts, as we have seen, underground supplies exist. In other places the State has made water from the Murray available. The light rainfall, if it comes at the right time, is generally sufficient for an average crop, but water

for stock and domestic purposes has to be provided. The central part of the Victorian Mallee is almost entirely dependent upon storage tanks filled by natural rainfall. Lake Hattah will probably be converted into a permanent storage to supply this part of the great wheat belt. By the end of 1913 the Commission had down 63 bores which were tapping water over an area of 500,000 acres.

The Water Supply officers were then making surveys for the reticulation of a large area on the Murray border extending from Piangil to Euston. It is proposed to build a railway from Chillingollah, the terminus of the Boort line, to Manangatang, to be carried on ultimately to some point on the Murray. This line would penetrate the land to be served by the new scheme, which would embrace an area of 700,000 acres. The water will be drawn from a point near Euston, whence easy gradients may be obtained into the adjoining country. This scheme has a most important effect on Mallee settlement. This land is of fair average quality, and at least 100,000 acres are among the best of the Mallee. Given to agriculture, it will mean placing 2,000 families on the land, and an addition to the national income of from £300,000 to £400,000 per annum. Other schemes are being investigated with the view to further use being made of the Murray. The reticulation of many new Mallee townships has been part of this scheme. In the general plan of settlement in the Mallee this great river will be an important factor. Since the Water Commission started its work in May, 1906, the sum of £295,000 has been spent on the Wimmera-Mallee

supply system, which commands an area of some 6,000 square miles. The works comprise 130 miles of main channel, and over 1,100 miles of branch channels, with minor storages and tanks.

A million and a half acres of fine wheat land in the Mallee are still waiting for water, railway, and roads, that is to say, a million and a half acres which stand next in natural order of occupation. Beyond that again are boundless acres which will some day be turned into fields.

Constant experiment is being carried on with a view to breeding wheats most adaptable to local conditions. The celebrated "Federation" and "Comeback" are likely to be outclassed by hybridized varieties of greater drought-resisting powers, superior yields, and higher milling strength. It is confidently predicted that with scientific farming Victoria's average yield will be increased to 20 bushels an acre in the near future. The yield of the Mallee will then be twice what it would be under existing methods.

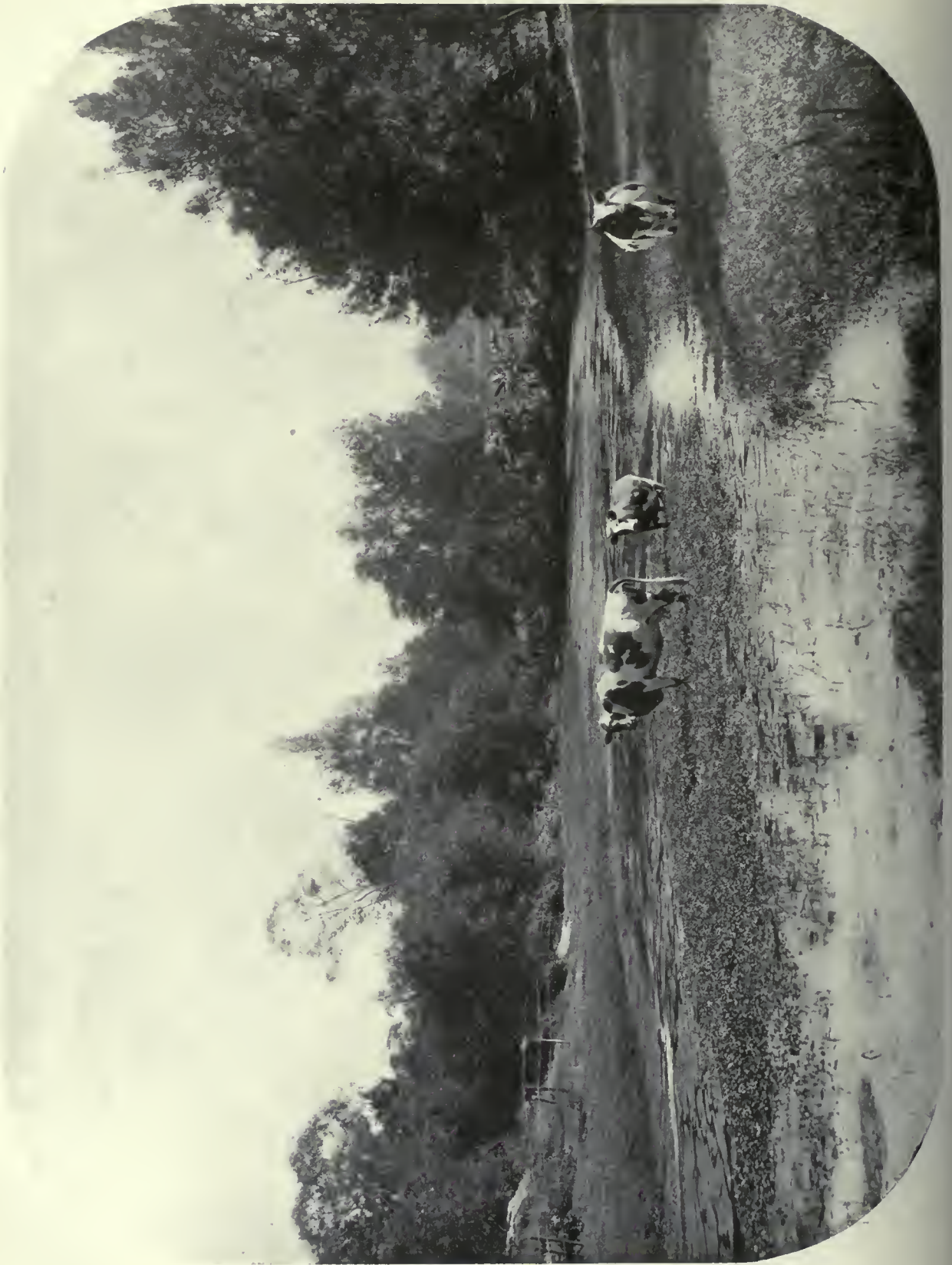
The Victorian Government announces that portions of about 2,000,000 acres of Mallee land will be made available from time to time in the near future, in areas ranging from 600 to 800 acres. The purchase money varies from 10s. to £1 2s. 6d. per acre, payable by half-yearly instalments over a period of forty years at from 3d. to 6 $\frac{3}{4}$ d. per acre per annum. A license is issued for the first six years, during which period the selector must reside on the land and comply with improvements conditions varying from 10s. to £1 per acre. He can then obtain a lease for the balance of the period, or, by paying the balance of the purchase money, the freehold of the land.



A Victorian Butter Factory.



QUEENSLAND



Lockyer Creek, near Laidley, South Queensland



QUEEN OF THE NORTH

THESE chapters are written, for the most part, from recent Queensland travel notes and personal observations. But it is advisable to begin with some preliminary facts concerning a vast territory, which has been dowered by Providence with everything that makes for national expansion and power, and needs only people of the right kind to convert its potentialities into actual wealth.

After nearly 60 years of progress, ending in a decade of unexampled prosperity, the State of Queensland has reached a definite period in her history. From now on, her development is likely to be more rapid. In ten years she has opened up 1,973 miles of new railways, and is rapidly linking up the loose ends of her great, decentralized, transport system. In ten years her enormous agricultural reserves have, for the first time, been clearly defined and the fact demonstrated that her soils contain a richness greater and more enduring than the gold of Gympie, Mount Morgan, and Charters Towers.

It is the intense *productiveness* of Queensland that appeals to those who have made a study of primary industries; the enormous extent of her alluvial and volcanic soils, her regular rainfall over vast areas of fertile lands, and the diversity of her climate, which enables her to grow blackberries and cocoanuts equally well within her borders.

As a producer of beef cattle, minerals, sugar, and wool, she long ago attracted the world's favourable attention; but as a grower of fruits and grains and a supplier of dairy produce her comparative reputation is yet young. She is essentially a food-producing country, and, apart from sustaining a large local population, she

must become a great exporter of foodstuffs and raw material. With a coastline of 2,250 miles, blessed by frequent seaports and harbours, her maritime expansion is not hampered. She possesses a distinct advantage in having autonomous railway systems, feeding various coastal centres from inland. This remarkable half-million of people—with 5,407 miles of operating railway and over two thousand miles more sanctioned by Parliament and in course of construction—have carefully avoided centralization of transport: the development of Queensland therefore must proceed evenly.

The inter-coastal districts are provided for by link lines. These will allow closer settlement, for which they are pre-eminently adapted, its fullest expansion.

Queensland is a generally interesting and often beautiful country, wherein robust health, complete liberty, and unequalled chances are free to every man and woman capable of enjoying them.

From end to end the State can be traversed in safety, nowadays, by the most rapid methods of modern transport. The Queensland of tradition, full of alligators, fevers, and savages has become the healthiest of the healthy Australian States; its alligators are eagerly hunted by ambitious sportsmen—not always successfully—and the remnants of its savages are, for the most part, peacefully occupied in the duties of mission stations, or acting as self-appointed guides to confident tourists.

The history of these fifty-eight years of pioneer endeavour, which have converted a crude young colony into a modern State, is fascinating reading. It makes a brave tale of exploration, adventure, commercial courage, and oft-times big risks and battles against odds. Not every deserving pioneer



Coal Mine, Tannymorel, Darling Downs

has been successful, not every pound invested has borne interest, not every attempted industry has been brought into the category of paying concerns. There have been losses, by drought, fire and failure; but there have also been steady and increasing gains. When the totals are taken out in the national ledger, it is seen at a glance that the credit side shows an enormously increasing balance. The finances of the State are solid; its assets are valuable enough to enable its Governments to fearlessly and successfully borrow on the world's money market all that is necessary for developmental work. Those assets comprise enormous pastoral, mineral and agricultural areas of phenomenal richness, from which only a moiety of their actual and putative wealth has yet been taken.

How rich Queensland is in minerals another hundred years of discovery and development will hardly determine.

She possesses coal measures of enormous area and incalculable future value.

These deposits have been located in many parts of the central and southern districts, and in several localities in the northern and western districts.

For 200 miles along the south-eastern seaboard there are coal seams of commercial importance. Inland there are no less than 600 miles of coal measures in one unbroken line!

The area of the *geologically surveyed* coal measures of Queensland—on the authority of Mr. B. Dunstan, Government Geologist—is estimated at 78,073 square miles, being over 20,000 square miles greater than all England and Wales!

The anthracite coal fields of Pennsylvania are contained within an area of 480 square miles. The anthracite coal measures of Central Queensland have been proved over an area of 37,000 square miles. Queensland anthracite is pronounced as similar in character and quality to the world-renowned Welsh coal.

Of the total area, 20,000 square miles contain recognized coal fields, the remainder comprising lands known to contain coal, but not yet proved for coal mining purposes.

The mammoth seam in the Mackenzie River area contains 20 feet thickness of permo-carboniferous coal of good quality. The Clermont field holds a 66-foot seam of similar coal, and other noticeable deposits are the 20 feet of fine coal in the nine seams of the Burrum area, the 20

feet of coal in the Callide area, and the 60-foot seam of brown coal at Waterpark Creek.

The probable reserves of coal in sight, on a conservative estimate made by Mr. Dunstan for the twelfth session of the International Geological Congress, dealing with the Coal Resources of the World, were 2,201,300,000 tons.

The Blair Athol seam, 65 feet thickness of pure coal, is claimed to be the largest in the world. Blair Athol has a computed 443,440,000 tons in sight.

In regard to iron and limestone, Queensland is the fortunate possessor of widespread deposits of exceeding richness.

We will go to the Government Geologist again for some facts:—

Enormous lodes of ironstone and incalculable supplies of limestone exist together at Kangaroo Hills, 60 miles from Townsville.

Marble and Morton Islands, at the mouth of the Styx River, are practically composed of limestone, containing 98 per cent. carbonate of lime.

Iron Island, in close proximity, is estimated to yield 2,500,000 tons of hematite.

At Cawarral, near Rockhampton, there is an enormous deposit of chromite and manganese. Near-by there is a mass of 70 per cent. hematite estimated at 250,000 tons, with limestone in practically unlimited quantities.

At Glassford Creek 500,000 tons of magnetite have been determined, and large outcrops of limestone.

Within ten miles of Gladstone 160,000 tons of manganese are available.

At Biggenden, Maryborough, magnetite and lime are abundant.

Ipswich has hematite, magnetite and chromite contiguous to its coalfields.

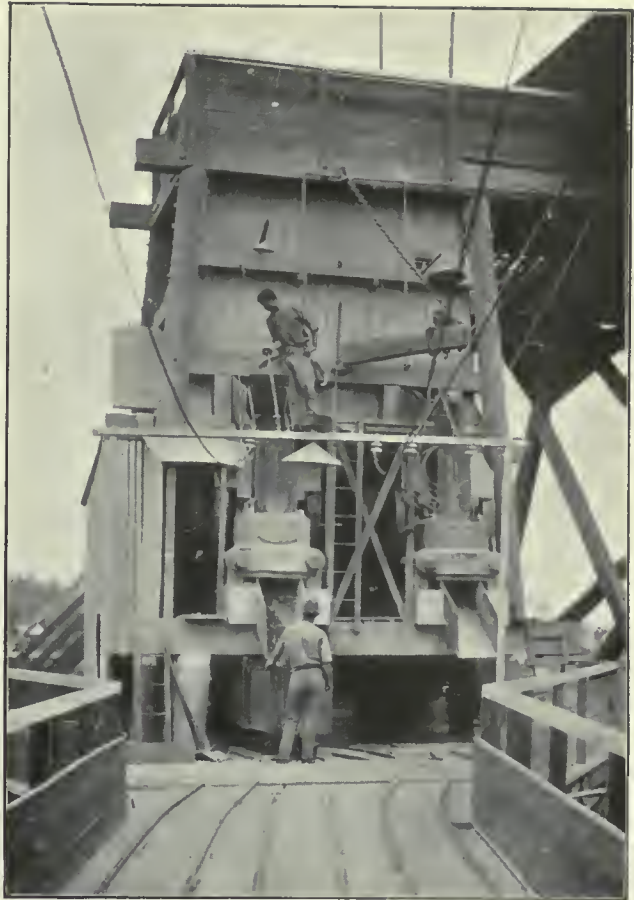
Mount Leviathan, Cloncurry, consists of a mass of purest iron ore 200 feet high and a quarter of a mile wide at the base, holding from foundation to apex 10,500,000 tons of hematite.

With iron, coal, and lime, an inexhaustible supply, the industrial future of the State is a matter of population and enterprise.

At Koorboora in Northern Queensland the largest wolfram mine in the world—the Neville—is located.

Outside her wonderful gold deposits, the State produces silver, lead, tin, copper, bismuth, molybdenum, scheelite, graphite, asbestos, metallic bismuth, antimony, mineral oils, and precious stones.

The annual mineral production of the State amounts to about four and a half million pounds sterling—this with a population no greater in 1914 than the population of Sydney, and not



Gold Ore Crushing at Gympie

more than twenty thousand of whom are actually engaged in mining.

These are some of Queensland's *known* natural assets. Her capital mineral values are still largely a matter of conjecture. But fifty-eight years of scattered discovery have proved that Nature has been more than usually lavish in allotting her portion of useful and valuable metals.

In conclusion, it is fair to say that the interests of the mining industry, those of worker and investor alike, have been carefully considered in the mining legislation of the State. . . .

* * * *

Queensland possesses thousands of square miles adapted for tropical cultivation. Already she produces ninety per cent. of the sugar cane grown in the Commonwealth. The area under cane—about a hundred and forty thousand acres—can be extended to supply ten times the population of Australia. The cane harvest for 1914 represented a cash value of nearly four and a half million pounds sterling—the area under cane occupying nearly a fifth of the agricultural production of the State.

Sugar growing in Queensland is officially claimed to be one of the most profitable occupa-

tions open to the agriculturist. There are openings for more planters in the North. Figures compiled by the Intelligence and Tourist Bureau in Brisbane in 1915 prove that albeit Queensland, in the preceding season (1914) produced a total of 225,847 tons, and New South Wales 19,960 tons of cane sugar, 13,125 tons had to be imported, mainly from Java and Fiji, to make up the requirements of the Commonwealth.

Queensland's sugar industry represents an investment of about eight millions sterling. The Colonial Sugar Refining Company has six millions in sugar production in Australasia, but undertakes the functions of refiner and distributor rather than planter.

£7 per week in the season on Northern plantations. Nowhere else in the world is cane sugar profitably grown with white labor. Having come safely through a contentious period, it may be assumed that sugar-growing on that long coastal belt is destined to great expansion. As Queensland's largest primary industry, the State Government will continue to afford it every encouragement and protection.

"Any thrifty canecutter," says an official publication on sugar-growing, "can save enough out of his earnings in a few years to make a start for himself as a canegrower. In fact, many of the most successful growers of



Wool Teams, Wyandra

The Government gives publicity to the fact that "there are thousands of acres of Crown and freehold lands adapted for sugar growing, still available to intending settlers, on reasonable terms." A large percentage of these are rich tropical scrubs. The purchasing prices of these Crown lands range from 10/- an acre upwards, and the payments are extended over a period of 20 years. With £200 to £500 capital, a man may safely make a start as a planter. The sugar districts extend along the East Coast from the 16th parallel S. to the 29th, with an average width of about sixty miles—approximately 30 million acres. Assuming that the population of Australia increases to fifty millions within a reasonable period, there will still be enough land along this tropical coast to grow the 127.60 lbs. of sugar per head which is set down as the annual consumption of the Commonwealth, and leave a surplus for export.

Since the abolition of indentured colored labor, white canecutters have been making £5 to

cane to-day began with nothing. Land can be got on easy terms, as both the Government and large firms with sugar interests are doing their utmost to settle a community of *white canegrowers* on small areas. At Mackay, in 1907, over £500,000 worth of sugar, equaling a producing value of more than £500 per farm, was the product of about a thousand farmers, fully three-fourths of whom came to the district as agricultural labourers.

"Many of the millowners who have large plantations, and also a number of the larger canegrowers, either lease blocks of their land to approved new settlers for lengthy periods on easy terms, or they get a number of experienced agriculturists to cultivate portions of their areas on the half-share system—that is to say, the owner of the land provides everything required on the farm in the way of improvements and farming requisites, such as house, implements, horses, drays, plant, cane, &c. The agriculturist, on the other hand, is



Cane-fields at Childers

expected to find all labour for the cultivation and harvesting of the crop. For the due performance of his share of the contract he is entitled to claim half the profits of each season's crop or crops. Quite a number of the present-day successful growers took up the cultivation of cane under these conditions, and after a few years they saved sufficient money to enable them to acquire properties of their own.

"The lease and half-share systems should appeal particularly to agriculturists with limited means. It is understood that the majority of the proprietors of the large plantations are prepared to favourably consider applications from agriculturists in Australia or Great Britain, Europe, or elsewhere."

"With a view of inducing settlement on the land, the State Agricultural Bank affords liberal assistance to the intending settler who has only a limited amount of capital. Advances are made at the rate of £1 per £1 of an amount not exceeding £200 for buildings (not exceeding £40), ringbarking, clearing, fencing, draining, or water conservation, also to the extent of 12/- in the £ of the fair estimated value of the holding with the improvements made and proposed to be made. No security other than a first mortgage is accepted as sufficient. At no time can the advance to any one person exceed £800. Advances at the rate of 13/4 in the £ on the value of the land and improvements may also be made up to £200 for unspecified purposes. The terms in regard to the repayment of the loans extend over a period of 25

years, with 5 per cent. interest added. Simple interest only is charged during the first five years."

Under the Sugar Works Act of 1911, owners or occupiers of cane lands within a specified locality may apply to the Governor in Council for the construction of sugar works.

In the event of the Government being satisfied that the erection of a mill is necessary—and owners and occupiers of the cane lands affected having guaranteed to grow a certain quantity of cane and pay the rate which may be levied in accordance with the Act, to make good any deficiency—they may direct and empower the State Treasurer to construct the required works, defraying the cost from the Parliamentary Votes devoted to this purpose.

"The Treasurer has full power and authority to manage, maintain, and control such works, and to grow or purchase cane, but cane cannot be purchased from aliens, and the employment of aliens is prohibited in or about the mills. Provision is made for mill township reserves, in which the allotments shall be open to perpetual lease, and the rents are to be applied for road improvement and other purposes of public benefit. Interest only, at the rate of 4 per cent. per annum, will be charged on advances made by the Government for the construction of works for a period of two years from completion; after that period the loan will be repaid in twenty-one years by annual instalments at the rate of £7/12/4 per cent. per annum, covering



Kaffir Corn, Biggenden

interest and principal. Any deficiency in the payments will be made good by a rate levied on the lands within the area. When the total cost of the works has been repaid, the cane suppliers may form themselves into a joint stock company for the purpose of taking over the works, which the Treasurer is empowered to transfer to such company."

All the sugar-growing areas are adapted for the profitable growth of maize, potatoes, and root crops, tropical fruits of certain varieties, rubber, rice, tea, cotton, vanilla, &c.

Many canegrowers vary the form of cultivation with dairying, maize growing, or mixed farming suitable to local conditions.

But Coastal Queensland is eminently a sugar-growing region. Recognising this, the Government is wisely making provision for the future expansion of a great industry and offering all reasonable inducements and securities to those who are willing to invest their capital or energy in the cultivation of cane.

Under conditions such as these, it is no surprise to learn that "canegrowing has changed, from being the monopoly of a few rich planters and companies, to the most essentially democratic industry in Queensland," and that among the list of planters individual successes might be multiplied.

Side by side with the development of the sugar industry, it is likely that the future will see an enormous increase in the production of tropical fruits along that sunlit Eastern coastland.

Mr. Albert H. Benson, Director of Fruit Culture for the State of Queensland, gives a list of 78 different kinds of fruits which are actually grown in Queensland.

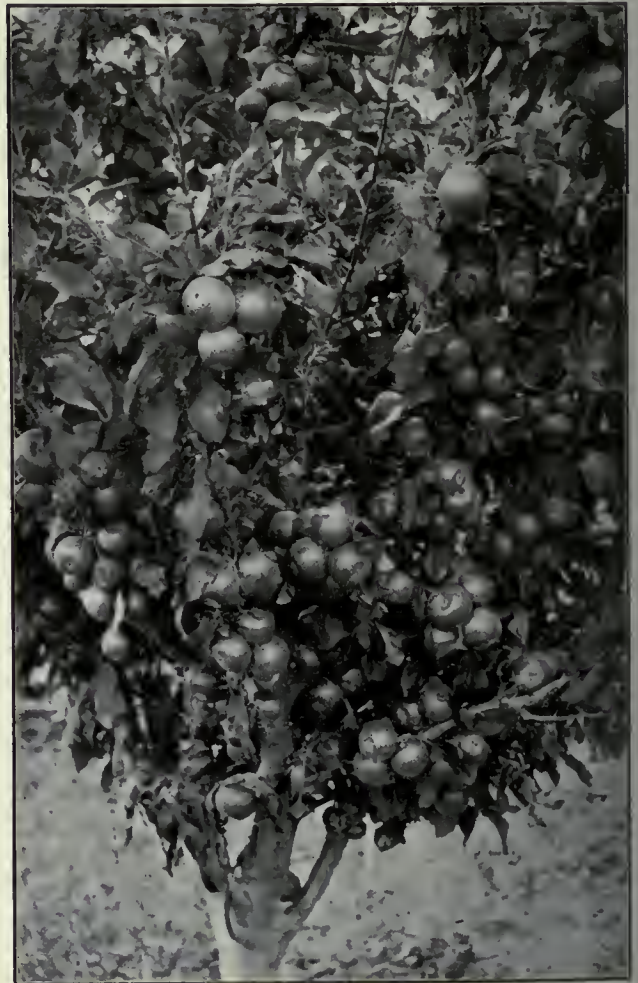
Mr. Benson has prepared an invaluable little

book under Government auspices on "The Fruits of Queensland" (1914). Therein he divides the soils of the North into three classes.

(1) Soils of Eastern Seaboard—and land adjacent to it—suitable to the growth of tropical and semi-tropical fruit.

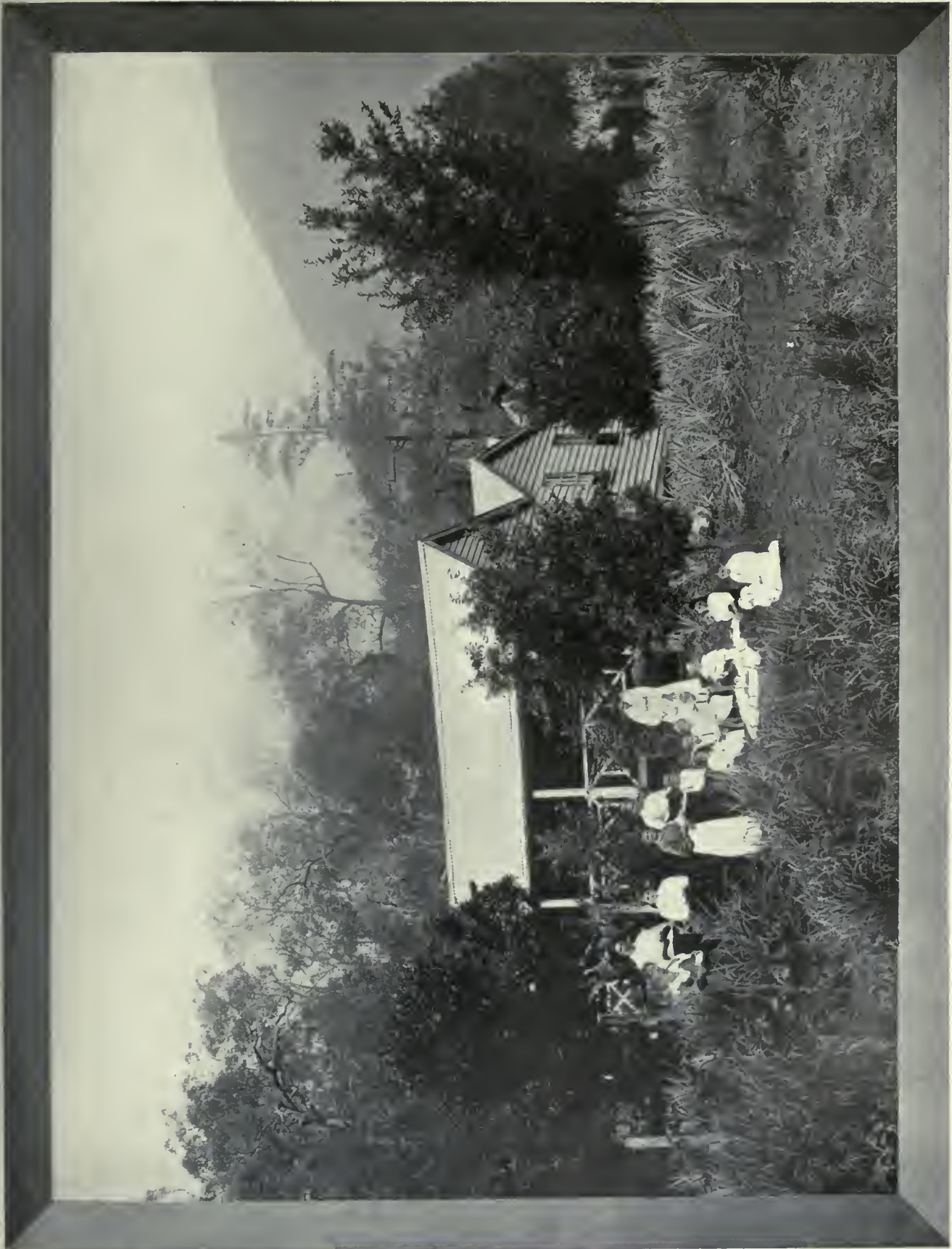
(2) Soils of the Coastal Tablelands, suitable for the growth of deciduous fruit.

(3) Soils of the Central Tablelands, suitable for the growth of grapes, dates, citrus fruits, &c.



Apples, Stanthorpe

"Here," says this widely-experienced authority, "all kinds of tree life is rapid, and fruit trees come into bearing much sooner than they do in colder climates. In addition to their arriving at early maturity, they are also, as a rule, heavy bearers, their fault, if anything, being towards over-bearing. Fruits of many kinds are so thoroughly acclimatised that it is by no means uncommon to find them growing wild, and holding their own in the midst of



A Queensland Settler's Home

rank indigenous vegetation, without receiving the slightest care or attention. In some cases where cultivated fruits have been allowed to become wild, they have become somewhat of a pest, and have kept down all other growths. It has been actually necessary to take steps to prevent them from becoming a nuisance, so readily do they grow, and so rapidly do they increase."

Scientific fruit-growing is a profitable industry in Queensland to-day. But it is only in its infancy.

Australian seasons, being opposite to those of the Northern Hemisphere, our fruits ripen at a time when the markets of Europe offer the best prices. With cold storage and rapid transport, the export trade for such fruits as will bear shipment must be an expanding one.

Bananas do remarkably well in Queensland, where there is a practically unlimited field adapted for their culture. Scrub lands—cleared at a cost of £1 10/- to £2 an acre—can be planted, without ploughing, and will produce fruit in ten or twelve months. It is by no means difficult to become a tropical culturist in this beneficent land.

A banana plantation is at its best in three years, and its average life is about ten. The cultivation of this valuable food plant requires little labour,

while the harvest, under good conditions, is remarkable—25 to 30 dozen fruit sometimes growing on one bunch in rich new soil.

Queensland, according to experts, grows the finest pineapples in the world. The culture of this fruit is entirely in the open, no shelter being given the plants as in Florida and other countries. It is practically immune from disease, requires no specially rich soil, and bears two main crops a year.

From the Brisbane district—where there are bearing plants 40 years old—the pine has spread all over the eastern coast, and its cultivation is increasing rapidly.

Fifteen tons to the acre is not an unusual crop for Queensland plantations. The fruit can be sold for £3 to £4 a ton at a profit. The average weight for smooth-leaved varieties is 6 to 8 lbs., but 14 and 16 lb. pineapples are not unknown in the fertile North. The canning of this fruit on a large scale is an industry capable of great development.

The mango is another valuable tropical fruit which grows profusely everywhere outside the region of frost in coastal Queensland. Full-bearing trees may be seen along the roadsides and through the bush, sprung from chance seeds. This beautiful and prolific tree, whose branches sometimes have a spread of 60 feet, will crop as much as two tons of delicious fruit in one season—which at present is mostly wasted, or converted into food for domestic animals.

Papaws—which cure dyspepsia—granadillas, coconuts, delicately-flavoured passion fruit, custard apples—all these coastal Queensland grows in utter abundance. In some districts the guava has actually become a pest to settlers!

In fine, tropical fruits and fibres of highest commercial value can be produced on the coast with less difficulty than attends their growth in most other parts of the world, and with higher percentages of result.

Deciduous fruits flourish on the coastal tablelands. Their cultivation is rapidly increasing at Stanthorpe and elsewhere. The peach in Queensland remains profitable for a much longer period than in California, its roots keeping sound for the full lifetime of the tree. Full-bearing trees produce as much as a thousand pounds' weight of fine fruit.

A surprise which Australia held in store for people who had always associated the cultivation of the strawberry with temperate climates, has been the wonderful success of this fruit in Queensland.

Southern markets are now being supplied with magnificent strawberries at a time when local plants are hardly in flower.



Papaw Tree



Orchard, Redland Bay

The Department of Agriculture takes a paternal interest in the orchardist, who finds cheap land available for any kind of orchard he may decide to plant.

Unlike Florida and other great fruit-growing districts in the United States, the widespread orchard lands of Queensland are not subject to those killing frosts which have caused such tremendous losses to fruitgrowers.

In the tropical northern coast, frosts are quite unknown, and the most delicate plants can be grown in certainty.

More remarkable is the fact that, in conjunction with these ideal conditions for tropical culture, the climate is one of the healthiest in the world, free from those epidemics and fevers and prostrating temperatures which handicap life for Europeans elsewhere.

Three species of citrus fruit are indigenous to the State; which is a sufficient guarantee that the soil and climate are suitable for the successful cultivation of the orange and lemon.

After a long experience in the citrus fruit districts of America, Mr. Benson says:—

“The country adjoining the eastern seaboard, extending from the Tweed River in the South to Cooktown in the North—a distance of about 1100 miles, and extending inland for nearly 100 miles—is naturally suited to the growth of citrus fruits, and there is probably no country in the world that is better adapted

to, or that can produce the various kinds of these fruits to greater perfection or with less trouble, than this portion of Queensland. There are hundreds of thousands of acres of land in this area in which the soil and natural conditions are eminently suited to the growth of citrus fruit, and in which the tenderest varieties of these fruits may be grown to perfection without the slightest chance of their being injured by frost; and where the natural rainfall is such that, provided the trees receive ordinary care and cultivation, there is seldom any necessity for artificial irrigation. At the present time there are hundreds of citrus trees growing practically wild in different parts of the coastal country that are in vigorous health and producing heavy crops of good fruit, even though they are uncultivated, unpruned, unmanured, and have to hold their own against a vigorous growth of native and introduced shrubs, trees, and weeds.

“We have a better and richer soil than Florida, requiring far less expensive artificial fertilisers to maintain its fertility. We can grow equally as good fruit; in fact, it is questionable if Florida ever produced a citrus fruit equal in quality to the Beauty of Glen Retreat mandarin, a Queensland production. We get as heavy, if not heavier, crops, and our trees come into bearing very early. We have no freeze-outs similar to

those which have crippled the industry in Florida so severely in the past that many of their wealthy growers are actually covering in whole orchards of many acres in extent as a protection from frost. If it pays the Florida growers to go to all this expense in order to prevent freeze-outs and to produce first-class fruit, surely we can compete with them when a seed stuck in the right soil under favourable conditions will produce a strong, vigorous, healthy tree, bearing good crops without any attention whatever.

be carefully irrigated and manured, as these operations are found to be essential to the production of marketable fruit.

"These few instances show how favourably the conditions prevailing in Queensland compare with those of the great citrus-growing districts of Europe and America, especially in the matter of soil and climate, and I feel confident that, if the industry were taken up in the same business-like manner that it has been done in California and Florida, we could easily hold our own against any part of the world."



Lemon Trees, Yeppoon, Central Queensland

"In comparing Queensland with the citrus-producing districts of Southern Europe, we have the advantage of better and cheaper land, absence of frost, more vigorous growth, earlier maturity of the trees, and superior fruit.

"As compared with California, our soil is no better than theirs, but it costs much less, and their citrus industry is dependent on artificial irrigation, their natural rainfall being altogether inadequate for the growth of citrus fruits.

"In Jaffa, also, where the oranges are of large size and extra quality, the trees have to

Strawberries are being profitably grown along that fertile Eastern coast alongside pineapples and bananas!

The olive and the vine will ultimately be cultivated in certain suitable parts of Queensland, where experimental plantings have given splendid results. As settlement comes, wine and raisins will be more freely grown in those dry sunny districts of the West, which are particularly adapted for their production.

When Australia ceases to import all her cordage, there will be a field in the North for the cul-

tivation of sisal hemp and other fibrous plants. Sisal, being a drought-resisting plant, can be safely grown on poorer lands with low rainfall. It is a plant particularly adapted for family settlement.



Sleepers leaving Landsborough for Africa and India

From these facts it will be seen that Northern fruit-growing is capable of enormous extension, that the State offers unlimited openings for orchardists, and that, comparatively speaking, a minimum of either labour or capital will ensure a maximum return.

Gold is in the very soil of Queensland; not only is it to be found at various depths in the mines, but on the surface of the earth.

It was once believed that only a relatively small area was arable; now it is known that the whole State has agricultural values, some of them among the highest in the world.

Similarly, profitable dairy farming in Queensland was once classed among the impossibilities.

With seventy-seven factories on the Downs, thirty-three in the Moreton, and fifteen in the Wide Bay and Burnett district, it is evident that this industry also has a future in the North.

In 1890 the whole State only produced a little over nine hundred tons of butter and 76 tons of cheese.

Twenty years later, in 1910, the annual production stood at 13,955 tons of butter and 1851 tons of cheese—Queensland had been converted from an import to an export country, her surplus for that year amounting to nearly a million pounds sterling in value. In 1914, 37,230,240 lbs. of butter, and 7,931,869 lbs. of cheese, and 6,967,486 lbs. of condensed milk were produced.

Bacon raising, which may be regarded as the profitable by-product of dairy farming, the same year increased by 25 per cent.

By this time London buyers had learned to

appreciate the flavour of Queensland cheese, and her dairy products were becoming well and favourably known in South Africa and adjacent Asia, where demands for the products of Northern Australia will certainly increase.

Queensland is the greatest beef-cattle raising country in the Commonwealth; the major part of her territory is still devoted to pastoral industries, which are fully dealt with in other sections of this book. Sufficient to say here that the wool clip for 1914 was worth six and three-quarter million pounds, and the meat products (including bacon and hams) over six and a half million pounds sterling. The State breeds thousands of magnificent horses of all types, of which large shipments are sent to Asia every year. If native pastures are rich and wide enough, countries sufficiently mild, and water plentiful enough to sustain and fatten millions of beef-cattle, it seems reasonable that milch cattle shall also find a habitat throughout her generous territory.

Theory is supported by fact. Not only does the high-grade quality of Queensland dairy products command top price in the London and Continental markets, but when samples are exhibited



Olive Trees, Westbrook

at the leading British and foreign shows, they have invariably secured first honours against all other competitors.

From the Darling Downs—once the only district in which dairying was established—it has spread to the Logan, Maranoa, and Blackall, and the Central and Northern parts of the State.

The Atherton tableland is likely to come entirely within the dairy farming sphere. It has, on its higher levels, a climate equivalent to that of the Darling Downs, with a much heavier and more certain rainfall.

With lucerne, paspalum, sorghum, and Rhodes grass growing freely, as they will do over thou-

sands of square miles in Queensland, the fortunes of dairy farmers are doubly assured.

Keen rivalry has sprung up among Queensland breeders of dairy cattle during the last decade, which has greatly reacted upon the industry. Queensland milk tests show high results—2½ gallons, containing 3.6 per cent. of butter fat, will produce 1 lb. of commercial butter.

£100 a month is not an unusual milk cheque for a Queensland dairy farmer.

It is officially proclaimed that the State Lands Department has large areas of splendid dairying country, in various acreages, open for selection in the Wide Bay, Burnett, Blackall, Central, and Cairns districts at prices ranging from 10/- an acre upwards. The terms of payments extend over 20 years; the deposit is the first year's rent and one-fifth of the survey fees, and the annual rental is one-fortieth of the purchasing price.

Crown Land for the dairy farmer is available in Wide Bay and Burnett districts, close to the railway line.

Its average price is 30/- per acre. Butter factories are accessible.

Atherton and Herberton Crown lands, adjoining the railway system and within easy distance of butter factories, can be had for £2 an acre. Blackall lands have adjacent railways and factories, and range in price from £2 upwards.

In the Central Districts, particularly around Gladstone, some good dairying country is open for selection from the State at from 20/- an acre upwards, according to its proximity to the railway.

When the Great Western and Main North Coast lines are opened for traffic, large areas of

lands suitable for dairying will be brought into the radius of transport. These are to be made available for closer settlement by the Lands Department.

There are at the present time *nearly four and a half million acres of Crown land suitable for dairy and general farming available for selection in various parts of Queensland, on exceptionally easy terms.*

Advances from the Agricultural Bank may be obtained on similar conditions to those which have been quoted in regard to small sugar growers requiring capital.

Any man of ordinary energy and intelligence, with two or three hundred pounds' capital, can commence as a dairy farmer in Queensland with every prospect of success. Some of the men who are lifting their £50 to £100 monthly milk cheques began with less.

The share-farming system has also been introduced into some parts of this State, and will doubtless extend as settlement increases.

Irrigation and ensilage are being added as artificial aids to these natural advantages which the Northern agriculturist enjoys. With the general application of water and storage of fodder, the last elements of uncertainty will be removed from closer settlement propositions, and still more scientific farming will bring still greater results.

Where irrigation has already been attempted—in the Lower Burdekin district for cane growing; on Fairymead and Bingera sugar plantations, at Gatton Agricultural College, and by some of the western bores, the results have satisfactorily proved that the principle can be profitably extended, particularly on the tableland and coast.



Gatton Agricultural College



Central Railway Station, Brisbane

THE TRAIL OF THE TROPICS.

IN the spring of 1912, the writer was returning, via Brisbane, from Northern Australia.

To thoroughly appreciate the glory of Australia one ought to come South with the spring; to follow in the season's footsteps from tropical to temperate latitudes and experience all its changing effects.

After being away from Australia for a time, it was good to drift down from Asia and see the Northern Territory awakening to intense tropical life at the end of its brief winter; to steam along the Barrier in the wake of spring; and then, to catch that blessed sun-maiden in the fulness of her blushes at Brisbane.

Very lovable seemed our quieter Southern landscapes after gorgeous pictures of Orient.

On a cool Queensland morning one entered a comfortable train—all the passengers speaking English—and, crossing the Brisbane River, came all-at-once into open spaces.

Fresh from long journeys in crowded Asia, where the train passes from squalid suburbs of one city to squalid suburbs of another—villages, houses and people in between—the unoccupied and undeveloped aspect of all Northern Australia made forcible contrasts.

But it was Australia in one of her most beautiful aspects. First came Ipswich, a little city in purple and gold, for jacarandas and silky oaks were all in bloom; then the railway line began to mount, by a series of remarkable angles and

grades, to Toowoomba. Here the air is quite cool even in late October, and people have fresh natural colour in their faces! Surely this is a European country!

Then roll out the Darling Downs, high, fertile, black-soil plateaux, covered with the glamor of spring.

Frequent watercourses, fields of lucerne, fat stock—prosperity shines over a landscape through which the train travels rapidly until late afternoon.

Then come the orchards of Stanthorpe, where English fruit trees are laden with promise. Here old alluvial workings lie under grey granite hills—mounds of dead activities with tall monuments above them.

The shades of evening are falling in deep gorges at Wallan-garra, where the break of gauge enforces a change to the wider carriages of the Mother State.

Night settles down over the mountains of New England. There is an inward satisfaction in the knowledge that one is coming back to explore Queensland next winter.

* * * *

From Mt. Kosciusko to Melbourne and back to Sydney within a week was the preliminary journey.

Then, on a Saturday evening in July, I checked my baggage for Brisbane and took my seat in an



General View of Brisbane, the Metropolis,

old Standard Pullman car that bore my allotted sleeping berth number.

After a good dinner at Newcastle we turned in under extra rugs and wakened at Glen Innes for breakfast.

At Wallan-garra the inter-State passengers amused themselves watching the transfer of mails from one baggage car to another. Those mail baskets bore many labels—Nagasaki, Yokohama, Ipswich, Cairns, Mareeba—verily we were Northward bound.

As the train dived into rough mountain ranges we saw the wattle's burning gold gleaming against a darker background of eucalyptus forest. Its perfume was wafted in through our carriage windows. Queensland wore flowers of welcome in her hair that sunny July morning.

With the coming of afternoon we broke out on to the emerald Downs, still rich, fertile and shining with prosperity.

We were given roast turkey and plum-pudding for dinner in the Railway Refreshment Rooms at Toowoomba. The long journey ended by 9.40 p.m. at the Central Station in Brisbane.

As I went to bed at Lennon's Hotel that night the air seemed sweet with the subtle odor of some tropical flower. I looked out of the window and saw the electric light glowing on the dark leaves

of a papaw tree growing in the courtyard below.

A week before I had looked out of my bedroom window in the Hotel Kosciusko to see the moonlight gleaming over a landscape deeply covered in dazzling snow. I woke with the Queensland sun shining and a rattle of early electric cars.

Brisbane is a hearty place. If there is any poverty among its 161,938 inhabitants the appearances of the North must be singularly deceptive.

Everyone seems well-dressed and contented in this Summer City.

The prices of all commodities compare favorably with those of Southern Australia. Situated about 20 miles from the mouth of the Brisbane River, the city wharves are still capable of berthing vessels of over ten thousand tons. In 1914-15 the value of oversea export and import trade for the port of Brisbane was considerably over fourteen and a quarter millions sterling.

Wood-paved streets, electric tramways, handsome public and commercial buildings, banks, fine shops, factories, frequent parks, Botanic gardens, good hotels, libraries, museums, churches, colleges, hospitals, docks, markets, theatres, clubs, cafes, racecourses, baths, and recreation grounds, make Brisbane a modern city, despite the fact that fifty years ago its population was less than a



From the Observatory

thousand people. Winter in Brisbane is delightful. Each year a greater number of southern people go north to enjoy the blue skies and balmy air of this City of the Palms, where in July fruit-shop windows display strawberries and custard apples, and adjacent beaches are not too cold for open-air bathing.

* * * *

The Director of the Intelligence and Tourist Bureau had been instructed to prepare a comprehensive itinerary; the Chief of Police would give me an open letter to his officers in the Back Country. The heads of other departments, Mines, Lands, Agriculture, would all put me in the way of official information. It looked like a busy time ahead. But, as in other States, the interest which everyone seemed to display in *Australia Unlimited*, the universal kindness and courtesy extended to its author, the patriotic desire to assist its mission, lightened the tedium of constant travel, and made the pursuit of facts a pleasure.

Brethren of the metropolitan and provincial press proffered information concerning the country, issued introductions, indicated authorities. The Government Geologist gave a whole morning to summarising the physical features of Queensland—with emphasis on its varied mineral

resources. The Under Secretaries for Lands, Mines, Agriculture, and the Director of Education, submitted to exhausting interviews. The Director of the Bureau of Intelligence and his staff gave one the impression that the chief delight of their lives lay in serving the aims of itinerant authors. The bluff Government printer cheerfully overhauled his library of official literature. The Secretary of the Sugar-Growers' Association wrote out a sheaf of personal introductions to sugar-growers and mill-managers in the North. The secretary of the Pastoralists' Association presented statistics and reports. Busy commercial men expatiated on the stability of various industries—everywhere there was staunch faith in Queensland's future, a fixed belief that it would yet prove the richest State in the Commonwealth.

With a three months' pass and open authority to explore this vast territory, one felt like Pizarro must have done when he landed in Peru.

Through subsequent pages we will look at some of the foundations on which Queensland builds her optimism.

In 1909 the Northern State celebrated her jubilee.

Fifty years of self-government had filled her history with fine achievement.



The University, Brisbane

Since 1909 she has added fresh conquests to her previous records of victory in the shape of ports and railroads, in the opening up of new districts, inauguration of industries, the carrying out of public works.

With a coastline of between two and three thousand miles, and an area of 670,500 square miles—three times the size of France—there is ample scope for the activities of less than 700,000 people.

As a first proof of the State's richness, let the reader realise that these 680,446 inhabitants—about the same population as the city of Sydney—after 50 years' growth, owned as a public asset in 1916, no less than 5,407 miles of railway.

One need only look at the people in Brisbane streets to see that it is a good country. There is a general air of well-dressed independence about the metropolitan community, which one does not find outside Australia.

Native Queenslanders are tall and tanned by comparison with southern Australians. But there is nothing anaemic or unhealthy about them. Queensland's death rate per 1,000 is only 10.96—one of the lowest in the world. The birth-rate is the highest in the world—29.46 per 1000.

Here again irresistible scientific proof contradicts another popular error.

Queensland has been painted as a perennially hot country, possessing the least healthy of Australian climates, whereas its death-rate is not as high as Victoria, 12.23; or Canada, 14.0.

Its climate, instead of being universally hot and trying, varies from temperate to cool. It is only along the northern littoral, during certain months, that they approximate in severity to the tropical climates of other countries.

Dense, unhealthy heat such as one experiences in the tropics of Asia, Africa, Central America, the East and West Indies, does not exist in any part of Australia!

From south to north the State extends about 1,200 miles. All the way along, at a short distance from the coast, the Main Range is a factor in the determination of climate. As far north as the Atherton Tableland, the compensations of neighbouring highlands exist for future dwellers on the coast,—a lucky dispensation of Nature, which will make the "White Australia" policy easier for Queensland.

West of the Main Range the Great Plains, which slope away to the borders of South Australia,

lia and the Territory, have an average elevation of about 700 feet, and enjoy one of the most glorious winter climates in the world. Within her borders the Northern State grows all manner of agricultural products—from rye to cocoanuts.

It is very pleasant to sit out in the refreshment rooms at these gardens on a cane chair, dew glistening on green lace-edged palms and the freshness of morning around you, and attack this luscious fruit as a prelude to breakfast.



Produce Markets, Roma Street, Brisbane

In the beautiful Brisbane Botanical gardens one sees the coral tree and the rose flowering side by side. The palms that wave so gracefully at the entrance to Parliament House, cannot be accepted as typical of the electorates which are represented inside—for wheat at Roma and apples at Stanthorpe are flourishing equally well.

The writer confesses that he likes Queensland best in her most tropical expressions. There is a note in the soft north-easter as it blows along the Great Barrier, rustling the fruiting palm trees and the sugar-cane, which is not found in any other Australian symphony.

The palm and the bamboo in the gardens seem most at home. In Brisbane the southerner learns for the first time the luxury of custard apples.

Its soft, green rind encloses a white, juicy pulp in sections, some of which cover black seeds—bigger than those of the sunflower.

Most of the custard apple is fruit, and fruit of a flavour which no epicure will condemn.

To get the atmosphere of tropical Australia one may very correctly eat custard apples in Brisbane Botanical Gardens before breakfast.

Here are palms, sunlight and green trees along the river's bank. If the Irish constable on patrol is in good conversational mood he will stop and talk about Western Queensland. In the richest of Kerry brogues, he proclaims Australia to be the finest country on earth and Thargomindah in Western Queensland, where he had spent seven years, the finest part of it.

Yet Thargomindah is thought to be desert in some parts of Australia!

In the past, distance lent not enchantment, but error to the view. Much of the desert report has been uttered with intention—people who had found good country, wanted to keep it to them-



Avenue of Palms, Botanical Gardens, Brisbane

selves for mercenary reasons—and for the rest when nothing definite was known about some part of the interior it was classed as "desert."

The "Barcaldine Desert" is now regarded as a good closer-settlement proposition.

Men who have owned land in the Argentine say that the finest pastoral lands in the world are those of Western Queensland. Men who have gone out from Cloncurry to Croydon found to their surprise that they were travelling through emerald pastures, where they had always expected to find drought-stricken wastes.

After months of constant travel over Queensland North and West, an itinerary covering thousands of miles, the author has failed to discover even fifty square miles which might be classed as desert. If it were possible to make a complete analytical comparison, it would, he believes, be found that this State contains a

greater proportion of rich land to its entire area than can be found anywhere else.

From Jardine's homestead, standing in its shade of palms under Cape York, to the sugar plantations of the Tweed, what a coastline!

From Rockhampton to Boulia, what a billow of mountain and sweep of plain!

No man can compute the riches of the 429,120,000 acres that are contained within those boundaries.

The Queenslander of to-day tells you with pardonable pride that his imports for twelve months are valued at seven and a half millions of money, and his exports at nine and a quarter millions, that his cattle number five and a quarter millions, and his sheep twenty-one millions.



Date Palms, Barcaldine

He will call your attention to the fact that he has already constructed 5,407 miles of public and private railroad; that he has another 529 miles in course of construction and 1,554 and more miles approved.

But when the population has increased to the 50 millions of people that Queensland could sup-



Leaving Brisbane for Northern Ports

port, the statistician of the far future will have colossal calculations before him. Long before the State holds five million inhabitants, the world will know that it is perhaps the richest territory under the sun.

* * * *

Let us leave the Capital city for a time and go forth into this vast undeveloped land, which is bigger than the combined empires of Germany and Austria, and little less in area than European Russia.

The old *Kyarra*—most stable of steamships—is flying her “blue peter,” by one of the Brisbane wharves. Heavy-limbed stevedores are storing the last crates and packages into her deep holds as we mount the gangway. The dinner bugle is blown just as the vessel casts off and begins to drop very slowly down the muddy Brisbane River.

There are many typical Queensland characters around the table. One notices that the children on board are darker-complexioned, that many of the women are sun-tanned. Although it is July

nobody is over-burdened with winter clothing.

Then we remember the ports of call—Rockhampton, Mackay, Townsville, and Cairns, and it occurs to us that Bombay and Townsville are in the same latitude—north and south!

From the shady side of the deck we watch comfortable suburban villas, perched up on piles, drift slowly past our vision.

Golden wattle, bougainvillea, and tropical growths surround them. The distant hills are blue with a blueness unknown to Southern eyes.

We pass Cape Moreton in the gloaming. The north-easter, bride of afternoon, ripples greying seas. The lighthouse is getting busy already—darkness follows close on sunset in these latitudes.

There is something indescribably soft and comforting in the day-fall up here. Sunset colours behind the Glasshouse Mountains—those tent-shaped peaks which stand out so conspicuously on the Northern trail—set one thinking of lights that fall through the stained-glass windows of ancient cathedrals. Low, woody hills are outlined against a pale saffron sky; the beaches of Stradbroke Island show whitely, while the rest of the world

is fading into shadow—this silent coming of Northern night is delightful in all its details.

As we lounge on deck—watching a sky powdered with stars, listening to the wash of the Pacific against the *Kyarra's* iron bulk, and the steady thumping of her engines—a map of Queensland is outlined in imagination before us.

Romantic fancy flies ahead. We see the long coastline of a thousand miles, that will face a rising sun to-morrow morning; jungles that

North for Keppel Bay—the terminus of the first of those great East and West railway systems, which will protect Queensland from centralization, and allow her development to proceed evenly.

As night falls, we see Port Alma light ahead. Port Alma is right on the Tropic of Capricorn. The steamer slows down to await the midnight coming of the stevedores who are to deal with her Rockhampton cargo. We retire to our berths



Cronin's Artesian Bore, Barcardine

creep down to the water's edge, open plains covered with long grasses, forests of stunted hardwood, mouths of rivers, mangrove swamps, coral reefs, the Great Barrier, the thousands of islands that lie between Cape Sandy and Cape York.

We see the canefields of Bundaberg; all the wealth and tilth of a sub-tropical coastland as different from the coast between Gabo and Glenelg in its physical features, in its mode of life, and in the outlook of its population as Montreal is different from Monterey.

Next day is Sunday. Midwinter weather—clear, blue, and mild—makes a trip to the North this time of the year an ever-remembered delight.

Sandy Cape goes by—then the long, low shores of Lady Elliot Island, with clumps of trees edging white beaches. They give one the impression of Australian plains, where one sees, across a wide, level landscape, perhaps a single clump of timber standing up conspicuously on the horizon.

Flying fishes are skimming away from the *Kyarra's* bows—a reminder of warmer seas.

We dawdle past the mouth of the splendid harbor of Port Curtis, and bear away, East by

with the knowledge that to-morrow will find us well within the Tropics.

A golden moon, perfectly orange-shaped, throws a glistening lightway over the calm waters of Capricorn; sleep comes with the gentlest roll of a steady ship.

Morning brings out clearly purple hills of the Queensland Coast, beaches, and, above all, islands.

From now on we are sailing over a Sea of Islands. Flat islets, conical islets, islets of all shapes and areas. Most of them are covered with a dense tropical vegetation. Very few are inhabited, and, on many, no one has ever landed. They are the haunts of birds. Torres Straits pigeons at night, and flying foxes in the daytime, find them a safe covert. The atolls are alive with sea-birds.

It seems as if some lavish hand had scattered emeralds over a field of lapis lazuli. Perhaps a yet unworshipped goddess, playing carelessly with her gem casket, has let some of its jewelled contents slip through her fingers.

A broad riband of blue velvet winds between our ship and peaky foreshores, wherefrom ascend sharp pointed ranges. There are deep bays

studded with little islands and points of land preceded by other islands, standing like outposts to prevent the invasion of the seas.

Our careful passage northward lies all the way between these thousand islets of the Barrier. The ocean is constantly calm. It remains for hours as smooth as an azure shield. Then, in response to some feathery breeze, it shows, for a morning or an afternoon hour, little wave-tops of whipped cream.

The Barrier would be an ideal ground for a yachting cruise. There are little sandy bays for safe anchorages, beaches for landing places, green seaward slopes, creeks and springs of fresh water. Game, oysters and fish can be had everywhere.

Golden whiting swim over the sands with every tide. Scarlet snapper haunt the seaward reefs; red bream and squire the shoreward bays.



Sapphire Fields, Anakie District

Blues and delicate greens are its dominant colours. It sparkles under floods of cloudless sunlight by day; at night it is a sea of enchantment lit by a magic moon.

Black-tipped gulls sail softly over the ship's wake, or aeroplane ahead of her bows. The flying fish, with spangled wings, arise in shoals.

Close under a high island, with red bluffs facing steeply towards the Channel, we steam slowly. This island slopes away gently on its shoreward side. Its summit is covered with tall, dark, Norfolk Island pines.

Many of these islands—now sleeping idly in the coral seas of Queensland—will no doubt some day be profitably occupied. Some of them are of considerable area and covered with richest soils. On others, gold and other minerals have been discovered.

Gorgeously-colored rock-cod and all the fishes of warmer seas feed in and out of wondrous marine fields, which make these Barrier waters the daydream of young zoologists.

To the naturalist, the sportsman, the lover of the wonderful and beautiful in Nature, the Barrier is an everlasting delight.

Here one may see the coral insects' marvellous work. Here one may gather the wealth of a tropic sea—from the delicate pearl shell, which has caught the elusive iridescent glamor of its native waters, to that giant clam, which, closing upon the foot of the traditional victim, holds him in a vice-like grip, until he is slowly drowned by an incoming tide.

Here the dugong slowly feeds. At the mouths of the estuaries one shoots alligators and.

along the coastlands, wild boars, snipe, quail, wild ducks, geese—the sportsman's larder will be varied by edible game of many species.

Above all there is the color, the life, the mystery of a coast which has no parallel around the margins of the Seven Seas. The Barrier is unique, tremendous, illuminative, a crystallization of all that has made the South Seas a field for finest description and most fascinating romance.

Whether one is watching the water breaking in a thin, white line over some hidden reef; or enjoying the varying colors of deeps and shallows, there is an ever-present interest interwoven with the changing hours.

If you would get a mental picture of the Barrier, think of a coast whose softened outlines are from morn to night, a screen for the play of prismatic colors, varying from the tea-rose pink of earliest dawn, to the Oriental patterns of a sunset beyond which one dimly sees the walls of Heaven.

Think of a sea as blue as the eyes of Rossetti's Blessed Damozel, as blue as Anakie sapphires, as blue as Tyrian beads, or the mosaics of Byzantium, or the tiles of the Alhambra—cornflower blue at midday, turquoise blue in the evening, but sometimes pale green in the shallows and blue-black in patches where glides the shadow of a passing cloud!

Think of this enchanted sea, fringed on its eastward boundary by a reef of coral 1,000 miles in length, with only two or three known openings through which a ship might safely pass!

Think of it, studded from North to South with islands—lands in clustered groups, in archipelagoes, in tens, and twos and singles; islands keeping solitary sentinel over a wide sea-plain; tent-shaped islands standing together like the camp of a sea-caravan; islands strung out like pearls on a queen's necklace; islands scattered like golden coins from an emperor's hand; islands where waving palms beckon from white beaches, islands where tall pines stand like grounded spears in a hall of giants; a shower of islands scattered like raindrops all the way from Capricorn to York; lighted with the rainbow and sweetened by the wind that brings the showers.

Think of the Great Untenanted House, of which this is the Front Door—the State of Queensland, represented in our western horizon as we sail along by a hazy purple line. It claims to be the "Queen State of the Commonwealth," "a paradise for willing workers," "the richest unpeopled country in the world." It calls for farmers, for agricultural laborers, for miners, for domestic servants, for men accustomed to livestock. It offers comfortable homes and good livelihoods for steady, energetic people such as

these—with opportunities. It wants men with small capital accustomed to outdoor life; men without capital not afraid of hard work; "young men without experience, who are willing to take employment while they learn the methods of work in Queensland."

There it lies, with its natural wealth yet awaiting exploitation; with, to-day, slightly over a million of its 429 million acres under cultivation, its minerals yet largely unwon, its richest soils untilled,—and all their potential harvests, yet to come!

The landline fades. Presently the lights of Flat Top show abeam. We will step off at Mackay—which is a little less than half way to the northernmost point of Queensland, and the capital of a splendid district.

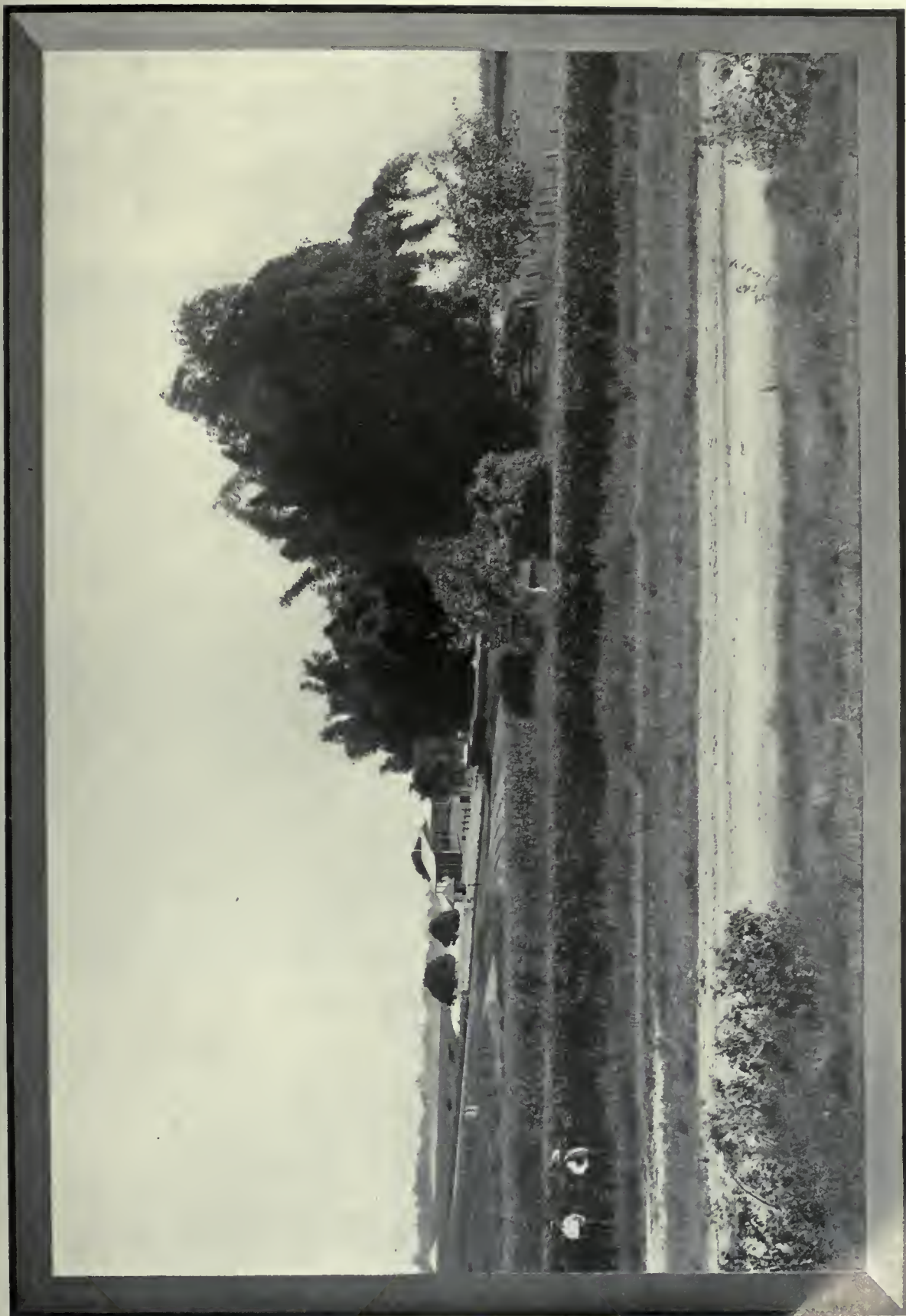
Harbor improvements are being effected which will ultimately enable seaward passengers to land and embark under pleasanter conditions. As it is, we are crowded—with other shoregoing passengers and their luggage—into a tossing oil launch. We round the ship and leave her astern, her lights throwing distorted reflections into the water. The moonlight does not compensate some of our nervous lady passengers for the pitching of the little tender: but, after we cross the bar and get into the river, even mangroves and mud banks seem beautiful in the silver of a tropic night.

We land at a dark wharf, smelling heavily of sugar, and are conveyed in a crowded cab to an excellent hotel, built on the tropical plan, with wide verandahs, high rooms, and castiron ventilators to keep them cool. Everything is clean and orderly. We switch off our electric light and sleep under a couple of blankets, in comfort.

The morning comes clear and cool, with a strong sea-breeze blowing. No one could desire a more delightful winter climate than that of Mackay. The prosperity of this town and district is based on sugar. Fourteen years ago the writer spent some time here studying at first hand the problem of White Australia; which had not then received legislative attention from our Federal Parliament. In fact, the actual Federation had only just been accomplished. Queensland was looking with much anxiety to the future. Few people in the North believed then that the cultivation of sugar could be profitably undertaken without colored labor.

Now the people of Mackay seem to think that, given certain conditions, the sugar industry can better be carried on by white labor alone. Whatever the ultimate truth of this much-disputed problem may be, the progress made by Mackay during fourteen years is everywhere visible.

We have landed at the height of the cane-cutting season, which—luckily for white labor—falls in midwinter.



A Cane Farm near Mackay

Westward, at a distance of 45 miles moreover, stand the Eungella Ranges, 3,000 feet high—where sanatoria could be established if necessary. As we have already pointed out, this compensation of high lands lies behind the eastern littoral, and will greatly benefit the coming generations.

Eungella is already a health and pleasure resort for Mackay, as well as a tourist attraction for the outside world.

The summit of these jungle-clad mountains is

monwealth as the black potato lands of Warrnambool.

We need not ascend Eungella Range to find our perspective. A walk down the streets of Mackay with a warm sun shining and a cool wind blowing, this balmy July morning, will give us food for reflection on the diversities of Australian conditions.

In the gardens, coconuts, bangalow and date palms are the predominant growths. Papaws



Cane Train going to Marian Mill, Mackay

attained from the railhead by a wonderful zig-zag track. Magnificent vistas of tropical Queensland—river, valley, and mountain—reward the traveller for the steepness of the road. Here the Southern Australian beholds a country green and gorgeous; which brings to his mind pictures of equatorial Africa, the Amazon, or the Indies. It is difficult for him to understand that this scene of tropical vegetation and color is as truly Australian as the eucalyptus forests and subdued landscapes of the South.

That still, sunlit valley below, through which the Pioneer River is winding, the jungle, the cane farms and plantations, are as typical of our Com-

are ripening in the backyards of the workers. Some are tenderly covered with a cloth to make the process gradual and increase the flavor. The papaw is a healthy, prolific fruit, which is understood to secrete pepsin. It seems generally popular, and is freely grown throughout Queensland.

Granadilla vines, loaded with luscious fruit grow over the lattices.

Jacarandas, and other tropical trees, mangoes, guavas, lemons, beautify the dwellings of this tropical Australian town. As we go North the note of difference becomes more pronounced. Cairns will be Mackay—but an octave higher. Between the deep bass voices of Wilson's Pro-

montory and the soprano sighings of Trinity Bay there is a wide range of harmony.

But, through all the composition, there runs a standard theme—prosperity.

We will see no poverty in Mackay. We find instead a population enjoying, almost without exception, comfort, independence, comparative wealth.

Sugar-cane planting began here in 1865. The industry has passed through many stages; but the suitability of this land for sugar growing has always been evident, and the progress of the industry steadily forward, year by year. Some of the finest sugar mills in Australia are located in the Mackay district. The value of the crushing for 1910, at one mill, the Alexandra, was £600,000. This mill opened its career in 1868 with 110 tons.

For 1914 it was estimated that the district area under cane would be 40,540 acres.

The crushing for 1914 yielded 43,462 tons of sugar and one and a half million gallons of molasses.

The proportion of sugar produced by white labor alone in 1913 was 91.7 per cent.—only 1601 acres of the 34,000 being "black."

Of the nine mills in active operation in the Mackay district, it may be said that no group of mills in any part of Queensland are making a better financial return.

A number of these mills were erected under the Sugar Works Guarantee Act of 1893. This Act was passed to encourage the cultivation of sugar cane by white labour. The Queensland Government undertook to advance the cost of necessary mills and machinery, taking as security the title deeds of the plantations, and a mortgage over mill-buildings and plants.

Of the Mackay mills so subsidised not one has failed to meet its annual obligations to the State. In the Racecourse and Marian mills the debts have been entirely liquidated.

The average size of a planter's holding is about 120 acres. Cane being a heavy product, the plantations are naturally grouped around the mills; the farms being connected therewith by two-foot tram lines, along which, in cutting season, little trucks, laden with the purple, jointed cane are drawn by horse or steam traction to the carriers of the mill.

Only a small proportion of the lands suitable for cane growing in the North has been brought under cultivation. The Government, realizing the value of the industry to the State, has from time to time extended to planters much legislative and financial assistance.

There is a Government Experimental Station on the outskirts of Mackay, where, on 35 acres of its rich black lands, different varieties of cane

are grown, and experiments carried out with various fertilizers. A small staff of agricultural chemists is constantly engaged in making tests on behalf of growers, and with a view to keeping up the productive qualities of Queensland cane.

So far, the varieties which have been found most profitable are "Badilla" and "Goru," both originally propagated from indigenous stocks procured in New Guinea, where several varieties of sugar-cane grow wild.

The hours worked by cane cutters in this district are 8 per day for the 5 months of the season. The average earnings are 14/- to 17/- a day. Bachelors living in camp on the co-operative system get an abundance of good food, including plenty of beef and mutton, for 15/- a



Cocoanut Palms at Port Douglas

week. Board and lodging in hotels costs them a pound a week. It is not an uncommon thing for railway navvies and workers of that class to leave their occupation in order to go cane cutting, which they regard as easier and more remunerative. Many of the best Northern farmers have been cane-cutters. From a worker, earning 14/- to 17/- a day, to a grower, is a mere matter of evolution. Nowhere else in the world is the transition from wage-earner to proprietor easier.

Having spent a pleasant and instructive couple of days at Mackay, we will retire to bed early and endeavor to get a sleep. A good traveller's motto is, "Sleep when you can, and eat always."

The *Camilla* is advertised to sail from Flat Top, bound North, at a very early hour in the morning. The tender is leaving Mackay at 2 a.m. Until the harbor improvements are carried out or the North Coast Railway is constructed from Rockhampton—they are pushing it along now—we will have to adventure as tide,

weather, and the shipping company may decree. David, the hotel baggage master, suffers from want of sleep; but, faithful to his duty, he wakens us at 1 a.m. We bear our luggage through the sleeping streets of Mackay to a dark river wharf, where flare lamps throw a smoky glare over stacks of mustily-sweet-smelling bags. A fa-

of the cabin. In one corner is a cupboard, which does duty for a bar. Over the dining table hangs a swing sideboard, containing half a dozen glasses and two cruets.

A gentleman with a blackened eye struggles in for refreshment. The engineer comes along for a nip, and the man with the black eye insists upon



A Pineapple Plantation at Woombye, North Coast Line

miliar odor of sugar—not unpleasant, but heavy—arises from the holds of the lighters waiting alongside the wharf to be towed down to Flat Top.

We descend by a steep ladder, thinking somehow of New Orleans—into a stuffy cabin not much more than ten feet square.

An English steward brings us a blanket and two pillows, which he spreads out on the transoms. A swing light is suspended from the roof

extending to him the courtesy of the swing sideboard and the cupboard. The Eye proclaims loudly that he has just “sacked his boss”—presumably with violence.

The noises of machinery and winches follow one another. Presently the motion of the swing sideboard and the cruets proclaims that we have crossed the bar.

Our only fellow passenger is a young military captain who sleeps on the transom, lying on

his back with his mouth wide open and the light of the swing lamp full in his face.

We toss down to Flat Top and come alongside a fleet of lighters busily heaving out sugar into the flare-lit holds of a waiting steamer. By and bye we take two of them in tow. Their tired gangs are squatted on the hatches smoking after toil, and mentally calculating the amount of overtime earned. With their dark hulls behind us, our tug crosses back over the bar and into the river again.

Back once more and wait for daylight. At dawn, aroused by shouting, we go on deck after a ten minutes' sleep. A lighter has broken away, and is drifting out to sea. We go after her, and give our Scandinavian skipper an opportunity to show his seamanship.

He has all the lovable characteristics of his race. He handles that prodigal lighter as gently as a father his errant son; retrieves it softly and brings it back to anchor.

The *Camilla* comes in with the morning—a sleek, splendid steamer of 10,000 tons.

She has passengers for Mackay, but they have to wait for the doctor, and the doctor will not be here until sunrise. Meanwhile, the blond Scandinavian skipper gives us morning tea in the little cabin where the cruets have been swinging steadily all night and are swinging yet.

As we go below we notice that the eye of the gentleman who has discharged his boss looks much worse in the daylight. The Scandinavian shakes his head sadly—he is a sober man.

The doctor comes at last; the prodigal lighter is laid alongside the *Camilla*. Somebody hangs out a rope ladder over her iron flank. The Eye, the Officer, and Ourselves, climb up, one after another. We glare fiercely at the deck officer, a lovely youth in gold braid, who, with a smiling lady passenger beside him, has been looking over the rail at our gymnastics. Then we seek out the purser and book our cabin for Cairns and the heart of the Australian Tropics.



Girls of North Queensland



Townsville, the Capital of North Queensland



Cedar Logs at Cairns

CEDAR AND GOLD.

GO North, young man! And still—go North! Until you have sailed the Barrier Sea and climbed the Barron Gorge, you cannot quite appreciate the possibilities of this Commonwealth. Your way will be made pleasant. In all the voyages that are offered to you by tourist bureaux and shipping agencies, there is not one that you can enjoy under more comfortable conditions than a voyage from Melbourne to Cairns in midwinter.

A reference to official time tables will show you when, where, and how you should proceed—and for the rest, it is only a question of fares and pocket money. To use an Americanism, you may be assured that the North will “deliver the goods.”

The writer is middle-aged, blase with travel, and inclined to be caustic after he loses a night's rest. This may account for the tone of the following dissertation, which he lifts bodily from his notebook:—

“The trip to Cairns in winter time is decidedly popular. Luckily I have a cabin to myself—some passengers having landed at Mackay. The cabins are small rooms handsomely furnished. The shipping companies are evidently determined to make this run the most attractive on the coast.

“The *Camilla* is a vessel of surprises. I have counted eight mates in faultless uniforms and varying degrees of gold braid. When off watch they promenaded the decks with young lady passengers. The skipper is white-haired and god-like. He has all the dignity of an admiral of the Blue. I cannot help thinking that his officers have been selected to match the appointments of the dining and music halls—which are superb. Even the stokers are superior to anything I have seen coming up out of a ship's hold. The stewards are of another race; they look too noble to *be* stewards. I would not be at all surprised to learn that there are many younger sons of distinguished families among them. The *chef* is surely a French marquis in disguise. I conclude this by the menu. The cabin boy looks to me like Eros in an Eton jacket. I should not regard it as untoward if he took a small bow-and-arrows from under his vest and fired at the beautiful widow, who is at present walking the fifth deck with the eighth mate.

“When the bugler's tarantara suddenly broke from the alleyway in a call to breakfast, it sounded like a chord from Mendelssohn's ‘Wedding March.’ Luckily, we have several clergymen on board.

"*Later.*—I have discovered that the scenery is the special property of the deck officers. At least they point it out to the lady passengers as if it belonged to them. There is no ship in "The Ways of Many Waters," like this: My friend, John Masefield, would not recognise the *Camilla* as a ship. If Joseph Conrad were writing one of his superb stories around this vessel he would put rosewater in his ink. Sometimes I fancy that I am journeying North in a perfumer's shop which has broken loose from its moorings." . . .

The course from Mackay to Bowen lies through the mazes of the Cumberland Islands. The yachting calm of this romantic sea makes a voyage on a modern steamer like the *Camilla* pleasurable to the worst sailor who ever trod a vessel's deck. The most critical tripper grows enthusiastic; invalids forget their ills; passengers are loath to leave the decks; novels are put aside; nobody writes letters, for every hour is filled with fresh interests and the changing attractions are too vivid to miss.

One way out of the maze lies through Whit Sunday Passage—which is the heritage of future landscape painters, who are its most capable interpreters. Mere literary phrase-makers cannot be expected to do it justice.

Bowen possesses a splendid natural harbor and a rich district; of which we will talk again presently.

Townsville is the terminus of another East-and-West railway system, 562 miles in length.

It faces the ever-blue waters of Cleveland Bay, with Castle Hill crouching behind it, one of the most interesting places in Australia, and a great city of the future. Since Federation, the black and yellow population has been reduced to a very small community, and the town seems all the better for it. The 14,000 people of Townsville are healthy and prosperous-looking. They will not listen to disparaging remarks about their climate. Their faith in Northern Queensland is firmly fixed. A few years ago Townsville was the centre of a strong Separationist movement, which had for its object the conversion of this territory into another State. Although the causes of old dissension have been gradually removed, the North still complains that its local conditions are not properly understood, either in Brisbane or Melbourne.

Whatever its summers may be, Townsville in July is amber and pearl. The arching skies are perpetually blue; the sea has an unfading lustre, and, all day long, cool breezes are blowing.

Nor do the people seem languid or inert. Sturdy wharf laborers work after the strenuous manner of wharf laborers in colder climates; ex-miners from Charters Towers may be seen

toiling in the midday sun at street excavations, or harbor works.

The young girls are fresh-complexioned, active, vivacious, apparently not unduly affected by the climate; women rear large families and preserve their health as in Southern Australia. Living is slightly cheaper than in Melbourne or Sydney. Townsville imports its requirements direct from European markets, and directly exports its wool and meat, and ore.

Looking into the race question at Townsville—where the School of Tropical Medicine is doing good work—one dimly catches some faint outlines of the future, and foresees a European type of leisurely habit, resembling in character the Southerners of the United States.

A land where mango trees flourish as naturally as grey tea-trees around Port Phillip; where papaws grow in people's back yards; where sunrise comes in chrome and vermilion during midwinter: where, on a July day, the stretch of water between Townsville wharf and Magnetic Island is blue as the sea by Tangier—must naturally evolve a people less robust, but more volatile and swarthier than the natives of either Geelong or Hobart.

Where the willow fig (the *Ficus Benjaminea* of botany) droops its glorious branches, like the canopy of a sheik's tent, to make a winter shade for maidens in white frocks; where belmontia trumpets proclaim from floral mouths the scented glory of the Tropics; where magnolias and frangi-panni load the air with heavy fragrance, subtle changes *must* take place in the temperament of the people, who in after-generations will evolve—we know not how.

West and South of Townsville there is a wonderful territory, which we can examine on our way back from the North.

Between Townsville and Cairns, coastward, are splendid sugar lands. Halifax, Ingham, Cardwell, Mourilyan, Innisfail, are prosperous places along this littoral where tropical cultivation is profitably established and whence settlement will extend.

Between Lucinda Point and Cardwell winds the celebrated Hinchinbrook Channel.

Shoreward of Hinchinbrook Island, Nature has constructed a gondola passage for the prows of Romance. It is narrow enough to bring the gorgeous tropics before one's eyes like an illuminated missal, held open in the hand. It is beautiful enough to evoke the rhapsodies of the most prosaic passenger; and moves even commercial travellers to respectful admiration.

South of Hinchinbrook are the glorious Palm Islands; and North of it is Dunk Island, the home of Mr. E. J. Banfield, whose books on tropical Australia are delightful and interesting

reading. Looking at the green, waving palms of Dunk Island as we steam past it at sunset over a lake-like sea of sapphire and gold, we can understand the happy optimism of this literary beachcomber of the Queensland Coast. . . .

The visitor to Cairns can very easily imagine that he is entering the placid harbor of some South Sea Island.

There is a half-moon beach of white sand, a reach of mangroves and then high volcanic hills, lifting their jungled heads into a region of changing cloud.

Being 908 miles nearer the equator than Brisbane, the tropical note is more intense. That prevailing odor of ripe fruit, reminiscent of the tropics, assails you from the wharf on landing. Ripe fruit and sugar on the wharves, and a land-breeze laden with heavy perfumes that are unknown to cooler climes—once you have inhaled this your memory will always recall pictures similar to those that unfold themselves at Cairns.

You will not be in this interesting town of seven thousand people—a fair sprinkling of them Asiatics—for very long, before you discover an Australia altogether different from the Australia of current description.

The traveller will find in the hospitable homes of the far North, conditions resembling those of India or Malaysia, rather than of Melbourne. Between the suburban bungalows of Cairns and the tiled villas of Port Jackson stand the divergences of two thousand miles.

You drive out of the town along a road bordered by pandanus trees, past a swamp where purple lilies and water hyacinths bloom under arches of flowering vines and beautiful orchids. Jungle-clad hills rise before you, glorified by Oriental coloring. The lights and shadows of a tropic day pass over their matted gullies and rounded peaks. A purple haze descends upon them as the sun goes westward. In a breezy bungalow built up on piles over a concrete floor, you are given afternoon tea. The wide verandah is furnished with cane lounges—you can see that it is really the sleeping-place of the house—and that its keynote is coolness. This is not a climate where closed rooms make for comfort or health.

The Japanese house-servant has added a little Asiatic decoration to the rooms with colored paper and miniature flags in honor of a home-coming, and looped up the mosquito nets over the swinging cots on the high piazza with ribbons.

You notice in the combined drawing and dining room, hangings, abundant doors—and electric fans.

Around you are tropic vines covered with glorious flowers, palms, and rustling bamboos.

Every domestic detail reminds you that you are in the Land of Summer-all-the-time; but a pleasant land withal, where one might eat the lotos without regret.

Naturally, amid surroundings such as these, you ask, "Is the climate a healthy one for Europeans?" It is a contentious question, and one that it is safest to answer through the voices of scientific observers:—

In the Melbourne *Age*, under date 29th November, 1913, Dr. C. C. Butler Lyne, M.D., Health Officer of Cairns, published a letter dealing with the subject of tropical disease, and its relationship to the health of his own community. He says:—

"In Cairns we have the lowest death rate of any municipality in Australia. We have no typhoid, no diphtheria; pneumonia is unknown; and of scarlet fever there has been one case in six years. . . . There is a certain amount of mild malaria here every year, which is limited to a particular section of the town. The only death of a malarial patient that has occurred during my residence here—for the last six years—was due to outside causes. The Government, the municipal



A Queensland Railway Locomotive



Manager's Residence, Kamerunga State Nursery, Cairns

Council, and the Cairns Shire Council are doing everything they can to eradicate the causes, and we hope to be perfectly free this year."

At Kamerunga, a few miles from Cairns, the Queensland Government has established a nursery for the experimental cultivation of tropical and sub-tropical plants.

Kamerunga has demonstrated that the commercial agriculture of India, of South America, of the Tropics in general, is quite possible to Northern Queensland.

There the visitor may see tea, coffee, cotton, cocoa, tobacco, vanilla, ramee, rubber, cocoanuts, breadfruit, and hundreds of other valuable trees and plants growing to perfection.

export trade worth eleven to twelve million pounds sterling, may be set down roughly as ten times greater than Ceylon.

It is worth remembering that, in Northern Australia, there are various species of *indigenous* rice—cotton, limes, nutmegs, tamarinds, pepper, rubber, and other tropical plants of commerce. On Mount Bellenden-Ker, not far from Cairns, at an elevation of from 2,600 to 4,500 feet, an indigenous mangosteen (*Garcinia Mes-toni*) has been found growing. If a thorough scientific exploration of the Northern jungles were carried out, there would doubtless be discovered hundreds of other useful plants and trees.

This will be one of the functions to be filled by the Federal Agricultural Department.



Para Rubber Plantation at Kamerunga



Oil Palms at Kamerunga

Kittool fibre, snake beans, cassava; the cuscus grass of India, from whose roots perfume is distilled; citronella, used as an unguent for keeping away mosquitoes; tonkin bean, used for scenting tobacco, and worth 20/- a lb.; egg-fruit, anise, cardamom, sago, areca nuts, kola nuts—Kamerunga grows them all.

Mr. Howard Newport, Instructor in Tropical Agriculture for Queensland, who has had long experience in British India, said to the writer:—

"Northern Queensland is a richer country than Ceylon, and its climate is far healthier. With the climate and soil that we have here, the return per acre, from tropical agriculture, should be greater than that of Ceylon."

Ceylon is a little more than three-fourths the size of Ireland; only about a quarter of the whole island is cultivated, and the population in 1911 was 4,109,470. The population of the Australian Commonwealth in 1911 was 4,455,005.

The area in Northern Queensland suitable for such cultivation as gives this Island an annual

As an example of how little is yet known of Northern Australia, the author of this book met that eminent and enthusiastic Swedish scientist, Dr. Mjoberg, out in the depths of Atherton scrub in the winter of 1913. Dr. Mjoberg spent three years in Northern Australia, and, as the world of science knows, has added greatly to our knowledge of the native fauna. He said that no less than eighty-five per cent. of the natural history specimens secured by him in the Kimberley district, of Western Australia, were new to science! Investigations made by him among northern aborigines, it might be mentioned in passing, disclosed the existence of many Sumatran customs, a fact which will be of interest to anthropologists.

Among fruit-bearing trees which are advertised by the Queensland Government as now available at Kamerunga nursery are the pomelo (*Citrus medica*), which travellers in the Dutch Indies will remember as a huge orange with large, juicy quarters,—the litchi (*Nephelium li-chi*), the mangosteen, pecan nut, the Davidsonian plum



A Good Crop of Pine-Apples

(another indigenous fruit of utility), eight varieties of breadfruit, jack-fruit, soursop, and hundreds of other valuable tropical trees.

Plants and trees also available are kola, cocaine, quassia, croton, kapok, sugar palm, tea, five varieties of coffee, kava plant, camphor, cinnamon, pepper, date palm, eight kinds of commercial rubber, and a long list of valuable timber and shade trees, cereals, and annuals suitable for the climate.

The Instructor of Tropical Agriculture at Kamerunga asserts that for the cultivation of coffee the conditions of soil and climate in Northern Queensland are in advance of those in nearly every country where coffee is being commercially cultivated.

Coffee already planted in Queensland has done well, even if it has not always been a complete commercial success.

In North Queensland all the conditions necessary for successful cultivation of coffee may be found at sea level and on comparatively flat land.

The experience gained by preliminary attempts—and some failures—indicate that coffee growing is destined to become a payable industry in

the North. The plantations in bearing at Mt. Buderim, Mackay, Atherton, and Kuranda are giving average returns of 8 to 10 cwt. per acre, and up to 20 cwt. in specially good seasons.

It is estimated that, on 15-acre blocks, Queensland coffee planters with a small initial capital of about £450 may be sure of a minimum 12 per cent. profit on their outlay, returnable in three years. A small plantation like this, which could be handled comfortably by one family, should return an income of at least £4 a week.

Once a coffee plantation is established it will last a lifetime—during which its owner's living is assured. . . .

From Cairns to Kuranda is the most interesting railway journey in the Commonwealth.

The railroad runs first across a rich coastal plain, largely occupied by banana plantations, where the ever-industrious Chinaman busies himself in making a colonial fortune—while he may. In a few years, if the Exclusion Act works out properly, these Asiatics will have no place in Australian development. The Act is no more than an insurance for race preservation and the



Palms. Cairns-Mulgrave Railway

maintaining of highest social and economic standards.

Leaving this region of cultivation behind, the train begins to ascend that high range which, as we have seen, greatly determines the climate of Coastal Queensland. On the edges of a palm glade, bananas and papaws are growing wild. Then the engine puffs over the shoulder of the first rise, and astonished travellers find themselves in depths of jungle.

smoking dragon of progress that writhes around a hundred curves in its snorting efforts to reach the summit of the range.

As the train climbs this impressive gorge, clinging to its Southern wall as a caterpillar clings to a rock, the passengers look down from dizzy heights into foaming waters, into breathless jungles, over silent panoramas of inexpressible beauty. Eastward, at one point of vantage, they may behold the Barron River, emerg-



Barron Falls, Cairns Railway

Ferns, orchids, palms, creepers, vines, banyans, cedars, silky oaks, kauri pines, have covered the gullies and hillsides with undulating banners of green, on which are emblazoned most gorgeous designs. Carpets of vegetation miles square are woven into one piece. All nature has assumed its most florid aspect; spangled butterflies and beautiful birds haunt these astounding everglades—where the botanist and the zoologist are yet free to roam and enjoy the thrills of discovery.

Presently the Barron Gorge unfolds itself. On its other side are seen red gashes, where the railway builders have sliced off projecting shoulders of mountain to make a foothold for the

ing triumphantly from the duress of mountains, where, with the last strokes of a victorious sword, it has cleaved a way to freedom.

Its chafing soul relieved at last, it expands into broader channels on its way to those blue waters which await it in the distance.

Stage after stage, through frequent tunnels, around constant curves, the journey presents new pictures. Up that splendid cleavage of the hills the grades continue, and precipices, beneath grinding carriage wheels fall more steeply into greater depths.

A steel bridge spans a chasm, into which a torrent is precipitated. As the train crosses it the spray comes in through the open windows.



Pines for Market, Woombye

"Robb's Monument" appears at the edge of a fearsome scarp of rock, around which the railway is looped like a signal halliard through the main truck at a tall ship's masthead. More tunnels and curves, more jungles, more breath-taking views and—with a satisfied snort—the sturdy little Queensland-built engine stops at Barron Falls Station, 1,065 feet above sea level.

The Barron Falls are no more nor less than the sudden dropping of a North Queensland River, over a rampart of rocks 880 feet high.

Coming out of a tableland, where the annual rainfall averages 12 feet, it may be guessed that, in the rainy season, the ordinary grandeur of this spectacle of wild waters tossed, whirling, and thundering into the black, slaving jaws of a gaping gorge approaches sublimity. In this wild Nature opera one hears, sometimes, the march of the Valkyries, played by an orchestra of giants; sometimes the beating of anvils in the workshops of the Sons of Anak; sometimes the mad Marseillaise of a host distracted with victory; sometimes, from boiling cauldrons, a hissing of antediluvian monsters combating with wing and claw in the primal ages of the world.

The Barron has been flowing swiftly and musically over its sands and boulders. It has come dreaming out of the forests, through the vine-wedded jungles, with sunbeams for sport and green water-weeds for playthings.

Suddenly it is hurled into nightmare depths, amid thunder and explosion. A mist resembling smoke constantly arises from this scene of Titanic conflict; and the groans of a broken river are heard for miles.

Kuranda, the sanatorium of Cairns—and a tourist resort for all Australia—is two miles from the Falls. It is a combination of tropical and temperate climates. The days are children of Capricornian suns; the nights are daughters

of a Southern brood. Papaws and mangoes grow in the gardens, with cabbages, turnips, and other European vegetables.

Down in Cairns, people wear tropical clothing pretty well all the year round. Here the Northerner feels the need of an overcoat in winter after the sun goes down.

From the flat roof of the hotel one can overlook a wide unoccupied region. Mount Williams, a fine jungled mass, stands in the eastern horizon, topped with white cloud. More jungled hills roll away to the West. There are no clearings visible in all this fertile waste.

The hotel garden at your feet is rich with fruits and flowers—an earnest of what this territory will produce. In it there grow limes, mangoes, bananas, granadillas; while poinciana and bougainvillea sweeten the coolness of the gloaming.



Coffee Plantations at Mackay

Evening lights are falling over this outpost. The smoke of fires curls lazily upward. The tinkle of cow bells, and the carol of a magpie tell you that you are still in the Australian Bush—a bush different in color, vegetation, and form to the familiar bush of the South, but still an inseparable part of Australia, the development and occupation of which have an all-important bearing on the future of the Commonwealth.

It will all come good. These cedar logs on the railway trucks at Kuranda siding, awaiting carriage to the port of Cairns, are only a phase of to-day.

These impurpled vistas, robed yet in virgin jungle, will gradually take on another aspect.

They, too, will have their plantations and farms. The land will grow coffee, and a plethora of other tropical cultures. The rank, natural growths will give place to paspalum and



Cairns Railway, showing Robb's Monument

Rhodes grasses; there will probably be dairies on 160-acre blocks. Mixed farming, suitable to climate and condition, will be successfully carried on. Everywhere there are running streams, rivers, lakes, possible storages. Hydro-electric power can readily be generated, the land is cheap and inexpensive to clear, the soils are rich, the rainfall is copious—in fine, all the elements of successful European settlement are here, and will not much longer call for human energy and enterprise, unheard.

Whatever disabilities residence on the lowlands may present, life on the plateau is universally agreed to be healthy and pleasant; there the European woman keeps her stamina—which is the most important thing in the settlement of Northern Australia. In time, no doubt, the ranges, connected by rapid electrical transport, will become the chief residential site for families; Kuranda at twenty miles' distance is no more than a suburb of Cairns. Queensland is fortunate in having these convenient summer retreats, extending practically from the head of Cape York Peninsula to Wallan-garra. As for the dry heat of the great plains west of the Ranges, it is invigorating rather than depressing, and the winter over all that territory is sufficiently cold.

From Kuranda to Mareeba the road follows, for a time, the clear waters of the Barron River, which is bordered on either bank by rich scrublands. This jungle is succeeded by open forest-country, in which the mining and timber township of Mareeba is located. Mareeba is flat, dry, and flourishing.

From the *Queensland Government Mining Journal* we take a paragraph:—"Close by Mareeba, on the Cairns Railway, a reef has been profitably worked; 16,000 tons having yielded an average of 9dwts. 23grs. At the Tate River, in the locality of the Golden Treasure, a tiny vein is thus described by Mr. Skertchley, at the time (1896) Assistant Government Geologist. "In many places," he says, "this little seam might almost be described as gold with quartz in it, so rich was the stone. The gold could be dollied out in an iron mortar into felted layers, from which the quartz fell out. This, however, was only a pocket; the country has never 'made good' as a big gold producer. But the adjoining districts have proved among the richest in Australia for tin and other metals." The Great Northern Tin Mine, the first mine of tin ore in the matrix in the Continent, was practically the beginning of Herberton.

The Walsh and Tinaroo mineral district embraces Mount Garnet, Herberton, Watsonville, Muldiva, Stannary Hills, Orient, Montalbion, Irvinebank, Chillagoe, and other mining places of account, no account, and possible future.



Aboriginal Climbing Tree, Herberton

The whole of this district is rich in minerals; in fact, it is said that nearly every metal and mineral and gem of known commercial value has been discovered within the boundaries of Walsh and Tinaroo. One of the churches in Herberton is said to be built on the surface indications of a tin lode, and, despite the spasmodic manner in which the whole field has been handled in the past, it has given wonderful returns. Copper, silver, and lead have so far been the dominant minerals, but antimony, bismuth, wolfram, and molybdenum have all shown promise of future profits. How rich Northern Queensland is in gold, silver, copper, and useful minerals will not be adequately known for generations. For all that far north land, which takes in Cloncurry, Croydon, Charters Towers, Herberton, Cooktown, and York Peninsula, prospector and geologist alike have predicted a future dowered with discovery and dividend.

Following the Pick, there comes the Plough. This has been the story of Australian settlement in Queensland as elsewhere. Lured into the wilds by real or fictitious fields, the miner and

his camp-followers often remained: the shaft gave place to the furrow, and the result was more profitable in the end. Historic Ballarat is declining as a mining field. It has become an agricultural centre. Gympie is going the same way.

Mareeba itself is an example of how the mining industry induces a permanent population, which ultimately wins more wealth from the surface of the land than the most enthusiastic prospector ever dreamed of gaining from below.

The forest country has a clay subsoil, and "holds" better than the richer scrub lands. Dairying experiments made in this class of country are particularly interesting, inasmuch as their success will mean that wide areas of forest lands, which have been set down as "second class," can be turned to highly profitable account.

It has always seemed to the writer that territory which will pasture beef stock can ultimately be converted to dairying.



Mining Men of Mareeba

For a long time Mareeba, as a coach, stage and rail head, was a busy distributing centre for the Hodgkinson, Herberton, and Chillagoe fields. Then the railways were pushed on to Atherton and Chillagoe, and the carrying trade, on which the place had grown prosperous, declined.

The population next began to consider the possibilities of agriculture. Land was taken up, cleared and ploughed, and cultivation and dairying introduced with satisfactory results. From one acre of potatoes a Mareeba settler ingathered 12 tons, which gave him a return of £16 to the ton. Land which yields nearly £200 worth of crop to the acre cannot be barren. Yet none of the Government lands in this locality have been valued at more than £1 an acre, and most of them have been sold to settlers at 2/6.

Mareeba, though situated in what is called a "dry" belt, has its regular rainy season, after which the district resembles a wheat field. Here, as in other parts of Australia, the silo will play a big part in the future.

The place looks forward also to a manufacturing future. Large deposits of limestone exist at Emerald Creek, a few miles from the town, and it is thought that when electrical power is generated at the Barron Falls, the manufacture of lime for the sugar industry, and also carbide of calcium, will be undertaken. Sawmills are already established to deal with the magnificent ornamental and hardwood timbers of the adjoining districts. The Mount Mulligan coalfield is another near-by asset which makes Mareeba hopeful.



Mount Bellenden-Ker

From Mareeba, one branch of the Cairns railway system runs southward through Atherton and Herberton to Ravenshoe.

The line re-enters the scrub near Tolga, a rich maize-growing district. Tolga is a junction for another branch which had been extended as far as Jaggan in 1915, and was being carried on towards the Johnstone River through some of the finest tropical jungle in Queensland. This Atherton Tableland has an elevation of 2,466 feet at Tolga and Atherton. Bellenden-Ker and Bartle Frere ascend to 5,158 feet and 5,438 feet respectively. The average elevation is 2,000 feet.

The population, which is rapidly increasing, seems unusually robust. The State-school children at Atherton, lined up for inspection, looked fresh-faced, bright, and active.

There are many settlers from the Richmond River in this district, who maintain that the Atherton climate is more equable than that of the northern rivers of New South Wales.

The Atherton Tableland, it may be taken for granted, is a "White Man's Country." It contains, at the lowest estimate, a million and a quarter acres of volcanic scrub lands, better than the Dorrigo or the Big Scrub.

Most valuable white oak, maple, red oak, crowfoot elm, silky oak, walnut, rosewood, cedar, kauri, black and red bean—timbers which the Forestry Department of Queensland does not permit to be destroyed on lands thrown open for settlement—grow through this magnificent tropical forest. At present the official estimate of a living area is 100 to 120 acres, valued at £2/10/- to £5 an acre. The (then) Commissioner for Lands at Cairns, Mr. G. J. Boulter—a practical optimist—believed that these 2,000 square miles

of scrub are among Queensland's most valuable assets. To the author, who has had the advantage of comparative knowledge, it appeals as *one of the best closer settlement propositions in this Commonwealth.*

From a commercial point of view, as Australian land values go—he would estimate the virgin scrub land at £7 an acre purchase value. The Government price averages £2 to £2/10/- for 160 acre sections, 20 years' leases. The maximum area, he understands, is 320 acres. Six miles back from the railway, sections are still procurable by selection. Judging by results of Big Scrub settlement in N.S.W.—kindred country—Atherton men will do better on smaller areas. About Tolga, Chinese are paying £1 an acre annual rental for farms, and cropping them solely for maize. It is difficult to obtain reliable information from these people; but there is every indication that they are rapidly growing rich.

At Kairi, four miles from Tolga, Chinese farms are said to be yielding 60 bushels of maize to the acre, worth 6/- a bushel in the field.

The Atherton scrub belt should comfortably support 125,000 Europeans in rural occupations alone.

Between Tolga and Malanda the railway cuts through magnificent jungles. Within a radius of ten miles, Malanda has gained no less than 500 new settlers in two years.

Malanda is 83 miles from Cairns. It has an elevation of 2,400 feet. In all Australia, the writer has not found more prosperous or interesting districts than these.

Here, in the heart of Northern Queensland, are good hotels, good living, tilth, fertility, activity,

enterprise. The people, who bear every evidence of health, speak enthusiastically of the land on which they have settled and made their homes. Here are rosy-faced women and children, and hopeful, energetic men.

I re-met at Yungaburra—between Tolga and Malanda—a family I had known in Eastern Gippsland. They migrated North some three years previously, were doing well, enjoying splendid health, and looking forward with every confidence to speedy independence.

Not only will this Tableland provide home and fortune for thousands of families, but it can be made a place of recuperation for people from the coast lands and the back country towards the Gulf.

It is a resort on whose natural beauties a descriptive volume might be written.

From Yungaburra the traveller rides by green jungle tracks to see Lakes Eacham and Barrine. Having beheld these still, mysterious waters of unknown depths, in which the tangled scrub is reflected in its changing lights and colors, and over whose silver, sunlit surfaces butterflies and birds of gorgeous coloring are mirrored as they pass—he bears away a new impression of Australia. These lakes are the cups of extinct volcanoes—of depths varying from 220 to 240 feet.

From the summit of Bellenden-Ker, if he should reach it, the adventurer will behold a scene as impressive as that from Mt. Kosciusko—but as different as the countries of the Equator are from the Pole.

Over to the westward are the wonders of the limestone caves of Chillagoe. Within that wide horizon—which is commanded by the highest mountain in Queensland—lie the Millstream Falls, near Ravenshoe; one of the most beautiful waterfalls in the world, the Tolga Spring Falls, which is the unexpected outrush of a river from the mountain side; the Balancing Rock, The Tully Gorge and Falls, the weird Cashmere Gorge on the Herbert, the enchanted water gardens of the picturesque Mulgrave—a wonderland of mountain and jungle, a tropic shoreland, and a coral sea begemmed with beautiful islands.

Over river and range, lake, island, and sea the spicy winds of Arafura blow unceasingly.

It is a land the beauty of which cannot be expressed in words. It is a land whose riches cannot be expressed in figures. What pictures! The wolfram miner, in his lonely camp among the ranges, sees the sun rising over opal-tinted hills. The tin "fossicker" washes his dish of dirt, by some remote cascade, amid a luxuriance of foliage richer than that of the finest conservatory in Europe. Cutting his pathway through the scrub, the surveyor tramples priceless orchids beneath his feet and destroys the rarest ferns.

Here are ornamental woods of more exquisite grain than any the cabinet makers of the Five Continents have ever polished—priceless, perfumed timbers that are too frequently burnt into ash-offerings on the rough altars of settlement.

Here grow nutmegs and spices and sugar, and the most luscious fruits of the earth.

In these warm seas are coral, red and white, and pearls and the mother of pearl.

Gold and silver, precious stones, rare and valuable metals, iron and copper and coal that make the wealth of industry—all these the land is rich in.

Its waters swarm with fishes; its forests are filled with game; fat beeves roam its pastures; its streams are perennial in their flow.

Into this Promised Land, led by the Joshuas of Mining and Agriculture, the army of settlement is advancing, but it will be many years ere the last walls of Nature collapse before the trumpets of Industry, albeit their ultimate activities may drown the roar of the Barron Falls.

One looks down on Cairns on the return from Atherton with increased interest. That little city has a manifest destiny: some day it should be as great as New Orleans. When the gaps in the North Coast Line are all filled, it will still be 1040 miles from Brisbane—far enough to develop that destiny by its own initiative. The faith of Queensland was displayed when the State expended nearly a million and a half in building the first 47 miles of railway that climbs the Barron Gorge and puts Mareeba into touch with Cairns. The good works of the North are shown in the patriotic efforts of its citizens to open, develop, and make known the wondrous territory that surrounds them.

So Cairns, with its mangrove flats, its cutters at anchor, its overlooking hills tipped with cloud, its wide streets shaded by the spreading banyans, its Japanese and natives, Asian odours and tropical perfumes, has an interest beyond what the tourist finds in it. As a city it must expand; as a port it must grow.

Rafts of cedar, silky-oak, and pine awaiting shipment, stacks of sugar on the wharves, boxes of fruit, piculs of coffee, bales of hides, ingots of copper and silver, bunches of bananas and bags of ore in the sheds; these and other things indicate the lines of its advance, which is likely to be more rapid than many other parts of the Commonwealth.

In few tropical parts of the world do workers command as high wages as in Northern Australia.

For example, wharf laborers wheeling and loading bags of sugar on the wharves, are paid $2\frac{1}{4}$ an hour for daylight labour; the working day being from 7 to 5, with an hour for dinner, and "smoke-o" morning and afternoon. For



Cutting Sugar-Cane.

night work they receive $3/6$ an hour. It costs a working-man in Cairns £1/5/- a week for living, which includes the usual Australian abundance of beef and mutton. The workingman's table here may be supplemented by home-grown pineapples, mangoes, granadillas, papaws, and custard apples; the workingman's pig may get as fat as he will on sweet potatoes and maize.

* * * *

From Cairns to Mooliba there is a line of coastal railway 42 miles in length. This is a section of the great North Coast railway, which is to connect Brisbane with Cairns, and later, no doubt, Cooktown and Cape York. Much has already been built, and more is under construction. Queensland is installing her transport on scientific methods, and reaping a merited reward in rapid development and decentralisation.

The Cairns-Mooliba line runs down a narrow strip of sugar land, lying between the Coast Range and the Sea. I got up in the cool morning-time to catch a mixed train leaving Cairns at 7.10 a.m. There are 30 stations between Cairns and Mooliba, and the train stops at them all.

The conductor interested me. He was shunter and stationmaster on occasion. He coupled and uncoupled trucks, delivered mails and announced the names of platforms, including Cu-Cania, Miri-winni, and Quingilli. Everybody along the line knew and evidently liked him, and he knew and apparently liked everybody. It was a slow train, but very friendly.

Imagine a delightful, fresh morning, and this friendly train rolling along slowly over flats and tea-tree swamps, and then, out into the canefields. On your right hand is a range of purple mountains; on your left the sea. The tall green cane glistens with dew.

At the Mulgrave Mill, there is a long line of waiting trucks loaded high with newly-cut cane. The leaves have been stripped from its purple, jointed stalks. One hears the rollers working steadily, and the heavy sweet smell of the cane harvest is in the air.

Under the heel of a conical peak one sees a young cotton and rubber plantation, and beyond it a galvanised-iron church. Mango trees, bamboos, and bananas grow around the homesteads; over the fences hibiscus proclaim the morning from the mouths of scarlet trumpets. Pink and

white *Belmontia* blooms blazon on the verandahs—it is a land of glorious flowers.

Is this a *white* worker's country? It is still a contentious question in Northern Australia. There are many people in North-Western Australia, the Territory, and Northern Queensland who conscientiously argue in favor of colored labor.

Sugar lands along this line are valued at £6 an acre as standing scrub, which costs £7 an acre to fell and "log up." Cleared of stumps, it is worth anything from £15 to £30 an acre.

Many Italians, having got together the necessary capital, are becoming planters. They are proving excellent citizens.



Cattle Creek, Mackay District

This book has nothing to do with party politics. It is intended chiefly to correct erroneous ideas and proclaim non-partisan facts.

With an open mind, the author merely states that in his opinion the clear tropic air of Cairns is no worse for European lungs than the sooty air of London; that life in Mackay is no more fatal for white women than life in Morrison's "Mean Streets." At the time of my visit, cane cutters working 4½ days were earning £3/10/-, £5, and as high as £8 a week. Gangs of Italians were making £1 a day per man, while the Mulgrave River planters were netting £40 an acre for their cane, after paying the expenses of harvesting and milling.

I pulled off at McDonnell's Creek, to see my old newspaper friend, Fred Morton, who has turned sugar grower. His country lies almost in the shadow of Bellenden-Ker—5,158 feet of jungled mountain, that reminds one of the mountains of Java. We sat on the verandah and talked of the country and of its future. In spring, Morton said, the forest in front of us would be still brighter with scarlet berries and flame trees and flowers of all hues, and wonderful painted butterflies fluttering over it all. In the scrub were brush turkeys and cassowaries, green pigeons, and the beautiful Torres Straits pigeon.

Up on the heights there were cataracts and waterfalls rivalling the Barron. Enough hydro-

electric power could be generated there to supply all Northern Queensland.

That Bohemian household presented phases of Australian life and character which made me feel good.

With five young sons and a wife who typifies all that is strong and resourceful in Australian motherhood, Morton, grown tired of the sedentary life, attacks the jungle in middle age with fine hope and courage!

Under Bellenden-Ker, which from jungled foothills covered with beautiful trees, lianas, ferns and

—the correct outlook on this phase of the colour question.

Altogether it is a blue and memorable day, filled with gentle kindness and hospitality and the sweetness of old acquaintance.

As I go back to Cairns, a neighbouring planter who has been rung up on the house telephone puts a heavy bundle of special sugar cane on the platform of the little railway carriage for shipment south to a family of Australian children who have never seen a cane field. . . .

The sun sets in purple and gold, and lights the Barrier's thousand reefs and isles. These placid



Maize Growing at Eel Creek, Wide Bay District

orchids, rises to purple heights, constantly covered in cloud, he has sat him down and made a Northern home.

He knows the North, believes in it, loves it. We lunch in the porch, surrounded by ferns and orchids gathered from the bush. It is a delightful lunch, and includes a special dish—the stewed rind of granadilla with custard—unexpectedly good. A young cassowary, which followed the children home from school one evening and adopted the family, is part of the Morton entourage. It is ungraceful but amusing. We are waited on at table by a brown-skinned, soft-eyed, half-caste girl, whom the matron of the establishment is teaching to “live up to her white blood”

seas have known hurricanes, but to-night they will be as calm as Lake Eacham, which was once a lake of volcanic fire.

We say adieu to Cairns. Gradually the picture fades away—the mangroves and hills, pearling cutters and passing steamers, tender young cedars blushing red in the scrub, coloured tops of mango trees in flower, towering kauri, cascades, waterfalls, flowering lantanas, white sails beneath white clouds, aboriginal camp fires, black fishermen with poised spears upon coral rocks awash with the incoming tides, tin-miners' tents, maize fields and farms, banana groves, the great plateau, the poppet-heads, the tin-roofed towns, the forests, and the long rivers winding through silent places to the Gulf.



Fisher Falls, Innisfail, North Queensland

COOKTOWN, CAPE YORK, THE GULF.

FOR over six degrees of latitude higher than Cairns the projecting finger of York Peninsula points towards the equator. To the majority of Australians this is still terra incognita. Yet it is as large as England and Wales, highly mineralised, productive, well-watered, with high mountains, frequent rivers, and frontages to two oceans.

Of its west coast—facing the Gulf of Carpentaria—comparatively little is known. The Chief Protector of Aborigines makes an annual tour of inspection along the seaboard from Thursday Island southward, where aboriginal mission stations have been established at long distances apart. There are no towns and no settlement yet.

A telegraph line runs from Thursday Island to Cooktown on the west side of the Main Range, which lies more towards the Pacific than the Indian Ocean.

There are stations at Cape York, McDonnell, Mein, Coen, Musgrave, Fairview, and Laura.

Mapoon Mission Station is located at the mouth of the Batavia River, which empties into the fine harbour of Port Musgrave, 80 miles southward of Cape York—on the Gulf shore.

The natives engage in beche-de-mer and pearl fishing. The shores of this coast are low and sandy, with dense mangrove swamps at the mouths of the rivers.

At the junction of the Hey and Embley Rivers, further south, some astonishing native middens



Queensland Aborigines' Mission Band

have been discovered. They are from 20 to 30 feet in height, and extend in mounds over several hundred yards. These heaps are composed principally of cockle and oyster shells. The whole of York Peninsula has apparently been thickly populated by aborigines for unknown hundreds of years before the Dutchmen saw Cape Keer Weer.

Weipa Mission Station is located 22 miles up the Embley. There is a track from Weipa to Moreton Telegraph Station—436 miles from Cooktown. At Moreton there is comparative civilisation, and they get a fortnightly mail!

Iron ore, in supposed quantities, exists on the northern part of the Peninsula, about Batavia River particularly. It is readily accessible from the sea, and may have a future value.

Thick scrub, tea-tree flats, and undulating downs are the features of the Peninsula, away from the coast. Geologically, large sections of the country correspond to the opal-bearing sandstones of the Western Tablelands.

With a 55-inch annual rainfall, the Peninsula generally is luxuriantly grassed and well timbered.

The coast, between the Mitchell River and Normanton, is flat, low, and sandy. It was along here that the earliest Dutch discoveries were made and the first geographical names given to any portion of Australia. We have to thank Mynheer of the early seventeenth century for Duyphen Point, Cape Keer Weer, Nassau and Staaten Rivers, and Van Diemen's Inlet.

Mangroves, marshes, salt pans, and shallow muddy seas are the features of the Southern Gulf Coast.

From some of the islands in the Gulf—almost unknown and rarely visited—valuable cargoes of guano have been secured from time to time.

On most of the Wellesley Islands the natives still remain in possession. Sweers Island, visited by Flinders in the *Investigator*, is occupied and stocked with sheep. Horn Island, near Cape York, has been worked as a goldfield, and Possession Island, where Cook proclaimed British suzerainty over the east coast of Australia, has also yielded some gold.

Mining has practically been the history of this yet undeveloped northern hinterland. Goldfields, old and new, mark the outposts of civilisation beyond Cooktown. Of all these, so far, the Palmer has been the greatest. In 1878 this famous alluvial field recorded the tremendous output of 116,759 ounces of fine gold. It was the richest patch of alluvial yet discovered in the State.

For six years its reefs gave an average of 2 oz. 5 dwts. to the ton for every ton of stone put through the mills. From 1878 to 1908—in thirty years of life, the yield of the Palmer made the grand total of 1,325,095 oz. of fine gold.

And yet this famous field is not worked out. New reefs are constantly being located, and the Palmer River and its branches continue to yield gold, year after year. In his Annual Report for 1913 the Under Secretary for Mines says of the Palmer:—"There should be a good opening for a prospecting party with up-to-date methods to find some payable propositions for perhaps dredging or sluicing."

Without doubt there are "good openings" in many parts of York Peninsula, which sadly wants a more vigorous policy in development and mining.

"There is," the District Warden says, "a general depression on all these goldfields, but it would seem it is not so much the fault of the mines themselves as a lack of the capital necessary to work and develop them properly."

Distance, and difficulty of transport, have retarded the development of what are undoubtedly richly mineralised districts. Systematic mining, experienced workmen, competent management, and necessary expenditure will come in time.

Alluvial fields beyond the Palmer have yielded large quantities of gold. The Coen, a hundred miles to the north, remained undiscovered, or at least unworked, until 1900. There one digger won over 1,000 ounces of wash gold. Huntley, the discoverer of the Coen, "dolloed" 300 ounces that year from a reef near by. Seventeen thousand tons of Coen stone gave an average value of £5 a ton. The output from Coen has since declined. Reliable opinion is unanimous that these fields are by no means worked out.

Hamilton field, adjoining the Coen, yielded over £35,000 worth of gold that year. Like its neighbours, it is now moribund.

Croydon, Palmer, Coen, Hamilton, Alice River, and Starcke goldfields may be regarded as all parts of one vast auriferous system, which has already made Northern Queensland another Ophir, and mining enthusiasts believe it is yet only partially exploited. Between the chronic optimist, who claims that the country has merely been scratched, and the careful geologist, who reports hopefully, there is a wide margin of chance. One can safely say that many fortunes will be won—and lost—in these Northern mines during the next generation.

From time to time rushes have taken place in the far North. The Batavia River rush, in the early part of 1911, caused some local excitement. This is not to be wondered at. Men who follow mining believe that the extreme North is still as rich in possibilities as it has proved in reality. They have had the sensational experience of the Palmer, Charters Towers, Croydon, Chillagoe, Coen, Herberton, Cloncurry—who dare say these were all the riches munificent Northern Nature had in her immemorial keeping?



A Wayside Station on the Cloncurry Railway

If the history of Northern prospecting and mining speculation were written, it would make a fine volume of adventure and sensation.

How often has merest accident precluded mighty discovery! How often has the Adventurer become the Millionaire! The wildest romances of fortune-hunting could be woven in facts about the mines, good and bad, that lie between Townsville and Possession Island.

Batavia River only yielded a paltry 2,500 ounces of gold for twelve months' toil—but who knows? To-morrow the world may be ringing with the discovery of another Palmer!

Let the output of Cooktown and York Peninsula Districts be, in 1911, no more than £28,161 worth of gold. Next year some Gulf port may be crowded with eager diggers on their way to another Charters Towers!

People do not get so excited over tin. Yet tin mining of later years has become immensely profitable.

The tin fields of the Peninsula are spread over a wide area. They are being worked in a casual and slipshod fashion—but the last word has not been written in the history of Peninsula tin, nor of gold, nor wolfram, nor, probably, iron and coal.

The district from end to end has a good climate. There is no difficulty in growing fruit, vegetables, and other produce on many fine agricultural patches with which the mineral fields are interspersed.

During the last three years there has been an increasing occupation of the remaining pastoral lands of York Peninsula. In 1912 an official inspection was made of the far Northern division of the Peninsula, and large areas of good grazing lands discovered.

Such, in fine, is a brief and cursory review of this long arm of the Commonwealth which reaches from Normanton and Mourilyan to Torres Strait.

Thursday Island makes a stepping stone towards Australian New Guinea, which is only a short day's sail across calm equatorial waters. The way is spotted with islands. The town of Thursday is interesting for its pearling associations. Here the Japanese diver, the Manilaman, the Macassarman, the Chinese storekeeper, and the aboriginal make subjects for students of ethnology. Thursday, on a hillside sloping to a wharf, is the farthest out of Queensland post offices—1,500 miles from Brisbane.

From Thursday Island to Cooktown, coming South, frequent steamers tread with infinite caution the narrow passages between the Barrier Reef and the mainland.

From the time the vessel dips her flag to Jardine's house at Somerset—which is just below Cape York—there is constant interest for passengers during daylight hours, and continual anxiety for skippers and pilots all times of day and night. Skippers frequently anchor along this coast from dark until daylight, rather than take the risk.



Wide Bay Creek, North Coast Railway

Steamers inward bound make Goode Island light in grey daylight if they can. The narrow passage into Thursday lies between an archipelago of islets.

Here reefs, shoals, and swirling tides put out their traps for ships. Through a narrow mouth in the coral up here, Bligh, with wonderful pre-

There are beaches of white sand and pretty jungles to keep the ladies amused, and Jardine's house, with its palms and open courtyard perched on the side of a hill on the mainland, a little sandy cove at its feet. But for the men on the bridges it is an anxious time passing Mr. Jardine's front door so closely.



A Banana Plantation

cision, brought his boat on its heroic voyage from Tahiti to Batavia after the *Bounty* mutiny—Bligh, the much-maligned, who was complimented on the quarter-deck by Nelson for bravery, and accomplished a voyage without parallel in maritime history!

Up here the *Quetta's* iron hull is rusting on the rock that entrapped her.

Below Sextant Rock and the high hill that rounds off a continent—bare of trees, grassed to its summit, and sloping northward to the water of the Strait—lies the "pass," where careful men on the bridges do "slew" their ships, while all hands stand by, and second officers go for'ard, with, for the most part, Chinese crews.

Anxious, too, for them is that narrow but supremely beautiful course that leads the iron feet of Commerce southward to Pipon Island light, off Cape Melville, on the nether shores of Princess Charlotte Bay.

The low, sandy shores of Pipon, fringed with mangroves, may grow monotonous to the three lighthouse families who occupy those white buildings which are all the dwellings on, maybe, two hundred miles of coast. Once, the story runs, natives from the mainland put off in their canoes to attack this lonely light-station, and a terrified woman escaped in an iron tank by her open door—the sea.

Back from this rocky coast are sleeping mountains blanketed with jungle. Eastward lie



Native Canoes on the Bloomfield River

islands—some covered with emerald vegetation, some mere coral reefs and atolls. At sunrise and sunset flocks of wild ducks and Torres Straits pigeons may be seen flying back and forth from freedom's haunts to natural sanctuaries.

At night corroboree fires light the darkness of shores yet unoccupied by Europeans. . . .

Morning off Cooktown is all that the South Pacific can give. You go to your berth overnight in the East Indies and waken in the Pacific Islands.

The land under your lee might be Tahiti or Samoa, or the Fijis. Purple peaks, of Polynesian contours, rear their jungle-covered heights before you, Mount Peter Bott—taboo to the natives—conspicuous among them.

Captain James Cook and his company had this scene before them from June 17th until August 6th in the winter of 1770.

It was Cook himself who buoyed the channel, "which I found narrow, the harbour small, but very convenient for our present purpose."

He brought the *Endeavour*, then a lame duck, into the harbour that bears his name, after the coral off Cape Tribulation had ripped her historical old wooden side. She came in, fothered under the starboard fore-chains, making fifteen inches of water an hour, and her gallant company worn out with exertion and anxiety.

Here she lay careened at the mouth of the Endeavour River, after going ashore twice on the way in, for nearly two months, while his carpenters and armourers employed themselves daily

upon the business of caulking ship, and making bolts and nails and ironwork. The slopes of Mount Cook echoed for the first time the lusty hammering of English coopers repairing the rotten water-butts of the ship.

Cook's men were kept busy during those weeks loading and unloading ship, digging wells, cutting wood, watering, hauling the seine, gathering greens, catching turtle, making rope and brooms, and generally performing all the duties which the eighteenth century commander could find for his crew.

The tree, to which the old wooden bark was moored, is still standing, and a monument marks the landing place of the navigator.

A stone cairn at the almost inaccessible summit of Mount Saunders on the north-west side of the bay was re-discovered in 1904. It was about four feet high, with room in the centre for a flag-staff. It is said that on one of the stones of the cairn the word "Cook" had been chiselled.

These historical recollections make the approach to Cooktown doubly interesting to an Australian. Here the great captain spent his longest period on Australian soil.

It was a strenuous time for the *Endeavour's* people. Morning off Cooktown would not have the poetic or artistic appeal to them, which it brings to the passenger of aesthetic temperament, who may appreciate to the full the soft early lights that deepen with the day, the royal ranges in their purple morning robes, the lake-coloured rocks, the sea of velvet.

If he be a shore-going passenger, his vessel will not be tied to that now-dead tree at the mouth of the Endeavour River, but will land him comfortably at a wharf where logs of sandalwood, bags of ore, rice and coffee, and boxes of tropical fruit are waiting shipment.

Fishing, shooting, and beautiful drives through tropical scenery are offered him. He may go inland by railway 67 miles to Laura, and see mines of tin and gold. By Cooktown he may gather sandalwood, or seek for nuggets, or pearls.

Perhaps, in the end, it will pay him better to seek for a good section of scrub land, whereon he may produce rubber, or coffee, or cocoanuts. Of such land there are mighty areas yet untouched in the Far North. The Daintree and Bloomfield Rivers, between Cooktown and Port Douglas, and Mount Molloy, 60 railway miles from Cairns, are all part of that vast scrub, which we have already viewed at Kuranda, Tolga, and Malanda. This scrub extends southward to Hinchinbrook, in varying widths, elevations, and contours. It encloses mountains like Mount Alexander, a crater 4,000 feet high, Mount Windsor (4,000), Bartle Frere, and Bellenden-Ker. It contains assets such as the Tully and Barron Falls, and the Mossman and Johnstone Rivers. Mills and mines it has, and vigorous settlement in the making; but, as we have already said, it is productive enough to support 125,000 people *on the land*—under conditions which obtain in Australia to-day.

Below the Annan River—the greatest tin-producing fields of the Far North—lies the town of Port Douglas on an idyllic strand; green islands with golden beaches, lagoons, and feathered palms, cast their shadow-pictures into blue mirrors of unruffled seas.

Romantic mountains roll behind it, painted at sunrise and sunset with the impressionist brushes of the Tropics. Birds and insects of gorgeous colours haunt the everglades of these hills. Trains of pack mules, laden with ore, one time trod their shady tracks; but now their quietness is rarely broken, save by a native hunter walking softly under the cedars; or a prospector, dreaming of fortune, as he rides slowly along with his pack-horses beside him.

When Port Douglas was the shipping depot for Hodgkinson and Mount Molloy fields, it enjoyed all the activity that active mining carries with it.

But Cairns' railway took the product of these fields another way, and then Port Douglas settled down to develop the alluvial lands of the Mossman and Mowbray Rivers as a sugar-growing proposition.

Mills and tramlines, enterprise, and favourable condition have done the rest—the sugar fields of

Mossman are now among the finest in the State.

South of Cairns lies the beautiful and fertile Tully River District, another section of this Northern Jungle, which, let us hope, will carry the 125,000 people of our prediction at no very distant time.

On the Tully the Queensland Government proclaims land for farmers which will grow cane, maize, root crops, lucerne, paspalum, and artificial grasses; citrus and stone fruits, bananas, pineapples, cotton, tobacco—recommended as a special crop for North Queensland farmers—rubber, coffee and cocoa.

There are not many countries where all these products can be raised inside the one fence.

The Tully district embraces the land between Cardwell and Maria Creek, watered by constantly running creeks and rivers, lagoons and swamps, and destined for agriculture and dairy farming.

A greater volume of water than the Barron comes over the Tully Falls, the main drop of which is 885 feet. Hydro-electric power for the rapid development of this district could and should certainly be generated. The author confidently asserts that all this great scrub can be converted into one of the biggest White Australian propositions, in a very few years, by attacking it on American methods.



Tully Falls, Cairns Hinterland



Gallet Creek, Cairns-Musgrave District

There is latent power enough going to waste between Cooktown and Cardwell to run electric trams, rapid mountain railways, sugar mills, canning works, fibre factories, butter factories and creameries, tobacco factories, cotton mills, timber mills, furniture factories, mines, and various suitable industries which could be established.

If a Government which has to safeguard and aid the development of a territory greater than any European country, except Russia, cannot stand financially for all this, then let reasonably-restricted commercial citizenship step in and do it. The whole Commonwealth will profit by the rapid filling up of one, at least, of its empty places in the North.

From Rockingham Bay northward there will be another Clarence and Richmond and Tweed, another Dorrigo, and more.

The Tully is rich in cedar, pine, silky oak, black bean, and valuable ornamental timbers. Back from the river are natural pastures covered with good herbage, which, in their virgin state, will carry three cattle to every two acres all the year round.

Para rubber, cane, and bananas are the principal cultures of the Tully. These can be ex-

tended and other payable agricultural industries developed.

The rainfall has averaged 100 inches per annum during the last 35 years.

Such are the tropical coast lands of Northern Queensland; such is the great arm of alternate mineral and agricultural lands, which is known as York Peninsula; such are some of the higher scrub lands overlooking the coast. What of the western country out by Georgetown, Croydon, Normanton, Burketown, and the Gulf?

The average annual rainfall of Georgetown is 34.05 inches, of Croydon 27.97, of Normanton 37.65. Compared with parts of Southern Australia this may be classed as adequate, if not copious.

If a short line connecting Croydon with Forsyth were built, Normanton and Cairns would be in touch by railway. It appears to the casual observer of Queensland development, that shortening the sea journey round Cape York and establishing quicker communication with the Pacific, would greatly hasten the progress of the Gulf country, which is not the least of the State's assets. Its future seems to be essentially pastoral and mineral.

The history of the Etheridge goldfield, which now has a rail head at Forsayth, 263 miles from Cairns, shows that from 1900 to 1908 the output of reef gold was, in round figures, 71,346 ounces, won from 73,279 tons of quartz crushed. A great portion of the gold-bearing quartz of the Etheridge carries a heavy admixture of sulphides of iron, zinc, and lead, which have prevented the economic treatment of the ore by ordinary battery process. The number of recorded reefs is over 200, scattered over a wide area. Most of the gold won between 1900 and 1908 was from easily-mined and easily-treated stone. Copper and silver-lead have also been discovered, and successfully mined, in this district.

Up to 1914, the total yield of Etheridge, Oaks, and Woolgar was 582,595 fine ounces, with an average value per ton of stone treated of nearly £4/5/6, or a total increased value for the year of £2,476,029.

The goldfields of Croydon from 1886 to 1914 produced in all 758,199 ounces of fine gold.

So much for the mineral side of the question. A reference to latest stock returns shows that the three Gulf districts—Norman, Burke, and Etheridge—were carrying over a million head of horned cattle.

Altogether this distant Gulf country is not the least, nor the worst, of Queensland's possessions.



Whitsunday Passage, North Queensland



Stony Creek Falls, Cairns Railway



Gill Street, Charters Towers

THE HEART OF QUEENSLAND.

THE romance that goes with every great mining field still hangs over Charters Towers. At least the stranger finds it so. All remote places in Australia are set down as insufferably hot. In spite of experience and travel it is hard to divest one's mind of these preconceived impressions.

Arriving at the Towers late one night in August, the writer, somewhat to his surprise, wakened on a fresh, foggy morning in a temperate climate.

The shower-bath had a southern nip in it. Further west it was destined to prove still colder. Like Kalgoorlie, the Towers has cool, invigorating winters; and a summer climate which its permanent residents find healthy and bearable.

A coastal invalid requiring a refreshing change would do well to winter at Charters Towers, Kalgoorlie, or Broken Hill! Yet what distressing stories have been published about these places! What entirely false impressions created!

Strolling down Ann-street, Charters Towers, under tall willow fig trees which shaded beautiful, pleasant cottages facing the parks, the writer smiled from the depths of his overcoat at some of his own previous fancies. Surely this was not the terrible "Towers"—this Old Victorian mining township transplanted North! Not only poppet-heads in the distance brought Ben-

digo to mind, but shady avenues, bandstands, green lawns, gravelled walks, fountains, bush houses, tennis courts—all of which indicated civic spirit and public taste. Where was the coarse strenuousness, the absolute barrenness, the unrelieved ugliness that one had been led to expect? They were like the "Great Australian Desert"—constantly shifting further and further back. In sooth, there were signs—in the great "dumps" of grey and greenish-grey stone which marked the lodes—that tremendous underground labours had taken place.

The town was covered with a greyish dust; for the heart of the hills was being pulverised in huge stone mills, and a constant burring of machinery sounded like the ominous swarming of a colossal hive of bees.

Hundreds of thousands of pounds worth of mining plant was hived under galvanised-iron sheds within the city radius, a city of 18,000 busy people.

Distant smoke stacks on the sky-line showed the extent of the field. Sounds of signals from below, winding gear at work; shouts of school children, rattling of cart wheels, the tooting of motor horns, all proclaimed that civilisation had claimed another distant Australian range—once regarded, like many a far-off range to-day, as of no particular account.



Chinese Method of Irrigation, Hughenden

From the time of first discovery on Charters Towers to the end of the year 1914, this field had yielded over six and a half million ounces of fine gold.

The stability and constant production of the old fields are a feature of Queensland gold-mining. Gympie, Charters Towers, Mount Morgan, after long and productive lives, are still among the big working mines of the continent. Charters Towers was discovered in 1872. For many years its annual gold yield has been the greatest of all Queensland mineral fields. As a copper proposition its life begins as late as 1907. Ravenswood preceded Charters Towers by three years. It was a party of reef miners from Ravenswood who located the Towers. Discouraged by the striking at water level of refractory mundic ore, irreducible by any then known process, this party of Ravenswood men went westward prospecting, and, in the usual casual way of mineral discovery, found what has since proved the richest goldfield in Queensland—one of the richest in the world. One of the Charters Towers pioneers made (and squandered) a fortune of £300,000. He was afterwards found dead with his swag beside him on the track between "The Towers" and Croydon.

From the time of its formation to the year 1906 one Towers company—the Mill's Day Dawn United—returned to its shareholders no less than £427,500 in dividends.

The area of the proclaimed field is 1,700 square miles. "The reefs follow a definite system. They form a sort of horseshoe bend with its convex

side to the south, and underlie towards the centre of this curve at a low angle." The gold runs in "shoots," traversing the lodes at various angles, generally occupying the whole width of the lode, from wall to wall, but alternating with extensive blank patches.

The lodes consist of white quartz, in which sections of "specimen" gold have been found; but as a general principle the mineralised shoot carries iron pyrites, with occasionally galena and zinc blende and traces of copper. The average observer, examining the reef stone of the Towers, would be unable to see the slightest trace of gold in it; but to the men who *know*, the discovery of such stone in another part of Australia would set their hearts thumping.

This lode material is cleanly held in the parent syenite or granite, which makes the general formation of the low-lying hills of the Towers. To the average layman there is nothing in the world to indicate, moreover, that this common-looking drab range, possessing no particular eminence, no distinctive feature of gorge or cliff, or rocky bastion, is seamed and veined, for miles, with rich quartz reefs which have returned millions of pounds' worth of precious gold.

In the minds of most people, broken and rugged mountains are always associated with natural treasure. In reality, the bullion boxes of nature at Ballarat, Bendigo, Gympie, Kalgoorlie, Mount Morgan, Broken Hill, Charters Towers, were just left lying around in most unlikely-looking places. The same inappropriate surroundings



Result of Irrigation, Hughenden

frame most of our treasure pictures. The men who went prospecting in picturesque or likely-looking spots, more often than not were rewarded with scenery—and maybe a “colour.”

The casual traveller, crossing over some place as barren in seeming as a brickyard, has chanced

on a field which presently set the feet of adventure moving from one end of the world to the other. It is mostly in stories that the wild and rugged mountain and the deep, mysterious gully, conceal the fortune hunters' prize.

The future of Charters Towers district may be



In the Kingaroy Country, Burnett District

agricultural. There is a basaltic strip of country extending from the Towers towards Atherton, at an elevation of 1000 to 2000 feet, which is said to be similar in quality to Kingaroy district. The mean annual rainfall of the Towers is 26.67 inches, which is more than sufficient for agriculture elsewhere.

spite of their surroundings, a testimony that the land is no desert.

Some day both Kalgoorlie and Charters Towers may be more interested in the *surface* of the soil than they have been in the galleries of the underground.



Hauling Timber

It would be ludicrous to think that the neat flower gardens, the mangoes, bananas and papaws, which beautify the comfortable residences of the Towers, were the result of a climate and condition unfavorable to the growth of profitable crops. Good grass can be seen growing by the side walks in the streets of the town itself. The leaves of the papaws, the grass alike, are covered in grey dust; but there they flourish, in

Charters Towers is 82 miles from Townsville, and a thousand feet higher. The railway from Townsville to Cloncurry mounts gradually to the plateau on which Charters Towers is located, goes as high as 1819 feet at the 170 mile distance, and falls again gradually to 400 and 600 feet at Cloncurry.

Hughenden is 236 miles from Townsville, and Cloncurry 481. The man who travels down that



A Queensland Cattle Camp

long railway, from the coast line to the heart of Queensland, will learn something of Australia.

A mail train leaves Townsville every Monday at 8 p.m., and reaches Cloncurry at a quarter to eight on Tuesday evening. The ordinary daily train goes only as far as Hughenden, where passengers remain overnight, and complete their journey to Cloncurry next day.

At Charters Towers station, awaiting the daily train, you see a huge stack of parcels done up in sugar bags, with address labels attached.

This is the daily bread and meat for down the line—for Ulgulu, Powlathanga, Mungunburra, and other little sidings and stoppings with weird aboriginal names, where the stockman, the horse-breeder, the miner, or the maintenance man abide.

Out of the Towers, if it happens to be spring-time, the train runs into a forest of wattle in bloom, which makes odorous the first few miles.

It is a flat, thickly-wooded country—much of the convenient timber has been felled for use at the mines—but it is no desert on the face of it.

Outside each railway carriage is a hook, from which is suspended a water-bag for the use of passengers. This, however, means no more than a fashion—or a convenience.

As you go down into the west, at various sid-

ings are stock trains waiting to pass on their way to Townsville. The Desert-Believer pauses to think when he sees these long trains laden with fat cattle, sheep, and horses from the interior of Queensland.

Tall brown grasses wave before the wind—a cool, dry wind—and the beautiful cerise blossoms of the beefwood sweep to and fro on swaying branches.

This handsome acacia is locally known as “desert oak”—it could only grow in good country, and it is not an oak—facts which go to show that Australian nomenclature is not to be taken too literally.

At a refreshment room down the line the train stops for lunch, and the wayfarer gets good western beef, such beef as makes him wonder if he has ever really eaten meat before.

Here he may study the men and women of the west—rough, hearty, healthy, and eminently cheerful. Why should they not be cheerful, these sawmillers and drovers, tank sinkers, sheepmen, cattlemen, and miners, in a land of the best wages, the best living, the best climate, and the best chances in the world! Freedom, justice, health, absolute security for life and property, and opportunity—these are qualities and conditions that make for human happiness, and men

may find them all on the wide lands of Queensland.

The train goes on again, constantly stopping to put down packages and passengers; to throw out loaves and letters for prospectors and stockmen, camped perhaps by the bed of some dry, sandy creek, which, like the rock of Moses, will yield a clear supply of unexpected water by digging a hole a foot deep! The tea at the refreshment rooms was made from just such water—and it was good.

Good forest and long grass cover the plateau now. At Cape River, which is nowhere in particular, a Chinaman loads six cases of fine-looking oranges into the brake van—the “desert” is receding yet further into the distance!

At Torrens Creek—where there is a meat preserving works—we have entered a district of fine red soils, covered with beautiful timbers, and closely resembling the Riverina in New South Wales.

Sunset sees us in flat alternate red and black lands, covered with magnificent grasses. The train waits for us to dine at a bush public-house with shy hushmen. Opposite is seated a man with soft brown eyes and plastered hair, a handsome man who “belongs” out in the Barkly Tableland over the Queensland border.

It is dark when the train reaches Hughenden. You find a comfortable hotel, commission the boots to wake you at 5 in the morning, and sleep with several blankets over you.

To-morrow, they tell you, you will see the downs, which, the brown-eyed man said gently, is “the heart of Queensland.”

* * * *

It is still dark. You are taken, half-awake, to a lamplit platform where another train, with a row of waterbags hanging out along the carriages, is waiting.

Daylight has just broken as this train draws slowly out—bound for Cloncurry, 245 miles further west.

Dawn’s left hand is in the sky, a faint red colour which gradually turns to deepest rose and spreads right up to zenith. It reveals to your astonished eyes a boundless expanse of beautiful downs, covered with tall, dew-wet grasses of the richest varieties that Australian black soils produce!

We pull up at the woolshed four miles from Hughenden. Across the local landscape a man is pedalling a bicycle. A horseman follows him. There are no bushes, no trees; these two figures grow out of the distance like figures on a photographic negative, silently, mysteriously—there is nothing behind them but the skyline where it meets the plain.

On again in the coolness and the fragrance of that undescrivable morning, a morning that falls like a prayer from the lips of this Immensity of Plain and Sky.

Brave old Phillip in your tent by Sydney Cove! Seer and Prophet in a snuff-stained camlet coat! We hear your voice calling like a silver bugle across the years:—“I believe the colony will be the finest acquisition that England has ever made!”

The sun has risen! Like a ship at sea, the train travels on, the moving centre of an enormous circle—of black soil.

It looks like a hayfield in spring, a hayfield whereon a ploughman might cut a hundred-mile furrow without meeting a stump!

It extends from the Gulf to the southern border—through Aramac, Barcardine, Blackall, Roma, and Cunnamulla! It is the Heart of Queensland! This patch of prairie which we are crossing now, on a rapid calculation, contains 6,400,000 acres.

To-day they call 20,000 acres a living area. Some day, one feels sure, *that* will be reduced to 640 acres, a square mile.

Altogether Queensland may have eighteen to twenty million acres like this.

Under it all, from the Gulf to the Border, and further North and South—from Boulia to Blackall and further—East and West—*is a sea of underground water!*

The inland sea sought by early explorers was there all the time. But they searched in the wrong place for it. If, instead of seeking on the surface, they had looked below, the early History of Australia would have been differently written.

It is called the great Artesian Basin. It is one of the big things of Australia—one of the physical wonders of the world!

It renders a vast Inland—where pastoral and agricultural industries would otherwise be subject to caprice of season—certain of permanent and profitable occupation.

Another chapter of this volume will be devoted particularly to the fascinating subject of Artesian Water. Enough to say here, that it is an asset to Queensland which cannot be expressed in ordinary money values.

These astounding prairies are covered with Flinders, Mitchell, and blue grass, which, any Australian stockman knows, are the finest stock-feed the Commonwealth grows.

Horses do as well on Mitchell grass as maize. At Queensland back-block race meetings, it is no uncommon thing to find on the programme an event for Grass-Fed Horses against Hard-Fed Horses, and the back-country men put their money on “grass-fed”—and win.

Where the grass has been burned alongside the



Scrub Clearing in North Queensland

railway line to make fire-breaks, kangaroos, great red fellows, can be seen hopping away from the young green feed. Flocks of bustards, the "wild turkeys" of Australia, mobs of native companions, emus, and all kinds of native game, are everywhere plentiful.

Fat bullocks, sleek horses, fat sheep testify to the richness of the herbage, which can be converted into ensilage or hay.

With proper management Western Queensland need fear no drought—ample fodder for the sustentation of stock can be stored, and an inexhaustible supply of water is obtainable by simply tapping the earth. It is impossible to overrate the value of these Central and Western Downs. Neither Asian steppes nor American prairies can vie with them. They are the backbone of the continent, and will ultimately be the spinal cord of its settlement.

Listen! Three hundred and eighty miles west from Townsville, you stand on a perfectly flat, blacksoil plain with not a bush, let alone a tree, in sight! It is ready for the plough.

Here you could put the share into a rich, friable mould, and furrow to the skyline in any direction. If you asked me what that land is worth, I would say its ultimate value is one hundred pounds per acre. Someday, after my bed is made (in good Australian earth, I hope) that will be its price.

To-day it is—without population—worth no more than the annual rentals which pastoralists are paying the Government for it. Even to-day 10,000 acres, carrying 4,000 sheep with greasy wool at $2/0\frac{1}{2}$ a lb., and scoured wool at $3/4$ a lb., would be a family independence.

When this land is green, in early summer, the sight of it brings reverence to a man's soul. It is all one sea of waving grass a level foot high, from where you stand to where sky and plain meet.

From winter to winter, a snowflake has never rested upon it. Yet its warmest days of summer are followed by nights of refreshing coolness.

Four-hundred-mile stretches of prairie, such as this, do not occur frequently.

Hayfields, a hundred and sixteen thousand square miles in area, with plenty of water and a liveable climate, are difficult to find outside Australia. The population of all Queensland is a little over half a million people. One of these hayfields will contain that number without difficulty in days to come.

Between Hughenden and Cloncurry, the downs have an average rainfall of 19 inches a year, and the artesian basin extends at least to the silurian formation, which begins a little to the eastward of that point.

It may be too soon to talk of agriculture for this country, but, in the ordinary course of evolution, its time must come.

Here are some present-day facts locally gathered.

At Torrens Creek, 55 miles to the eastward of Hughenden, 181 west of Townsville, on 20,000 acres a white man is running 8000 sheep.

Beyond Cloncurry, on Fort Constantine Station, are 1280 square miles of good pastoral country, a fourth of which had "fallen in" (the leases expired) in 1913. This would be taken up on 28 years' lease at 1½d. to 1¾d. per acre annual rental.

About Richmond—treeless downs country on the railway line, 71 miles west from Hughenden—the land is being thrown open by the Government in 10,000-acre blocks on the easiest terms.

At Hughenden, *on ten acres*, a Chinaman is making £1000 a year with citrus fruit and vegetables.

You go westward with the sun—at railway speed—from dawn to dark, and you are still on the same grassy plain, still occupying the moving centre of that constant circle which is the horizon. The sun goes down as it does at sea, and all around that horizon there is colour in the sky, and not a tree!

Far away in the west, you may trace the outline of a low range of hills. That is Cloncurry, where this wealth of soil and subterranean water gives place, for a time, to mineral wealth, almost as incalculable!

For hundreds of miles you have been travelling in a straight line—a long goods train with a half-dozen passenger carriages, and the guard's van at the tail.

You have not seen a cluster of houses since Richmond, at breakfast time. An occasional tent, an occasional railway siding along the unfenced track, and a couple of station woolsheds—these are all the signs of habitation.

The smoke from the engine hangs out across the plain in a straight, black line, as the smoke from a steamer's funnel at sea on a calm evening.

It is impossible to describe the light that has grown up into an absolutely cloudless sky on the sun's downward track. It is impossible to convey to the reader's mind adequate impressions of the immensity, the fertility, the wonder and glory of these matchless Queensland Downs.

* * * *

The mineral fields of Cloncurry, say the mining men, cover the greatest copper deposits in the world.

They extend, approximately, 250 miles north and south. In 1914 they were supporting 4,217 people.

Cloncurry is a series of surprises to the stranger. Five hundred miles inland from Townsville

he expects to find absolute crudity. He enters instead into an atmosphere of comparative comfort and perfect order. Electricity and the internal-combustion engine are hastening the development of inland Australia. Out-back the great distances, away from the railway lines and beyond the railheads are rapidly covered by the motor car. You will see more automobiles than stage coaches in Cloncurry. The Australia of Cobb & Co. is no more.

In August, 1913, working miners were receiving 16/3 for shifts, and 11/- for surface work, at Cloncurry. For 22/6 a week they could get good board and lodging anywhere on the fields.

On the stations married couples were getting £120 a year, with free keep and quarters.

Western Queensland is certainly a land of opportunities, for capital and labour alike.

The future of Cloncurry, they tell you locally, depends largely on the railway policy. Cloncurry wants railway communication with the Gulf of Carpentaria. A gulf port, they say, will mean the development of many mining shows which would not pay under present conditions.

The value of the field's output, all metals, for 1914 was £536,575. Over eleven hundred leases had been taken up as far back as 1908, in addition to the freehold properties which were secured 30 years ago.

The Mines Department mentions about 489 mining leases on which exploration or active operations were being carried on in 1914.

The principal groups were the Mount Elliott, Hampden, Cloncurry Copper Mines Ltd., Mount Cuthbert, Mount Federal, Mount Oxide.

English and French investors hold large interests in Mount Elliott and Hampden-Cloncurry.

Feeder lines have been put out from Cloncurry to Malbon, MacGregor, Duchess, Hampden, Selwyn, Mount Cuthbert, and will doubtless be extended, as this great mineral field is developed, over the 15,000 square miles it covers.

We are told by mining experts that the "most promising properties on the whole field have not yet been exploited very energetically because of their isolation." One particularly rich group of mines is located 150 miles west of Cloncurry township.

Owing to the distance and cost of transport, prior to the opening of the great Northern Railway to Cloncurry, only the richest of Cloncurry ores were regarded as payable. The local definition of "poor ore" is from 20 per cent. to 30 per cent., according to locality. Camels are even now bringing in ore to Cloncurry 160 miles at a cost of £8 a ton, and the ore is so rich that it pays.

Pretty nearly every form of ore deposit is to be found in this Cloncurry District, which must become one of the greatest mining centres in the Australian Commonwealth.

No known copper field can show the same area and richness of surface deposits. The most eminent geological and mining opinion is that, in all probability, these ore bodies will "live" at a depth.

Fluctuation in price of metals may hasten or retard the progress of Cloncurry, but, as one of the greatest—if not *the* greatest—copper-producing districts on earth, it is now firmly established.

The approved Great Western Railway, which is to unite Brisbane with Camooweal, via Charleville, and link up the western terminals of the Rockhampton and Townsville systems from Cloncurry, Winton, and Blackall—will hasten the development of the West. It is a conception worthy of statesmen who direct the destinies of a Land of Big Things.

All Western Queensland has proved good. The Gulf is good; from Cloncurry to the Territory border is good; the Georgina is good, Birdsville is good, the Diamantina is good, and the Barcoo is splendid.



A Street in Longreach

A very large industrial population can be installed along this great mineral belt. There should be no difficulty in supplying them with locally-grown food.

Adjacent pastoral country is already producing the best beef and mutton in the world. Cloncurry can itself grow oranges, and has produced cabbages 28 lbs. in weight. Naturally, a mining community will pay little attention to agriculture, but all through the mineral belt, one sees places where hundreds of fields, orchards and gardens, might be established.

Not only on the steep banks of the Gregory—which takes the waters of the Barkly Tableland to the Gulf—not only along the Leichhardt, the Flinders and the Cloncurry, is agricultural settlement possible, but ultimately cultivation in some form or another will be established at various places throughout the land.

If any man doubts these assertions, he can look up the stock returns.

In the backyards of Cloncurry you could, with water, grow cabbages or asparagus. The sand of the roads is intensely fertile. This district has been described as "poor mineral country." Yet some of its mines are yielding 80 per cent. copper!

After rain the red soils of this 80 per cent. region become green fields. Grass grows up everywhere. It is a mineral field 300 miles in length, 150 miles wide, and still no "desert."

Out here, when the cold south-east wind is blowing, a man shivers in his overcoat.

The interior of Australia is the healthiest climate in the world. The idea that it is insufferably hot is a profound error. With the thermometer at Cloncurry registering 116, one midsummer's day, they held a sports meeting, in which cycling and

foot racing were principal items. July and August at Cloncurry are appreciably cold. Eight degrees of frost have been registered at Southern Cross, Western Australia; winter in the MacDonnell Ranges is described as "severe."

The idea that all the interior is primitive, barbaric, out-of-date, is another delusion.

You may go down by rail from Cloncurry to Hampden and come to a place in remotest Queensland where £450,000 have been spent in the development of one mine, or group of mines. You find there a courteous general manager—Erle Huntley is he dight—who will introduce you to the ground floor—electric lit—of a giant smelter, where 800 horse-power of created force awaits the direction of modern minds. You will find 1000 men employed—strong European workers, enjoying good health and earning big wages. You will see the red slag at the lips of the smelters, the huge iron pots, the iron ore and lime and copper ore (all got close by from hills that look like decomposed plum puddings), and you may watch the whole process of the reduction of copper ingots from native rock.

In no other part of the whole world would you find a better equipment, better management, more economical processes, or more satisfactory results.

Then go back to Hughenden, where Closer Settlement is being promoted on 20,000-acre selections—28 years' leases, with right to preempt certain portions, or right of preferment—and walk along the main street to the bank of the perfectly-dry Flinders River, two to three hundred yards wide. Here you will see a Chinaman's garden of just ten acres. The industrious Celestials have excavated a small "sumph" hole in the sand of the river bed, at the head of this garden. From this soakage, by means of a Californian windlass and an old grey horse, "John" irrigates his orange trees, very badly pruned, and waters other fruit and vegetables.

This primitive pumping plant is a standing joke. When the attendant Chinaman retires to lunch, he blindfolds the old grey horse, and that patient animal walks round and round—unattended.

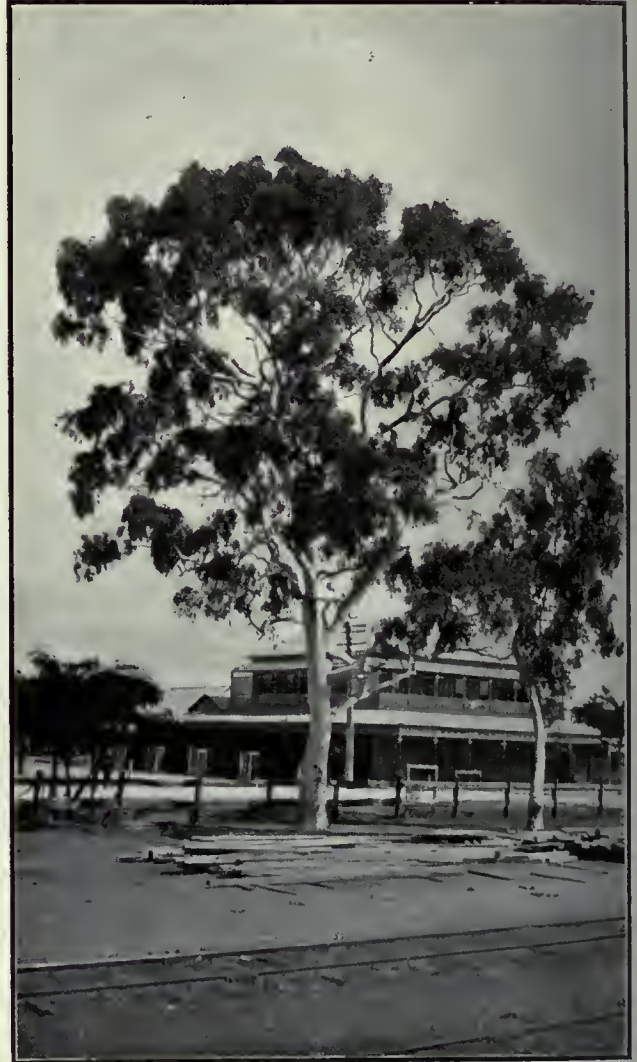
Yet fortunes are being made on that block by despised Asiatics!

What the Chinaman can do by Hughenden, Europeans, working with better plant, on more scientific methods, can also do—and more. They can do it, and someday *will* do it, all over North-Western Queensland.

Go down south by west from Hughenden over the same wonderful black-soil plains, covered with Mitchell and Flinders grasses, feeding fat stock, horses and sheep—to Winton, one hundred and thirty-two miles.

The difference in elevation is a little over 400 feet; the land is practically the same, but the artesian water lies somewhat deeper under its surface.

Here are some 5000-acre men on pastoral blocks, averaging, so local information tells us, a sheep to three acres.



A Street View in Barcaldine

After shearing-time motor waggons and teams converge on Winton from stations away to the South Australian border, laden with wool, for the far-off port of Townsville. Nearly eleven thousand tons weight of wool was shipped out of Townsville during the season of 1913.

Winton may be taken as the very centre of Western Queensland. Here and at Longreach, in fact all over the Great Inland, it may be seen that the population—men, women, and children—are of a healthy and vigorous type. There is comparative roughness of living, but progress will

bring gentler conditions, as it has done in older parts of Australia.

At Winton, with sixty or seventy teams and motor lorries bringing in wool from out-back, one may see the real bushman of to-day—an intelligent, shrewd, educated and resourceful character, altogether different from the dull, uncanny, burlesque creature who represents the Bush in certain Australian literature and on the melodramatic stage.

Hughenden, Winton, Longreach, Barcaldine, Blackall are all modern towns, well supplied with



Grapes at Roma

modern conveniences, which include sanitation, water supply, electric light, daily mails, and motor services.

There are also moving picture shows and plenty of dancing and amusements for the youth of the West.

Between Winton and Longreach—railheads for the Northern and Central systems—there is regular motor traffic. This 128 miles over the downs, also covered with Flinders grass, and dotted with sheep and fat cattle, is now only a matter of a few hours. The whole journey from the Gulf to Bourke in New South Wales could easily be done in four or five days with a good car, allowing for meals and sleeps. Writers on back-block Queensland would do well to make a note of this fact. There will be no blacks to impede progress at any part of the journey; no fear of hunger nor thirst, no deserts nor difficult mountains to cross, with petrol for the tank and water for the radiator procurable all the way. There will be some gates to open and shut, one or two sandy patches to negotiate—the rest will be much easier than motoring from Melbourne to Geelong. The family motorist can take his wife and children in absolute security and confidence. Let him choose dry weather in late spring, and he will behold the Heart of Queensland—a

hayfield 12 degrees of latitude in length, and become for evermore a wildly enthusiastic Australian.

Half-way between Winton and Longreach he will strike a galvanized-iron house on a wide, open plain.

He may stop his car there for lunch—about 60 miles north of the Tropic of Capricorn—and eat better beef than city restaurants ever put before him.

Along this Winton-Longreach belt there are both artesian and sub-artesian supplies of water. The small settler may have a cheap scheme with windmill power from the nearer sub-artesian source, and the big pastoralist his deep-sunken, more expensive artesian bore.

Longreach, the terminus of that great central railway system which finds an outlet at Rockhampton, is an entirely prosperous place, with good shire government and modern conveniences of town life.

Most of the pastoral leases here will “fall in” about 1927. Subdivisions already effected have brought many new settlers to this district. Land for selection is constantly becoming available in this way. One hears of great successes rapidly achieved by small men. A prominent citizen who ten years ago was a working shearer, now boasts a fortune of £40,000. There are others equally successful.

Whether a man achieves fortune or not, there is no fear of poverty in the West, and he may be assured at least of reasonable prosperity and health. The best of food is plentiful—beef, game, fruit, poultry, vegetables—and only needs good cooking. High wages prevail everywhere, and opportunities for betterment await upon those who will know how to conserve their chances.

The prevailing holdings of 100,000 and 180,000 acres will, in the future, be reduced to



Gidyea Forest



A Street in Barcaldine

grazing farms, and probably dairy farms, irrigation blocks, and wheatfields.

The people of the Great Central Plateau, refreshed by long winters with cool nights and occasional frosts, will have all the necessary energy and strength to engage in these standard rural industries for which it is eminently suitable.

How far irrigation from artesian sources can be carried is not yet possible to determine.

At Barcaldine, where bore water is exceedingly good, small irrigation plots are producing fruit successfully. Towards Blackall and Tambo, the lighter soils and increased rainfall make agriculture more certain. Tambo has an average rainfall of 23.28 inches, and Roma 26.09. Experiments on the Government Agricultural Area at Roma, covering seven years, show that one wheat grown here (Bunge No. 1A, rust-resisting) will average 20 bushels to the acre. I should say, as a very conservative statement, that the Queensland wheat-growing belt will prevail as far north as the so-called Barcaldine "desert." Roma is on the eastern edge of the cypress pine country; how far westward from there the wheat belt will extend one hardly dares to prophesy. Charleville, 165 miles further west of Roma, has an average rainfall of 20.58 inches. Cunnamulla, 121 miles still further south-west, 14.04 inches. Pinnaroo, South Australia, is making wheat pay on a 12-inch rainfall and much lower average crop to the acre than 20 bushels. Latitude, of course, has to be taken into consideration, but specially hybridised varieties, and the fallowing system, will carry wheat-growing into suitable soils far beyond the radius which has hitherto been regarded as possible in our Australian States. Queensland may, if she chooses, become a great bread-producer too.

There are good sleeping and dining cars on the Central Line, which relieve the journey between Longreach and Rockhampton. Trucking yards at the western stations indicate that it is still a cattle country, but it also produces excellent wool. Between Ilfracombe and Barcaldine the soils are lighter than those between Hughenden and Cloncurry. Mitchell grass and grey boree timber are prominent native growths along here.

Barcaldine is no more than the other Cities of the Plain, but its councillors, or residents, have seen to it that shade trees are planted in the streets, and that the beautiful indigenous timbers around the town have not been ruthlessly cut down. Tree planting is one of those necessary duties that Australian legislators ought to enforce and local governments encourage. There are always natural trees which will grow if they are asked to, and the ugliest locality may thus be beautified.

Because of its trees, Barcaldine stands out from among the cities of Central Queensland, and men outback speak of it as the Faithful speak of Bagdad.

Even the trains of fat sheep from Aramac leave it with apparent regret.

The thermometer in the Lands Office at Barcaldine only once in ten years has reached 105 degrees. The people of Barcaldine ask you to compare *their* thermometric readings with those of western New South Wales.

In point of fact there are many hotter places in Australia.

Travelling eastward from Barcaldine, the stranger will meet one of Australia's unexpected changes. Within a little distance, the dark lands typical of the Downs give place to loose red soils, resembling the wheat lands of New South Wales.

The landscape, as if by magic, is suddenly transformed—covered at one sweep of the Magician's Wand with beautiful timbers, drooping white gums, wilga, myall, glossy-leaved box, bauhinia, and ornamental shrubs and flowers. Mistletoes droop from the trees; the yellow acacias throw out their pungent perfumes. In the cleared spaces long grasses wave—from a titanic field the face of Queensland has all at once been converted into a lovely landscape garden.

Never shall I forget the impressions I received on coming for the first time into this delightful country, which covers hundreds of square miles!

I had gone down into the Downs from Townsville, out to Cloncurry, back to Hughenden, down

Surely the men who called this a desert were either woefully ignorant, or wantonly wicked.

A little spinifex grass grows in patches here and there; that is all the similarity as far as I can perceive to country that has wrongly, for the most part, been classed as "desert" elsewhere. Kangaroo grass, which is a sign of good country, grows beside it. A glance at the official map of Queensland shows naturally that there is an increased rainfall here.

There is a sheepman near me. I ask him a question. He says, "We get 80 per cent. of lambs here as against 40 per cent. on the Downs." Lambing takes place in the hot weather, and there is more shelter. The planting of shade belts on



Artesian Bore Drain, Barcardine

to Winton, across to Longreach, and now I was returning eastward to Rockhampton. For days I had beheld nothing but treeless or lightly-timbered black soil plains. The sudden change made a sharper contrast.

Opposite me in the railway car, as we left Barcardine, sat a youth engrossed in a cheap English novel.

He looked sideways out of the train window, and remarking, "*We are in the Desert now,*" resumed his reading. The entrance to this "Barcardine Desert" is marked to me by the fact that I have seen more surface water and heavier timber than I have looked on in a thousand miles. Otherwise it is no more than the change from Field to Garden.

the treeless Downs would no doubt increase the average, but the fact stands.

As we get deeper into the "desert," a greater greenness and softness comes over the scene. I notice the tops of some graceful gum trees white with blossom—for it is Spring here. All the wilgas, too, are dusted with white. In some places there are acres of purple flowers; in others patches of shrubs resembling English may. The heavy odour from a forest of acacia is blown in on the cool midday air, and yonder there is a sea of glorious flowering heather.

Rich red soils—tongued with grey ornamental trees and a riot of wild flowers—so the Desert smiles. Our "deserts" will enable us to feed millions of our own and still leave enough over to help feed other millions beyond the seas!



Sheep on a Farm near Warwick, Darling Downs



Queensland Pastures

EAST AND WEST.

THE man who goes to Rockhampton in mid-summer, and takes his impressions therefrom, is liable to fall into errors similar to those of certain early Australian explorers. Oxley reached the Lachlan in a very wet season, and concluded that the interior was a vast morass. Sturt found the Barrier at a dry time, and condemned the site of Broken Hill as the most worthless country in the world. It is necessary to visit Rockhampton in August as well as February. Frost and ice are by no means uncommon in this part of Queensland during the winter months.

The past history of the district of which Rockhampton is the immediate port and centre, has been largely one of rich mineral discovery, gold excitement, mining investment, pastoral progress, trade.

Its future history, from all appearances, will be equally interesting, but entirely different. It should be a story of tremendous agricultural development, of closer settlement, dairying, fruit growing, and so on. During the last decade (1903-13) a complete change has been effected in the local outlook. Results are now achieved, especially in dairying, which would have been regarded as impossible by Central Queenslanders of the last generation.

On the pastoral districts which Rockhampton serves much money has been made, and lost, and made. To and through Rockhampton the wealth won on Mount Morgan, Clermont, Emerald, and other mining fields has poured in a golden stream. In 1914 Port Alma, Rockhampton, and Broadmount handled £3,764,432 worth of exports, mainly wool, meats, hides, sheepskins, copper, gold, and live stock.

That trade is destined to assume still larger proportions. This city of 21,000 people is likely to grow into one of the most populous and prosperous centres of the Commonwealth.

This will be independent of Mount Morgan, or the discovery of any new field as rich, which the greatest mining optimist can hardly hope for.

The discovery of Australia has been going on for more than a hundred years, but it is yet incomplete. Central Queensland—that generous section of it which lies between the mountains and the sea—has afforded a recent illustration of this.

Inland from the banks of the Fitzroy River, on which Rockhampton is situated, and out across country, lie millions of acres of black brigalow scrub.

Brigalow country, like mallee, was always looked upon as "poor" in the old days.

The brigalow (*acacia excelsa*), according to botanists, sometimes attains a height of 100 feet. In ordinary brigalow scrubs the trees are about 60 to 70 feet, and do not make a close forest like the mallee.

Brigalow country, in Central Queensland, costs 30/- an acre for clearing and seeding with Rhodes grass. It then acquires a stock-carrying capacity of four cows to three acres, and makes the finest of dairy pastures.

Here is a discovery as valuable as Mount Morgan! Less spectacular, but to the people of Queensland, ultimately worth as much—or more.

Furthermore, much of this once-despised brigalow scrub is composed of heavy black and red soils, fairly well watered, or of such formation that water can readily be conserved by the settlers.

The first man to take up brigalow is said to have been a Gippsland farmer, who was astounded at his own success. He found that the cheap and ugly scrub which could be so rapidly and inexpensively converted into pasture, would feed more cows to the acre than any Southern dairy district. He naturally grew interested—and rich.

Then the ploughing and planting of the brigalow began: slowly at first, but latterly with greater rapidity and confidence.

Potatoes were planted, and returned unexpectedly heavy crops. Maize was planted, and yielded 45 bushels to the acre. Lucerne, without irrigation, gave five crops in six months. Another province had been added to Queensland!

This Central Coast and highlands produce tropical and temperate fruits equally well. Strawberries and papaws flourish together; the land will grow practically everything. And there is an abundance of it, suitable for closer settlement. Half the country, for 150 miles along the Valley of the Dawson, is brigalow. The Fitzroy, the Mackenzie, and the Dawson all await the settler. North, south, and west there will be available acres that cannot fail to support comfortable Queensland homes. Fourteen miles from Rockhampton there is a block of virgin red soil, 40 miles long and five miles wide, which, on 160-acre blocks, should be capable of supporting 800 families. Allowing the usual average of five persons to each household, this gives about one-fifth the present population of the city itself.

Agricultural living areas, as allocated by the district Lands office, which controls an enormous area of Crown lands, run from 160 to 1280 acres. The danger here, as in other places, is that the intensive culturist may get too much land. A dairy herd of a hundred cows is a big thing anywhere. Gracemere, a celebrated station, now the Bodalla of the North, milks from 600 to 700 cows. This huge dairy is conducted on entirely modern lines. Nowadays, there are few losses from ticks in Central Queensland.

The prickly-pear pest requires attention, but the writer met one dairyman, 80 miles west from Rockhampton, who has converted *his* pear curse into a blessing. He is rearing his pigs on a special mixture of pear, pollard, molasses, sulphur, and salt, and claims to be making money.

Wiseheads up here declare the drought of 1902 to have been a blessing in disguise, inasmuch as that unexpected shortage taught set-



A Mob of Central Queensland Cattle



“Hills that May be Rich with Gold”

ters the necessity for conservation. The average rainfall for Rockhampton is over 41 inches; 80 miles from the coast it falls to 30 and 24 inches. It is asserted that the ring-barking and felling of the scrub causes dry creeks to flow in this district.

A storage for irrigation is meditated at a suitable site in the Boomer Mountains, 30 miles from Rockhampton.

These discursive statements may be accepted as so many points in favour of future agricultural development; they could be supplemented by a volume of facts and figures.

Visitors will not fail to ascend (by rack-railway some of the distance) to Mount Morgan, the richest gold mine on the continent.

On the way up they will pass, on the outskirts of the city, swamps covered with red weed, where the ibis feeds and the white crane stalks among purple water-lilies: thence, through lucerne patches, mangoes, and grassy forest land, towards the mountain, where many pleasant homes have been made in fertile corners.

Mount Morgan is a giant workshop in the hills, twenty-four miles from Rockhampton.



Gold Mines, Mount Morgan

We will content ourselves with one short extract from the Annual Report of the Department of Lands.

The report is printed under the name of Mr. W. P. Bond, the Land Commissioner for the district. He says:—

“The Barmoya Scrub, which a few years ago was a wallaby run, is now a network of cultivated farms. .

“The chief crops grown are all kinds of fruit, maize, potatoes, wheat, lucerne, pumpkins, and Rhodes grass.

“The shallow belar and brigalow scrubs are particularly suitable for growing Rhodes grass, which in this locality gives a carrying capacity of a beast to seven-tenths of an acre.”

And remember! There are millions of acres yet of that cheap, ugly, brown brigalow with the silver-bronze leaves.

Gold was first discovered here by Edwin Morgan in 1882. The present share capital of the mine is one million pounds in £ shares. Since its formation the Company has expended, in round figures, over ten million pounds sterling in wages, machinery, taxes and general expenses, and distributed another nine millions in dividends.

Altogether this one mine has contributed nearly twenty millions of money to the wealth of Australia. It still employs 2,800 hands, and supports a city of thirteen thousand people!

The directors' annual balance sheet, issued for the year ended 31st May, 1915, shows a total revenue for that year of £1,005,400, and an expenditure of £838,760—of which £742,011 was for wages, &c.

One comes away from this historic hillside with a confused impression of busy men and straining horses, of tremendous dumps, smoking “slag,” huge smelting pots, furnaces, molten



Rockhampton, the Capital of Central Queensland

metal, heavy fumes, whirling belts and noisy engines, cranes, dynamos, locomotives, tall stacks and electric trams. It is a hub of organization; a theatre of tremendous energy. Economic application of muscle and mind is here. Experience, invention, ability, are here. The problem of Mt. Morgan yesterday was the payable reduction of copper. Unless the bottom falls out of the world's copper markets, it has been solved.

All-powerful capital is here. It has established a reservoir of water with a capacity of 376 million gallons. It draws limestone flux—10,000 tons a month—from Marmor quarries principally, 51 miles. It brings ironstone flux from Iron Island and peulic flux from Many Peaks—151 miles. It hauls in iron, manganese, coke, sulphur, and nitre for the roasting and boiling that goes on unceasingly in its mammoth kitchen on the Hill—a kitchen through which there passed a little less than 260,000 tons of ore, to make those figures in the Directors' annual balance sheet for 1912.

In 1892, when a million ounces of gold had been taken practically from the surface of Mt. Morgan, geological reports asserted that "only a very small proportion of the known amount of payable ore had been excavated." In 1915 the Annual Report of the Under Secretary for Mines said:—

"At Mount Morgan, still by far the greatest of our mines, the year, especially for the latter part, has been one of great activity. Mt. Morgan last year produced 256,218 tons of ore, which, with 20,002 tons from Many Peaks, yielded 106,520 oz. of fine gold, valued at £452,468; and 7,796 tons of copper, valued at £471,658; 33,978 ozs. of silver, valued at £3,539; a total value of £927,665. The year's

record is thus highly satisfactory, and encourages the hope that this great industrial enterprise will long continue to be the centre of a large, prosperous, and contented community."

The community, directly and indirectly supported by Mount Morgan, all told, may be put down at 5,000 workers. This includes timber getters.

The town, which nestles at the foot of that famous hill of gold and copper, seems busy and cheerful.

The children are well-fed, healthy-looking, young Australians; the women vigorous; the men robust. Wages earned by miners run 8/-, 9/-, 10/-, 11/-, to 13/4 a day. Contract men win as much as 17/6 a day. Costs of living are comparatively low.

Does Australia contain more than one Mount Morgan? It is quite possible. The first Queensland gold reef was opened at Crocodile Creek, in the Rockhampton district, in 1865. Rockhampton had seen many rushes and hailed many local mineral finds before Mount Morgan—a morning's ride from town—was discovered, seventeen years later.

Although it has, so far, proved the richest mine on the continent, it possesses many geological features common to other gold and copper propositions.

The country rock, in the immediate neighbourhood of the great mine, is mainly composed of silicified sandstone, grey washes, and undurated shale. The sandstone is rich in iron pyrites.

As we have said, the gold-bearing surface of the lode was enormously rich. The gold values declined with depth: but the copper contents of

this astounding mineral deposit increased! To be at once the richest gold mine and the most productive copper mine in Queensland has been the distinction of Mt. Morgan.

It might be said, for the better understanding of the layman, that Mt. Morgan is, or was, a pyramid of copper, whose apex was gold.

Although his original theory of the geological cause of Mt. Morgan (a thermal spring, a geyser, in the open air spouting fitfully water and chloride of gold), has been proved wrong, Dr. Jack, ex-Government Geologist, asserted that the discovery of Mt. Morgan "may lead to others of equal importance in a direction where gold has never hitherto been looked for.

"A vast area in our western interior is composed of cretaceous rocks, and has been covered with the desert sandstone, of which isolated tablelands remain to attest its former wide expansion. Beneath the cretaceous rocks, palaeozoic rocks undoubtedly extend, and these doubtless contain many reefs as rich in gold as those which are exposed to view in the ranges near the coast."

Mr. B. Dunstan, the present Geologist, has said of the field:—

"It is well known that past practices here have not in a single instance availed to show when conditions are favorable or otherwise for stone to carry gold. In the Mt. Morgan Mine itself it is impossible to tell by appearances whether the stone is rich or poor. Of two samples which might be absolutely the same in texture, color, structure, specific gravity and mineral constituents, one would perhaps yield as many ounces of gold to the ton as the other would penny-weights."

The faith of those who believe another Mt. Morgan possible may yet be justified.

Stories of the mining fields, for which Rockhampton has been, and is, the port and frequent depot, would make interesting volumes.

At Mt. Wheeler, 20 miles from the city, a small boy one day discovered a nugget worth a thousand pounds.

About two hundred miles to the west from Rockhampton is Anakie gem field. Here nature has written a fascinating romance. Here is an open jewel-casket of incalculable value.

As a proved gem-producing area, Anakie has probably no rival in any country—Siam included.

It has taken many years for the Australian sapphire to overcome a prejudice which was largely mendacious. But its popularity is growing, and the output from Anakie is rapidly increasing.

"The demand for the gemstones of Anakie," said the Government Mining Journal, in 1912, "is regulated almost completely by the lapidaries

of Germany, who distribute the cut material throughout Russia, which is the principal consuming country. The German firms have agents on the fields and in the southern capitals of the Commonwealth, these latter in turn being represented by local sub-agents.

"In all there are now (1914), 17 buyers, and of these ten are stationed at Sapphire and seven at Ruby Vale. Three of them, representing southern or well-known Continental firms, are always open for business, and one of them had a turnover of £6,000 last year (1912-3), but the activities of the remainder are circumscribed. Some of them periodically visit the producing centres, where they purchase parcels of stone after due examination, which, it may be mentioned, cannot be undertaken unless the day be cloudless, for the prized deep violet blues appear quite opaque in dull weather. The prime requirements of the German market since 1906 are stones of a dark violet blue colour, which in the larger sizes (up to 3 oz. in weight) bring as much as £5 per oz. Largest blues are sometimes 3 oz. in weight. Large blue include the dark violet stones, $\frac{1}{2}$ oz. or more in weight. These, if cut locally, yield a black gem. It is suspected the Germans have devised some means whereby the colouration may be reduced; hence the reason for the strong demand for these stones. The purest corundum in the world is found at Anakie. This also is bought at a high price by Germany for some secret process—perhaps aeroplane bearings."

The war has caused a temporary "slump," which will doubtless be ultimately overcome by the opening up of new markets.

It is forty years ago since the first stones were discovered on this field, which covers an area of about 200 square miles. The payable ground is yet confined to two or three central propositions, of which the "Reward" and "Freehold" are the principal. Both date from the discovery of the field. The Reward was granted to the original discoverer and reporter of the existence of sapphires in payable quantities. Of the Reward, Geologist Ball says it covers "an area of 160 acres of the richest ground on the field." Both mines are held by the same man, J. P. Mitchell, who arrived in this district from Scotland ten years ago, as he himself says, with absolutely empty pockets. It is understood that he is about to open these mines out on a large scale. For five years, up to and including 1913, the men employed on the Reward have met with striking success; the most valuable gems got on the field have been produced by this mine. This fact, and the large area of virgin ground, decided the proprietor to float the Reward and subsequently the Freehold.



Examining Sapphires

Queensland is a country of opportunities. Anakie Sapphire Field furnishes more than one example.

From J. P. Mitchell, who five years after his arrival in Rockhampton was the holder of the largest claims on the field, to the latest new-chum seeking a living and experience, Anakie offers an almost equal chance.

A man need not be a practical miner to make a start as a gem seeker on Anakie.

Digging for sapphires is simple. It consists in some cases of "surfacing" or handpicking. In some claims the soil is removed and treated by washing. In other cases, open cutting, or removing the overburden from the wash, is practised, followed by washing, as in the case of the surface material; or shafts are sunk through the overburden into the wash, which is then hauled to the surface by a windlass. The term "wash" applies to the material which carries the sapphires. This is readily distinguished from the barren surrounding country or earth. It corresponds to the gangue of the ore in metalliferous mining.

The underground workings are not deep, 40 feet being the limit at present. The average depth is about 20 feet, in firm ground.

The area which can be held by one man as a claim is 300 feet by 300 feet. The available country is extensive, amounting to 30 square miles. A hundred yards by a hundred yards! Just consider what this means. If only a foot thickness of wash is found all over this block, the amount of gem-bearing material would amount to 6,000 tons. Taking the average returns of the field, the gross value of this is £1/5/4½ per ton. It must always be remembered that there are exceptional mines where the gross value goes as high as £40 per ton. Added to the certainty of making a living on the sapphire fields, there is the possibility of dropping on a property giving a return of £40 a ton, and

which would make the lucky owner an independent man in three years. This, too, considering the value of the product in the rough, as disposed of to the buyers. Such mines have been found at Sapphire Town and at Ruby Vale, and with the large area of unprospected country, other mines just as valuable are undoubtedly waiting to be discovered.

The man without capital benefits, "it being tacitly understood that the field is reserved for the small claimholders." Any man holding a Miner's Right, which costs 5/-, can peg out, hold, and work his hundred yards square of gem-bearing country. In three weeks he may learn to make a living, later on good wages, and ultimately, if lucky, "a pile."

The average working population in 1914 was 196 miners. The returns in value notified to the Government, £15,800. There is no penalty in vogue for inducing, or compelling returns, and for obvious reasons it is justifiable to suppose that the value actually won was considerably over that figure. Yet it gave an average (in 1912) of £200 for twelve months per man employed, the great majority of whom were working for themselves.

It has been calculated that two tons weight of precious stones were removed from Anakie during that year.

* * * *

By an intensely blue sea, studded with islands, lies Yeppoon, much frequented by the people of Rockhampton in summer. There are hotels and boarding houses by the shore, where one may have native oysters, fine fat Queensland roast beef, green peas, and fruit-salads galore.



Classing Sapphires

Some of the islands along this coast have been taken up as selections under the Lands Acts of the State.

An Englishman, a successful grazier from Central Queensland, has retired to one island about a mile and a half from the mainland, 80 miles north of Yeppoon. He will have fish and oysters and game and fruit in abundance. To a



Sisal Hemp, Childers

man who loves the beauty of ocean, sky, beach, and foreland, there can surely be no pleasanter place to spend the evening of one's days.

Nor need he be wealthy to find those pleasures, which in other countries are reserved for the rich alone.

The old age pensioner in his tent along the shore by Yeppoon may get as much enjoyment out of life as some American millionaires.

Under the wild fig-trees, garlanded with vines, he may sit and dream an old man's dreams in peace.

* * * *

On the borders of Rockhampton, at Lake's Creek, are located the freezing and meat preserving works of the Central Queensland Meat Export Company, where many of the fat cattle for which Queensland is world-famous are converted into product and bi-product. The price paid here for bullocks by this Company in 1913 was £7 per head; for cows, £4/15/-. To-day, prices are as high as £17 for bullocks, and £15 for cows in the Brisbane market. The capacity of the works is 300 cattle or 3,000 sheep a day. Their annual export is about 10,000 tons of frozen meat, and 60,000 cases of canned goods. In the canning season this place employs over 500 hands. Officials state that "cattle-raising is one of the most profitable industries in the State, under ordinary conditions. The operations of the cattle-man depend entirely upon the amount of capital he has at his disposal to put into the industry. Still, many men have started with a few head and gradually worked up."

With a capital of £5,000, it is possible to make a good start on a 20,000-acre holding. Queensland still has millions of acres suitable for cattle-raising, which can be leased from the Crown for long periods at particularly low rentals.

Sidney Kidman, the "Australian Cattle King," is instanced as a very small beginner. To-day he is one of the biggest dealers in the world,

owns stations all over the Commonwealth, and can muster his cattle by the hundred thousand.

Mr. Kidman runs over 20 cattle stations in the Northern State.

The herds of Queensland in 1914 totalled five and a half millions, of which only 387,311 head were dairy cattle; the rest were beef cattle of various ages and qualities, spread over the wide, natural pastures of the State.

The great "runs" lie out chiefly in the north and west—by Camooweal, and Cloncurry, and Burketown. These range from 2,000 to 5,000 square miles, and may carry from 10,000 to 50,000 head.

Warenda, on the Gregory, has 5,000 square miles, and until recently ran 25,000 cattle. It now carries over 100,000 sheep.

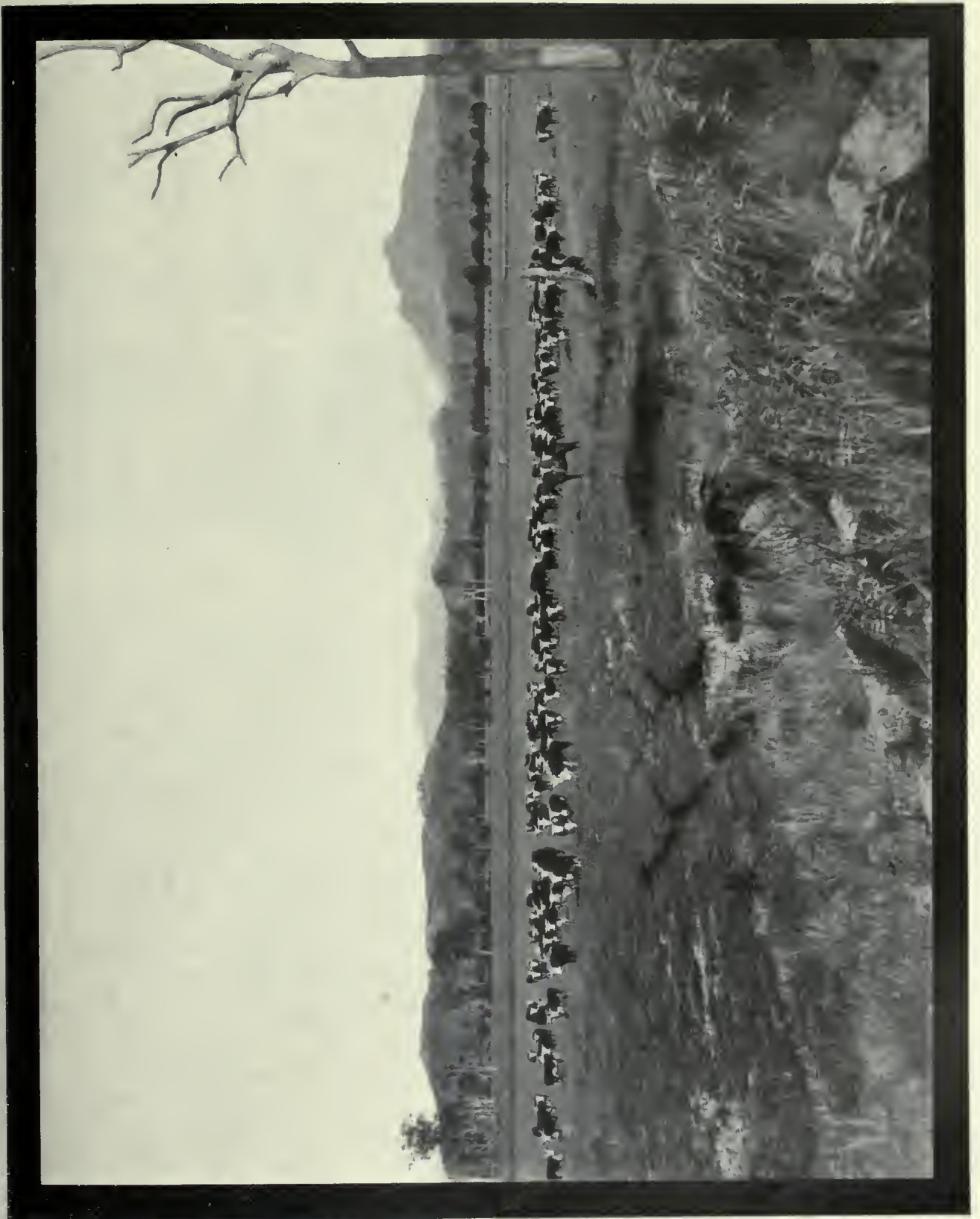
Dalgonally, Julia Creek—Cloncurry district, ran 49,060 head.

Some of the pleasantest Australian literature, including A. B. Paterson's *Clancy of the Overflow*, has been written around the cattle drover and his wild, romantic life.

The far west Queensland stations send their mobs of "fats" by hoof to Oodnadatta; whence



An Ant hill, 28 ft. high



A Herd of Hereford Cattle on Coochin Coochin, Fassifern District



A Mob of Queensland Horses

they are trucked by rail to Adelaide, South Australia. These cattle will be on the road from four to six months, and may travel 2,000 miles before they reach their market.

Yet the Central Australian pastures are so rich that large percentages will arrive in splendid condition and command top prices.

This common, everyday fact is in itself a practical proof that the interior of the continent is anything but an arid waste.

Not long since, Sidney Kidman brought a large mob of fat cattle from the far interior to South Australia. The distance covered was 2,000 miles.

For a mob of 1,000 prime bullocks bred in Queensland, fattened on Cooper's Creek, and taken by road and rail to Adelaide and Melbourne the same owner received £15 5s. per head.

Yet, on Cooper's Creek, it will be remembered, the final scene in the lamentable, yet foolish tragedy of Burke and Wills was played out only a half-century ago.

Of gold and beef and wool, Central Queensland therefore has no lack. The production of the two last is constantly increasing. Mt. Morgan has not ceased to spill its millions, and other mineral riches remain to be exploited. Go where he may over the coastlands, the highlands, and

the plains, the fortune seeker—whatever his line—will find little difficulty and no danger in his path. If he wishes to become a settler, there are sheep lands, cattle lands, dairy lands, fruit lands suitable for his purpose. District upon district will call him. The country wants him; and if he be a sane, sober man, with ordinary human luck, he should not fail to "make good."

It is hard for people in other countries to realize the personal freedom, the expansion, the opportunities for success, the leisure, and the climate which Australians enjoy. In all Queensland there are not yet three-quarters of a million people, and Queensland covers 670,500 square miles, in which it would be difficult to find ten square miles absolutely useless.

Go north from Rockhampton along the coast to Broadsound! You pass through good cattle lands, into the sugar growing districts of Mackay. Go still north from Mackay! You will cross over a hundred miles of magnificent soils suitable for tropical agriculture, to the Proserpine River.

Thence you go down again by open pastoral and agricultural expanses to Bowen, with its splendid natural harbor and surrounding assets. Back of Bowen, 90 miles, say reliable authorities, there "lies another Darling Downs."

Back of Bowen harbor, about sixty miles, there certainly lies an enormous coalfield, which will

be turned to account some day. A thousand million tons of high-grade coal will not remain untouched for ever.

Farming and fruitgrowing are practically beginning around Bowen. Commercial crops grown in the district of Bowen include bananas, tobacco, maize, English potatoes, sweet potatoes, sugar-cane, pineapples, oranges, melons, tomatoes, all varieties of vegetables, mangoes, cigar leaf, and calabashes.

Come south from Rockhampton, through forest and jungle, stock lands and tilth lands, again to the spacious harbor of Port Curtis. Here Gladstone stands as the capital of another wide territory, exporting its frozen meats by the tens of millions of lbs. annually; its horses, sheepskins, hides, minerals, and fruits, and agricultural products.

Come still further south, to the wealthy city of Bundaberg, capital of still another prosper-



Orion Downs, Springsure District

From 1st January to 31st December, 1914, this little centre shipped no less than 168,000 packages of fruit and vegetables, including 110,000 cases of tomatoes.

Horses, canned and frozen meats, gold, silver, copper, lead, and bismuth also go out of Bowen.

From thence go still further north—by rail, if you like—to Ayr, on the Burdekin; and find yourself in the heart of one of the most progressive sugar districts in Queensland.

ous sugar-growing district. Here the mills turn out their twenty to forty thousand tons of sugar in a season.

Near Bundaberg are the famous plantations of Fairymead and Bingera; and behind it Childers, Isis, where sisal hemp, tobacco, and sugar are grown; where, again, there are grassed lands and jungle lands and all the diverse fertility and richness of this marvellous Northern State.

Mount Perry copper field is only 67 railway miles inland.

Go west again to the head waters of the Burdekin, the Mackenzie, the Dawson, the Burnett, the Fitzroy. You will find open acres, but no sterile wastes. It is all capable of some production, and merely wanting people. Cattle stations it has, sheep stations, mining places,—but everywhere there is room and requirement for population.

There will be interest in your journey, diversity, change, difference in climate and vegetation: and you will find hospitality and learn the way of the pioneer.

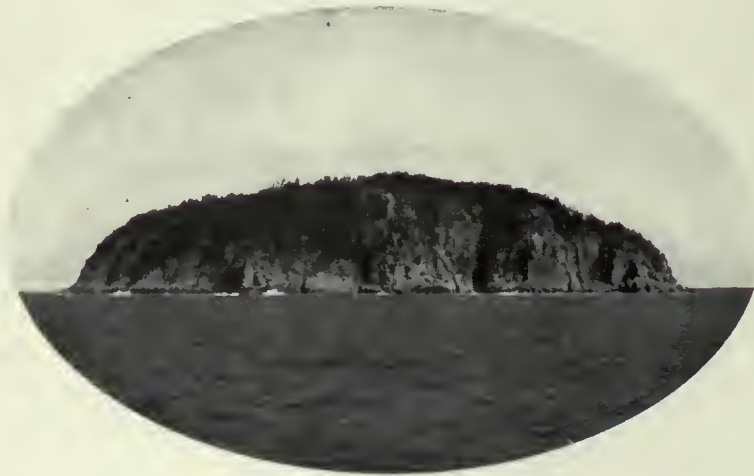
flashes marble white upon a flamingo-colored water surface!

Over those coastal hills; pyramids, perhaps, of copper, whose apexes are yellow, like Mt. Morgan, with gold!

Over the jungles, where wild pigeons feed on scarlet berries, bunched under a canopy of green palm leaves.

Over the brigalow, turning its bronze-green leaves to the evening breeze.

Over the gullies, wetted with rain, cooled by coming night winds; over the ranges, musical with sighing of tall eucalypti and æolian cadences of the pine.



An Island on the Queensland Coast

At the junction of the Comet and Nogoa rivers you will see lost Leichhardt's marked tree, where in 1856 A. C. Gregory dug, as directed—and found nothing.

At Springsure, 206 miles from Rockhampton, you will breathe invigorating mountain air, enjoy interesting scenery, and learn the lore of the runs from rough-riding stockmen and experienced overseers.

At Clermont you will hear stories of old digging days; at Blair Athol you may gather facts about the coal measures of Queensland, which have here found one of their industrial beginnings.

* * * *

Lounging on the beach at Emu Park, watching the clean tides of Keppel Bay, one turns to see the sun setting in colors of purple and gold.

It is 900 miles westward in the sun's track to the border of South Australia. Nine hundred wondrous miles along the Tropic of Capricorn.

Let your fancy follow the sun over these coastal swamps, where the crane's reflected image

Over the temperate western slopes, and down on the great plateau; over the box forests, over the flowering wilga and fragrant acacia, out on to the sheep stations; out farther, till you meet the wide, glorious Downs, on whose waving grasses, wander a thousand lowing herds, and on and on and on, to the Georgina and the Diamantina and the radiant red heart of the Farthest West.

Follow the sun's track in fancy, follow it in fact! Nevermore will you doubt the destiny of Australia; nevermore will you doubt that this great State of 429 million odd acres, five and a half times bigger than the British Isles, three times the size of France, has a future of power, wealth, population, prosperity, and progress.

Follow the sun, from East to West across the State of Queensland! Follow the track of the sun!

It rises low over the Great Barrier Reef, and floods a thousand islands, from Saibai by palm-clad Papuan shores, to Point Danger, with the ineffable colors of a southern morning. White sails of pearly luggers, iron flanks of huge



The Florida Bore

coastal steamers, long white beaches, stained forelands, mangroved mouths of many rivers, light-houses, cocoanut trees, grow out of the night's darkness, like images on a negative—accelerated by latitude.

Smoke arises from the little coastal cities far apart, from townships, from remote telegraph stations, from the camps of dugong fishers, timber getters, cane cutters, trappers, nomads, drovers, prospectors, and aboriginals.

Smoke goes up from the selectors' homes in the clearings; from the planters' bungalows; from the station dwellings, the miners' huts, the orchardists' wooden houses standing on piles; from the scattered habitations and biding places of six hundred thousand odd people, spread over 670,500 square miles.

Machetes are slashing in the cane brakes, milk is spurting in the pails; ripened fruits are being packed into cases; the air is laden with odours of pineapple, bananas, mangoes, papaws; axes are flashing in the timber; ploughshares gleaming in the furrows; horses are being saddled in the stockyards; the dust of travelling stock uprises; and all the sound and movement

that attaches to human life and labor are called into being.

But over hundreds of yet unoccupied miles,—virgin forests, primal jungles, untenanted plains, unvisited coasts,—there are solitude and the sounds of Nature only.

Follow the sun over Queensland! Follow the sun!

The pearl diver is coming up with his tribute of iridescent shell, which in the depth of Torres has captured the pale colors of Queensland dawn.

The miner is bringing up from his shallow shaft precious opal, which has gathered to itself the glory of Queensland sunrise.

At Anakie, the sapphire-seeker is holding to the light gemstones that have imprisoned the blue of Queensland skies.

By hillward creeks the fossicker bends over his dish, to see what golden nuggets it may contain.

In the sugar mills the rollers are steadily crushing sweet juice from the cane. In the mines jaws of iron are crunching metal from the rock.

In the woolsheds greasy fleeces are falling away from the shears. Over many a plain and through

many a glade, fat cattle are moving slowly; while "Clancy rides behind them singing," singing the glad, melodious song of a free life, in a free country—a song of Youth and Courage, and infinite Hope for the Future.

"He sees the vision splendid of the sunlit plains extended." He shapes their message into words, and gives it to the winds to carry overseas. It is the voice of Queensland calling for strong men and women; calling to the crowded older lands of Europe—a voice laden with promise of healthy lives and happy homes, independence, ultimate fortune and ease.

If anyone were inclined to doubt the authenticity of the message let him examine the facts.

Example could be added to example, until the long list of successes pretty well covered the whole white races. English, Irish, Scotch, Germans, Russians, Italians, Scandinavians—men of every European nationality—have found Queensland the best country in the world. Scores of them have landed on her hospitable shores with a few shillings, and won out to be farmers of substance, independent freeholders, solid citizens, hall-marked with district—sometimes national—recognition.

For struggling farmers in Europe with agricultural experience and a little capital, Queensland offers opportunities for which they will wait a lifetime in vain.

For the workers who elsewhere can look forward to nothing but uncertainty, poor living, and, at best, enduring toil till the end of their days—Queensland holds constant employment at comparatively higher wages and shorter hours, religious liberty, political equality, personal security, and provision for old age. Added to these are free education for their children, and an open chance of fortune in a land teeming with unexploited wealth.

With little over half a million people in the State in 1914, the Government Savings Bank had a depositors' list of 192,402 names, with a total savings of nearly 10½ millions of pounds, or an exact average of £58/8/6 per head.

The twelve banks of Queensland in that year held assets totalling nearly twenty-four millions.

Yet out of her 429,120,000 acres, the total area under cultivation had only reached 981,218 acres in 1914.

It can be seen from these figures what this country—more than three times the area of France and infinitely richer in soils and minerals—will become when she has attracted a greater population. According to the census of 1911, France was supporting no less than 39,601,509 people.

There is nothing that France, or any other European country, grows or produces that Queensland, in common with Australian States,

cannot grow and produce equally as well, and often better. On the other hand, there are many things of which Europe is entirely barren that Australia can produce in abundance.

Under these circumstances neither emigrant nor investor need have much fear that Queensland will prove a land of failure.

It is officially proclaimed that, "there are numerous avenues of investment in sheep and cattle stations, farming and dairying on a large scale, city and country properties, mines and timber; in the development of secondary industries, and in the growing of rubber."

With £150 to £200, a man can start dairying in a small way, and gradually increase his herd and operations. On £250 to £300, he could make an excellent beginning.

One hundred pounds capital would be sufficient to make a start at fruitgrowing.

The man without capital might work for a farmer or station owner until he had enough to pay his deposit on the land he eventually selects. There are 60 land districts in Queensland; in all of which Crown Lands are still obtainable.

Conditions under which land can be acquired in each of the Australian States will be found in the chapter on *The Crown Lands of the Commonwealth*. These, generally speaking, have been based on the lines of settlement pursued under each State Government, but Queensland has a unique form of tenure, known as "prickly-pear selections"; which does not prevail elsewhere. When we come to the story of the prickly pear we will better appreciate why prickly pear lands have been brought under special legislation.

East and West from the Barrier to the Border, as the sun goes, there is room for thousands of homes, for dairies, orchards, plantations, mixed farms, all the various industries that have already been proved profitable; and for others that will arise as settlement goes on.

The rougher days of pioneering have passed. The settler of to-day has all the impetus, the invention, of the 20th century behind him. His progress is more rapid and certain; his personal exertions less. He is no longer isolated; rapid transport brings him into touch with centres of population—with his markets, his medicine, and his news.

They were strong men, those northern pioneers—broad-visioned, patient, and brave. East and West, from the Barrier to the Border, they laid the foundations of a future in which Queensland will surely be the motherland of a mighty race.

In the house of our Commonwealth—that dark-browed sister, so richly dowered, who keeps the Northern Gate, shall yet, mayhap, become the strongest and the greatest.



Sheep at the Hermitage, Darling Downs

SOUTHERN QUEENSLAND.

AFTER he has gathered granadillas at Cairns, heard the nor'-easter sighing in the bamboos at Rockhampton, and seen the moon rise over the canefields of Bundaberg, the traveller should take train to Toowoomba.

A hundred miles from Brisbane, and 1,921 feet above sea level, he may here begin his inspection of the Great Northern Tableland and all it contains.

He will find mountains and eucalypts—a land altogether different from the tropical coast.

The apple-cheeked girls of Toowoomba might pass for Victorians in Sydney, or Tasmanians in Melbourne.

Beside its prestige as capital of the famous Darling Downs, Toowoomba enjoys a reputation as a fashionable summer resort for Queensland.

Rich in foliage, coolness, and scenic beauty, it is one of the pleasantest cities in Australia.

The surrounding district pours out a varied benison of fruit and flour, wine and cream.

Botanic gardens, parks, residential schools, fine hotels, daily newspapers, substantial public buildings, and pleasant villas testify to its im-

portance—not only as a tourist resort, but a city of wealth, culture, and general prosperity.

Toowoomba is a proud Queen of the Hills, crowned with garlands of flowers.

At this centre the traveller finds a railway depot of great activity, through which several important systems send their passengers and freights.

One branch finds its terminus at Crow's Nest, 34 miles north by east along the Tableland, traversing much good forest and farm lands.

The soils en route are chocolate, red, and black, exceptionally rich in the scrubs, much of which has been cleared and converted into field and pasture, beautified in spring by a wealth of wild-flower, among which English eyes are gladdened to see buttercups and bluebells.

The timbers, of good milling quality, include pine, blackbutt, ironbark, and turpentine.

Wheat, lucerne, potatoes, and maize flourish up here, equally as well as the cotton grown by Ipswich at the feet of the ranges. Southern Queensland is as variously fertile as those north-

ern districts, over which the reader has already glanced.

Another branch line goes, south and west, through to Wyreema, Pittsworth, and Millmeran—54 miles.

Pittsworth is a small centre of agricultural activity. With an elevation of nearly 1,700 feet, the cultivation of wheat, barley, and oats varies maize and lucerne-growing.

From Toowoomba, the western railway goes out to Charleville; and from Charleville, south

surface. The Downs were discovered by Allan Cunningham, the botanist, in 1827—one of his many great services to Australia.

Since the beginning of settlement in 1840, they have been a constant home of prosperity. From a squatting period, they have now definitely passed to a closer settlement stage. To-day they are a vision of green pasture lands, dotted with dairy cattle of the finest breeds, hillside homes in the midst of waving cereals, lucerne paddocks, clover meadows, and orchards—while ploughed



Bullocks Drawing Timber

by west, to Cunnamulla, which is 604 miles from Brisbane.

The way to Dalby, on this line, is over green lucerne lands of the Darling Downs. These Downs hold four million acres of the richest chocolate and black soils in Australia, from four to sixty feet deep.

This sweet and lovely land is watered by young rivers fresh from the ranges—birthplaces of the Condamine, the MacIntyre, and other affluents of the Darling, whose flowing currents reach the sea at the Murray's mouth, 1,800 miles away.

Its average rainfall is over 30 inches a year, and, at almost any part of it, further supplies of water may be obtained a few feet from the

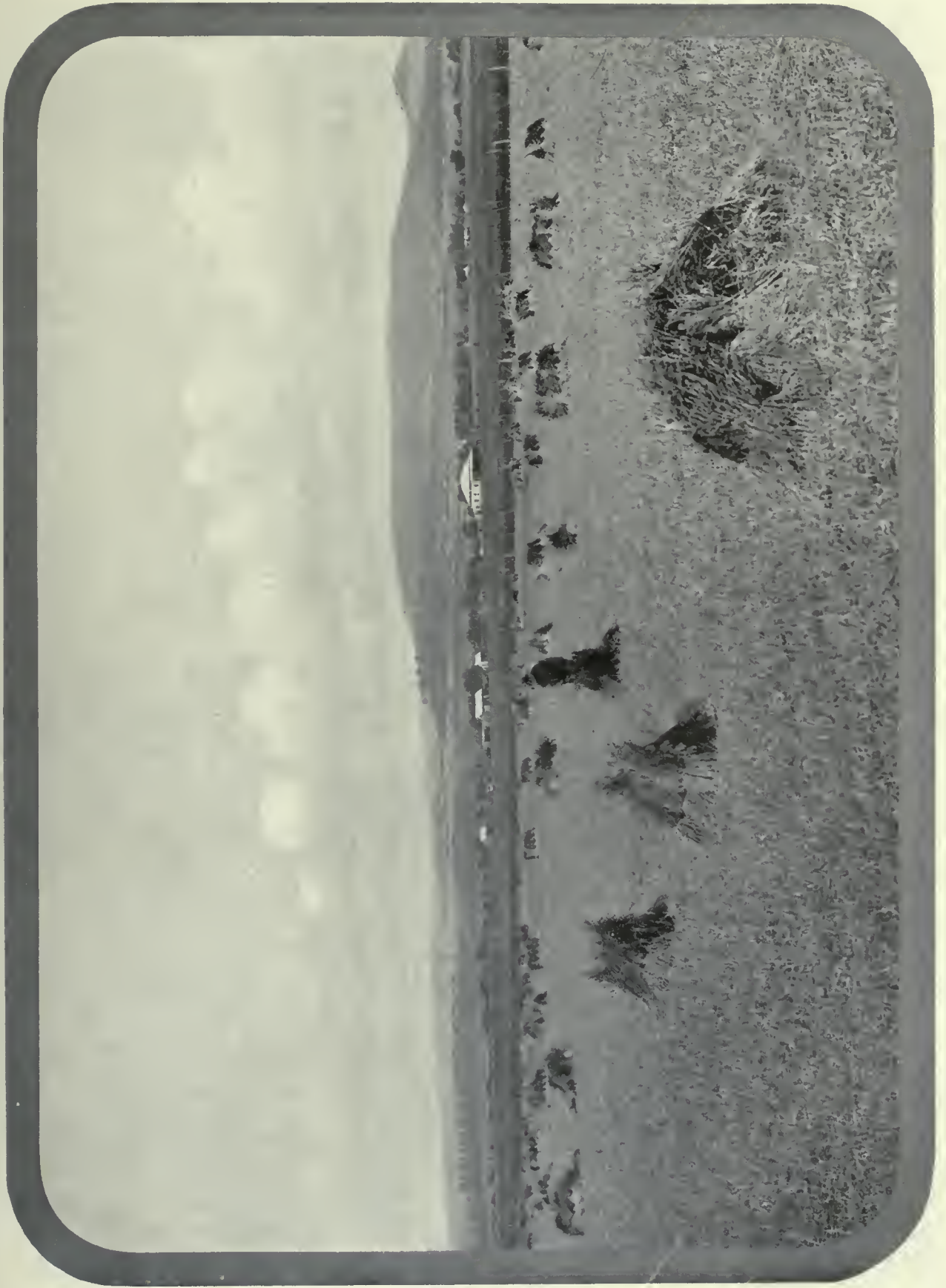
fields, in chocolate squares, vary the prevailing green.

At Dalby, there is another railway depot, with short branch lines laid out across the blacksoil plains to Bell and Tara.

At Macalister one sees blue hills in the remote distance across a fertile blacksoil plain, well watered, well grassed, diversified by occasional patches of crop and scattered farm houses. Like an enormous disc, this plain spreads away to all points of the compass; crossed by straight roads and fences, and still dotted with sheep and cattle.

At Warra, the region of prickly pear (*opuntia inermis*) definitely begins.

It is almost uncanny to pass from the sunlit expanses of the Downs into the dark brigalow



Wheat Field, Allora, Darling Downs



Town Hall, Toowoomba, Darling Downs

scrub and find the whole face of nature closely and evenly covered by this grey-green intruder from Mexico, which has been the bane of Queensland Governments for some years.

Mile after mile the traveller is faced by one vast, impenetrable, spiny thicket of obdurate vegetation, which has smothered thousands of fertile acres and threatens to overrun more.

The Government has offered large rewards for an effective method of dealing with the pest, and will practically give infested lands to selectors, who will take them up and clear them of the Mexican interloper.

A Government Prickly Pear Commission has spent eighteen months abroad, travelling through Java, India, Ceylon, South Africa, the countries of the Mediterranean, South America, the West Indies, and the United States.

It has returned with parasites, and vegetal diseases, for further investigations and trials at the Dulacca Experimental Station, where the whole problem of prickly pear has been under careful scientific review.

The Lands Department, the Government Analyst's Department, and the Department of Agricultural Chemistry are all concerned in the elaborate experiments at Dulacca, which are also receiving sympathetic attention from scientific men in the universities of Sydney and Melbourne.

As one travels through the dominions of which, for the time being, *opuntia inermis* is absolute overlord, one sees why this grey-green invader has been able to advance its spiny regiments so victoriously; why all through the dark brigalow scrub, all over the open spaces, all across the reserves, and right up to the selectors' front doors, its tall globulous growth has overcome all other vegetation.

The affected regions are mainly those rich black soils blessed with a sufficient rainfall—which would grow the useful and kindly plants of cultivated fields to perfection.

Had there been a human population to keep those soils in tilth this prickly, saponaceous cactus—which has utilitarian uses in other countries—would never have been allowed to get the upper hand.

Obviously, closer settlement is the one sure preventive for such pests; but with a vast State carrying little more than one person to the square mile, this is more platitude than cure. . . .

Roma is 318 miles to the west from Brisbane. People who have been misled by mendacious stories of Queensland climate will find here a winter much colder than that of Sydney, a summer less trying.

Clear air, frosty mornings, blue skies! Life is worth living at Roma in the month of August.



Hermitage Farm, Warwick District, Darling Downs



An Early Homestead, Roma District

The traveller fills his lungs and feels the immediate effect in greater vitality and increased appetite. It is pure oxygen—the invigorating breath of those great clean, wind-swept, sun-sweetened spaces of Australia, which lie before him for thousands of miles when he turns his face to the West.

He may believe this wind has blown across the continent through Birdsville and Eromanga and Charleville from Charlotte Waters. He may fancy that it was cleanly born in the Indian Ocean, first touched the continent at Cape Inscription—where Dirck Hartogs found it, was purified and rarified as it blew over the plains and ranges, went lightly across the silent spaces of Western Australia, through the Musgrave Mountains, and across the Northern Territory to the Queensland border.

Between Cape Inscription and Roma lie 2,350 miles of Australia, free from all disease, not a township of a hundred houses all the way, not a village in a thousand miles; no fever-haunted jungles, no poisonous marshes, nothing but odorous eucalyptus forests, inland ranges, and wide, silent plains. It is a good, invigorating air.

At Roma, 318 miles west from Brisbane, we find ourselves in the heart of a beautiful dairy-farming and wheat-growing country, with plenty of room for settlers.

The fields are white with daisies or yellow and purple with wildflowers.

We have come to a border region, where the black soils—which go down from the Gulf of Carpentaria through Queensland into north-western New South Wales—are giving way to the rich red soils typical of the southern West, the centre, and the far West of the continent.

The timber changes in a short distance from brigalow and glossy-leaved box to cypress pine, and those native growths which indicate good wheat lands in New South Wales.

Wheat-growing out here has proved a profitable industry. At the State Farm near Roma much useful agricultural research is going on. The wheat plots are particularly interesting. They wave from the edge of the red soil green banners of advance; for the grain is going west and further west, towards the Great Inland Railway that will join Camooweal to Charleville in the near future.

At the State Farm they are growing fine citrus fruits—Washington navel oranges especially—without irrigation. Apricots and olives give good results. Grapes flourish, and the vines are free from disease. Around Roma vineyards and wheatfields beautify the landscape.

Along the northern road are orchards, orange-groves, vineyards, hayfields, and wheat crops.

Agriculture—generally speaking—ceases in Queensland at a few miles' distance from the railway lines. It does not pay to transport products beyond a certain radius. But the land preserves its characteristics, and, some day, if there is requirement, intervening areas between present railway zones will be found just as suitable for agriculture and dairying. Lucerne and potatoes will probably be a staple crop out here later on.

Beyond the 320-acre blocks lie the sombre brigalow, the hills, given over to pear, the myall, box, and black ironbark—hundreds of square miles as good as any that has known the plough, waiting to be converted into farms.

Beyond the farms, on natural pastures, with artesian water, wool-growing will still remain a staple industry. There is ample room for both. Mount Abundance, a station of 100,000 acres, between Roma and Charleville, is said to carry 3,000 head of cattle and 100,000 sheep.

Transport and people! That is the basic policy of Queensland. It is a policy which, if rightly followed out, will lead to rapid national advances in the next few years.

The town of Roma was for a short period—four or five months—lit with natural gas, struck



Wheat at Roma

in an artesian bore within the municipal radius.

One night the supply of gas unaccountably and inconveniently ceased. Since then annoyed ratepayers have been paying taxes to cover the cost of a gas supply which has vanished. Geologists even do not tell why. One theory is that this was once an oil region, but, probably through some convulsion of nature, the country was fractured, and the oil escaped.

Although experts assert that the subterranean reservoirs of oil are no longer there, local enthusiasts continue to believe. They have other explanations for the sudden cessation of the town gas supply—which, by the way, went to waste for six years before it was reticulated. The Government is now engaged in boring operations in order to definitely determine whether oil wells of any extent exist.



Harvesting at Roma

Whether or no there remains any gas or exists any oil in the earth under Roma, there are certainly some valuable medicinal waters at Muckadilla Bore, 26 miles further along the western railway.

The thermal baths at Muckadilla are under control of the Queensland Railway Department. Rest houses and bath houses have been established, and the number of patients increases.

The Department absolutely declines to receive phthisical or other contagious or infectious cases for treatment, but it provides all facilities,—including stretchers in railway carriages when patients are unable to sit up—for the access of the afflicted to this artesian Bethesda by Mount Abundance.

If Ponce de Leon might amend his quest and bring it up to date, he would wire to the manager



Harvesting Wheat, near Warwick

According to the Government Analyst, the water is radio-active. It issues from the bore at a temperature of 124 deg. Patients are immersed at a heat of 110 degrees, and also drink freely of this highly mineralized water, which contains in each gallon—silica 3grs., iron $\frac{1}{2}$ gr., calcium carbonate $3\frac{1}{2}$ grs., magnesium carbonate $1\frac{1}{2}$ grs., sodium carbonate 16grs., sodium chloride 7grs., sodium sulphate $1\frac{1}{2}$ grs.

It has been established beyond doubt that the water possesses highly curative properties in chronic digestive troubles, and for sub-acute and chronic rheumatic affections sound medical authority declares its effects to be marvellous.

This remarkable bore,—which has been the means of restoring many hopeless invalids to health—is enclosed by artesian casing and sunk to a depth of 3,762 feet. It is one of the deepest artesian bores in Queensland; and has a flow of 23,000 gallons a day—sufficient to supply 600 people with medicated baths.

of the hotel at Muckadilla for a room, wire to the station-master at Toowoomba for a sleeping berth, and go down in comfort to his 20th century Fountain of Youth in South-western Queensland—300 miles from the coast, 1,170 feet above sea level—where, in a most invigorating atmosphere, summer or winter, he could at least rid himself of gout and rheumatism. . . .

Having seen the Downs dip slowly into the red-soil plains, the traveller should return to Toowoomba, and entrain for Warwick.

Gowrie, Westbrook, Cambooya, and Greenmount lie on the road—all long famous throughout Australia for their richness. Butter, cheese, malt, of the highest qualities have established their fertility.

Warwick is the centre of an idyllic agricultural region, which has been turned to good account by two generations of enterprising farmers. Some



Bending Broom Millet

recent Scotch visitors to Australia have printed a statement that "the Darling Downs are known as a region where Nature makes a marvellously generous response to the farmer, though he be neither very energetic nor scientific."

It may be that the philosophy of a superabundant country like Queensland is more generous than that of the poorer land from which these gentlemen came.

The Queensland farmer need not be more than half as scientific and energetic as the farmer in Scotland to reap twice the result.

The farmers of the Darling Downs, facing no fearsome winters, dreading no denudation of their inexhaustible soils, being in no wise cramped for room, inhabiting an infinitely richer territory than anything north of the Tweed, have no necessity to put forward that strenuous battle against unkindlier Nature, to which circumstances have perpetually condemned their less fortunate Scotch contemporaries. The Darling Downs cover an area more than one-fifth as great as the *whole* of Scotland. The rolling slopes are bathed in wholesome sunlight, nearly every day through-

out the year. Its perennial waters run sweet and clear. It grows maize equally as well as oats, rye, and barley. It fattens beef and mutton equal to the best bred quality in Europe. Its lucerne flats yield six cuttings a year. Its people are universally prosperous and contented.

What indeed does it matter to them if Edinburgh, after eight hundred years, has only half the population of Melbourne, which is only eighty years old? What to them that the total area of arable land in all Scotland in 1910 was estimated at 3,348,446 acres—much *less* than the Darling Downs. In their wealth, independence, and Australian ease they are not greatly concerned that in all Scotland in the year 1910 there were only 2,674 landowners, who held over 300 acres!

With these facts in his mind the traveller may visit the dairy farms around Warwick, and on the verandahs of comfortable villas, commanding views unequalled in any part of the world for beauty and fertility, talk under the lilac blooms to intelligent sons of brave and intelligent pioneers, some of them Scotchmen, who are prepared for whatever the future may hold.

Branch railways extend from Warwick to Dirranbandi, Killarney, and Maryvale. Allora, a picturesque little township, is approached by a short railway from Hendon.

These little cities and towns of the Downs are well planted with shade trees; possess good wide streets, and are altogether pleasant places. Orchards, with stone and citrus fruits, almonds, chestnuts, olives, walnuts, and table grapes, prove the catholicity of the climate—which ripens water melons and blackberries side by side.

Killarney, at the terminus of a delightful journey, is one of the most beautiful places in Australia. It lies under the northern slope of Mac-

timbered country, with brigalow, pine, and belar belts.

Texas is the place chosen by Wills & Co. to foster a tobacco-growing industry in Queensland. It is on the MacIntyre River (one of the tributaries of the Darling), which forms the border line here.

At their Raleigh Plantation, a village community of would-be settlers acquires as workers an experience of tobacco planting and leaf handling, which will enable them to become growers later on.

At present Australia is not producing anything like enough tobacco for her own requirements,



Potato Field, Killarney, Darling Downs

pherson's Range, the border mountains between Queensland and New South Wales—amid arca-dian surroundings.

Much scrub timber, pine, cedar, silky oak, and mahogany, has been obtained from the hills around Killarney. Sub-tropical bird life and plant life receive the fullest expression in these jungle-covered plateaux, where ferny gullies, waterfalls, gorges, lakes, and glorious forests, make a tourist's paradise.

From Warwick, a border railway runs southwest to Thallon, Inglewood, Goondiwindi, and Dirranbandi—over 257 miles.

From Inglewood one goes down by motor, or mail coach, to Texas. The road, after leaving the red scrub lands of Inglewood, runs through

although she has every facility for so doing. Experts assert that this country can grow and cure as good tobacco-leaf as any other, and the factories already established here are equally capable of making it up.

Thirty to forty thousand acres of good tobacco lands have been located in the neighbourhood of Texas. Chinese growers in this locality have raised over six tons of tobacco from 5 acres in the year, which, at 3½d. a lb., the price paid for the leaf, netted them about £450. This is an exceptional crop, the average return being about half a ton to the acre.

Dairying and wheat-growing supplement the culture of tobacco in Texas district.



Picking Fruit at Westbrook, near Toowoomba



Crop of Young Maize at Westbrook

For a stretch of forty or fifty miles on either side of the Dumaresq, these approved tobacco-growing lands extend. The flats are roughly a mile wide on each side of the border. Of the forty or fifty thousand acres, about 2,000 are, so far, devoted to tobacco-growing.

The Wills Plantation,—which is part of a cattle station, purchased by this company—holds 700 acres, already planted, and supports some 400 people. The company is paying into the district about £30,000 for tobacco-leaf.

Going from Warwick to Stanthorpe by the main southern line, the train leaves the Downs

The story of Stanthorpe began about forty years ago with the discovery of large deposits of stream tin. It proved to be the richest alluvial tinfield so far on the continent. The numbers of potholes and sunken shafts along the banks of the creek, which meanders over its sandy bed on the outskirts of the town, remain to testify to the activity of old days.

In a few years three million pounds' worth of tin was taken out of the field. When the alluvial deposits "petered out" and the bulk of the population drifted away, many miners and their families remained to pick up a precarious livelihood



Planting and Irrigating Tobacco, Texas, Darling Downs

and climbs into another and entirely different region. The change from basaltic to granitic formation is accompanied, as usual, by a change in soils and timbers.

The increased altitude—3,008 feet at Thulimbah—also effects a change in climate. Stanthorpe district is much colder than the Downs, some of its hills having an elevation of over 4,000 feet. Climates being as much the result of altitude as latitude—coastal Queenslanders find, in their own southern mountains, recuperative air and temperatures which will help them to preserve the stamina of a white race in the north of Australia.

as trappers, fossickers, half-hearted settlers, cursing the ill-luck that left them stranded on a deserted diggings in the cold and barren hills.

The land, of course, was barren, from the fact that it was too cold for maize-growing and too broken for wheatfields.

It was a long time before it occurred to local inhabitants that the 800 square miles of decomposed granite in which Stanthorpe lies might still have a value—even after three million pounds' worth of tin had been taken out of it.

Then some enterprising spirits began to experiment with European fruits. The result was



Bridge over Dumaresq River, Texas District

better than anybody expected. The Stanthorpe granite had been decomposed not only to hold stream tin—which anybody might wash out in a dish by a creek bed—but apparently to feed a plant life which was unsuitable for the warmer coast lands, or the more tropical North.

The little struggling selectors—mostly married men with young families who could not retreat

with the rest of the mining army when it deserted the worked-out field—slowly began, on their 160 and 320 acre blocks, to take heart of grace.

They commenced to extend their orchards of peaches and plums, apples and pears. As the fruit came to maturity the local market grew. Now there are about 4,000 acres of orchards, and Stanthorpe is once more a place of increasing



Tobacco Fields, Texas, Darling Downs



Ipswich, Southern Queensland

prosperity and importance. In this second stage of its history its fortunes are still based on the decomposed granite.



Quince Tree, Stanthorpe

There is a fresh influx of population now—all agriculturists, and no miners. While the apples and nectarines, the cherries and quinces, are coming into bearing, the settlers successfully cultivate vegetables, specializing on tomatoes, potatoes, onions, and other profitable garden crops.

Established orchardists are clearing £700 and £800 a season from their fruits, as a regular income—from that up to £1,800.

One reliable citizen showed the writer a clearance of £900 nett, for the past season, from 30 acres. Two brothers near by are netting £1,100 a year from 60 acres. Uncleared orchard land in the neighbourhood could be purchased freehold at from £3 to £5 an acre. The clearing would cost from £5 to £12 an acre. With good roads, always possible in granite country, this orchard belt can be extended many miles back from the existing railway.

Stanthorpe is a valuable asset to the State of Queensland.

It grows some of the finest fruit of Australia. It is the apple orchard of the North, and a sanatorium for the tropical districts. Retired civil servants and others who desire a retreat, where snow in winter is not unknown, are building homes and planting orchards in the district.

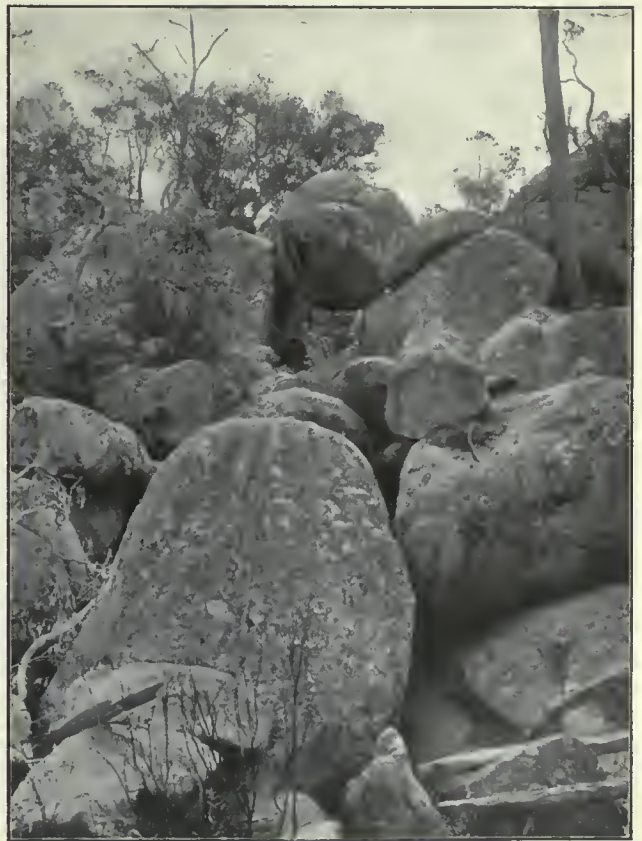
Dredge mining for tin is still profitably carried on. Wolfram, molybdenite, copper, silver and gold make chapters in the mining history of this interesting mountain region.

Ipswich, 24 miles from Brisbane on the main southern line, is a stepping-off place for branch lines running to Dugandan, Marburg, and Laidley, and to Yarraman Creek, by all of which routes a portion of the wealth of Queensland is poured into the metropolis.

Ipswich has laid the foundations of a big coal-mining and manufacturing future, and will, in time, become, without doubt, the Newcastle of the North.

For 200 miles the south-eastern seaboard of Queensland is enriched by valuable coal measures, among which the Ipswich fields have been made commercially profitable.

Its measures are of the Trias-Jura system, cover an area of 12,000 square miles, and carry large proved reserves of coal. At present the Ipswich collieries are responsible for two-thirds of the output of the State. During 1914 thirty were in operation. The average value of their coal at the pit's mouth was 7/4 a ton. It



Rocks at Stanthorpe

has excellent steaming properties, and is suitable for the production of coke and gas.

* * * *

Between Brisbane and the southern border is a long surfy shore line, with hard sandy beaches



Coal-mining at Bundamba, near Ipswich



Coke Ovens in the Bundamba District, near Ipswich

for bathers, tidal creeks, and, finally, the subtropical fertility of the Tweed River, across which, to the southward, spreads the prosperous big scrub of northern New South Wales.

The South Coast Railway line runs through the farming district of Beenleigh to Southport, Brisbane's most popular watering place, and on to Tweed Heads, where it junctions with the North Coast line of New South Wales, which will, in a little time, connect Brisbane with Sydney.

When certain gaps in Australian railways are completed, it will be possible for a passenger to entrain at Meekatharra in north-western Australia, and journey by rail around to Cairns, a distance of 4,768 $\frac{1}{4}$ miles. These railway lines are *all in construction* at time of publication of this book.

Between Sydney and Brisbane, travellers on this long journey will have choice of two routes; they may go North by the present overland system, or take the Coast route, crossing the border near Murwillumbah.

Between the Tweed and Brisbane spread the fertile Logan and Albert districts, reached by a branch railway from the main South Coast line.

The Albert and Logan are old settled districts—as antiquity in a very new country is reckoned—

and gained an early reputation for their fertility. The country is picturesque, well watered, and comparatively well settled in reasonably small areas. As Brisbane grows in population their values must increase.

This applies also to the farm and orchard lands along the shores of Moreton Bay. This wide, island-studded sheet of water, with its blue hills and blue bays, is a fine asset to a growing city. Snapper-fishing, oystering, shooting are yet within easy reach of tired townsmen, with yachting cruises and motor runs to make variety.

There is an ideal bush road bordered by forest oaks that takes you from South Brisbane to Wellington Point, a tongue of rich, red volcanic soil thrust out into Moreton Bay. Here are flourishing little farms, convenient to city markets, whereon bananas, papaws, mangoes, pineapples, and strawberries are successfully cultivated.

Cleveland, further to the South, also nestles on the slopes of the Bay. It is chiefly a ten-acre-block proposition, giving a competence to industrious families from strawberries and pineapples, which average £45 and £50 a year per acre nett returns. The advantage of railway communication with Brisbane is apparent. Sixteen years ago these Cleveland blocks were worth no more than

£6 an acre in the real estate market. They are valued now at from £60 to £100 an acre.

Some miles further is Redland Bay, yet a little way from a railway, but supporting a highly prosperous community on its rich chocolate slopes, which fall gently towards the blue expanse of Moreton Bay.

The people of Redland Bay and their holdings are a proof that Europeans can live and prosper under sub-tropical conditions. Here the student of Australian development will see sturdy men, and healthy women and active children amid the orangeries and banana groves. Their good substantial homes indicate that the cultivation of tropical fruits is not only a healthy, but profitable, occupation in White Australia.

It gives an additional zest for the superb pineapple, which you purchase for sixpence, to know that the white man by whom it was grown, on this unexpected farm in the forest, is an English immigrant, who, if he had remained in his own country, would never have been able to include pineapple in his daily list of table fruits, let alone rear and educate a family by its cultivation.

And this kind of settlement is possible of enormous expansion. Let the Statistician and the Prophet car out together through the tram-served suburbs of Brisbane, until the houses grow farther apart and vistas of wooded hills appear. Gradually the town drops into panorama at their feet as they climb to the top of Mount Coottha by a pleasant, winding road.



View from Perry's Knob, Marburg, Moreton District

Coming from Brisbane through the tea-tree scrub, covered with its sickly-sweet blossom, through 'forest oak' lands—which are not regarded anywhere as of special fertility, over black tidal inlets and occasional fresh-water creeks, lipped by vines and jungle—the visitor is not at first impressed by the agricultural possibilities. But Australia must never be judged by surface indications. The most unpromising country is often the richest in results.

Along here you will cross out of a dull forest and come on a clearing planted with healthy-looking orange trees. You take the trouble to interview the settler, and he tells you without much enthusiasm that he has cleared £700 a year from those seven acres of Washington Navels for years; that his five acres of pineapples are yielding him a profit of £30 a year per acre, and that almost any fifteen acres around there is more than enough for a family.

From the summit of this overlooking hill unrolls a lovely scene. Brisbane, with its winding river, its streets and squares, suburbs, and open spaces lies below. Southward stand the sharp volcanic peaks of Macpherson's Range; there are hundreds of square miles of country, suitable for forty-acre men, in that direction.

Eastward is Moreton Bay, whose southern shores we have just been visiting. There is room for scores and scores of new settlers down there.

The Main Ranges stand out on the western horizon. Occasional squares of clearing proclaim that abundant good land lies in that direction, basaltic hillsides that will produce bananas: fruit land, lucerne land, dairy farming land. There is room for more and more people west of Brisbane.

Let the Prophet and the Statistician turn their gaze Northward!

In the nearer distance they see little valleys and fertile pockets, where people have small farms within easy reach of the city, and do well with pineapples, bananas, vegetables, dairy cows, and mixed products. Green squares of feed oats and black ploughed patches show that cultivation is creeping on, but there is room for 10 and 20-acre men—plenty of room!

Away beyond Zillmere, Strathpine, and Petrie are a hundred miles through which the North Coast railroad runs to Gympie.

Citrus orchards in the Blackall have also proved highly payable.

Yandina, Nambour, Cooroy, Kin Kin, Kenilworth, are all attracting settlers. Valuable cedar and kauri pine have been won from these scrubs.

Gympie, having contributed over eleven and three-quarter million pounds sterling to the total gold value won from Queensland mineral fields, is being converted into a dairying and agricultural district. All the way through this belt, which extends from the eastern coast in alternate



Scene on the Marburg Railway, Moreton District

If the Prophet hazarded a prediction that two or three hundred thousand people would some day hold small farms and orchards in the territory which this single line of railway traverses—one east and west branch from Caboolture, runs through splendid forests, to Kilcoy—the Statistician could no doubt support the prophecy with facts.

There are some splendid lands along that route—the famous Blackall Ranges, the rich scrubs of Woombye, Maroochy, and Yandina, lands which will produce strawberries and pineapples and dairy fodder, as well as any in Australia.

Beyond the Glasshouse Mountains—those singular peaks, which attracted the attention of the *Endeavour's* company as that historic vessel sailed slowly northward—there are large areas of glorious palm scrubs which will grow sugarcane, bananas, and coffee. At Buderim Mountain (a rich volcanic tableland accessible from Palmwoods Railway Station) coffee is being somewhat extensively cultivated.

The pineapple plantations around Woombye are perhaps the most profitable in Queensland. There a crop from 25 acres has netted the grower £1,200.

forest and scrub, there is room, room for hundreds of prosperous homes.

At Theebine, twenty-two miles north of Gympie, a branch railway has been carved out in a south-westerly direction through Kilkivan and Kingaroy to Nanango and Tarong.

This is an interesting journey, taking the traveler into country of comparatively recent and very rapid development. The land begins to improve at Kilkivan, and gets still better towards Kingaroy.

En route to this flourishing district one sees more green crops, black flats, and fertile slopes covered with tall pasture grasses. Fat cattle browse contentedly by flowing creeks; stock trains and timber trains wait at the sidings, where logs of cedar and pine and other commercial timbers are ready to be shipped.

The scrubs of the Upper Burnett and around Kingaroy are not so tropical in appearance as the Blackall, but their soils have high agricultural values.

The towns of Kingaroy and Wondai have boomed since their beginnings, seven years back, as centres of surrounding settlement. With an altitude of a thousand to nearly fifteen hundred feet, they enjoy a climate suitable for the growth

of maize, lucerne, potatoes, onions, garden truck, and green crops, and the raising of sheep and cattle. It is stated that young fields on the Upper Burnett have given 110 bushels of maize to the acre, and yielded 25 tons of potatoes to the acre at a time when potatoes were worth £12/10/- a ton.

The paean of South Queensland's prosperity is heard loudly at the busy little township of Wondai. Even 'Scotty,' the barber, is jubilant. Barbers, as a rule, are pessimists. Not so one sartorial artist from Caledonia stern and wild, as his scissors scientifically shorten a wandering writer's hair. "Is Australia a good country!" Scotty swears roundly that it is the best. He has tried Canada too. He began here, three years ago, with nothing. Now he has £150 worth of stock and good money in the bank. To him came three months back "a working chap stony broke." He asked for a pipe, a pound of tobacco, and matches. He was going out in the bush for a 'job.' He has just turned up with a cheque for £40, his three months' savings, to settle his little account in the shop. How long would a working chap wait to save £40 in the old country? Scotty asks this pertinent question as an illustration of his fierce contention that Australia is the best country, that Queensland is the best State, and that his little town of Wondai is the best part of it. Out of the mouths of children and bush barbers there sometimes falls a homely wisdom!

A mournful-looking man, with a stubble-beard waiting to be shaven, says *he* knows where there is some bad country—out on the Boyne, near Gladstone. This man has a small head and a bloodshot eye. He does not look like a judge of country. Besides, his bad lands are a long way off. Out near Gladstone there would probably be a local oracle with a bloodshot eye, who, in a discussion of this sort, would know of bad country—a long way off, on the Upper Burnett. These bad lands of Australia are always in the distance.

In South Australia they used to lie in the Pinnaroo, but that has been converted into wheat fields.

In Western Australia they were located in the north-west; but a Director of Tropical Agriculture in that State has claimed the north-west for future close settlement.

In Victoria, for years, they were situated in the Mallee, but the Mallee is now growing thousands of tons of grain.

In New South Wales they were placed for a generation or more about Wentworth, on the Darling River, but men are reaping thousands a year from 50-acre citrus orchards at Wentworth.

In Queensland they were all along from Camooweal to Cunnamulla, but the Government is

constructing a railway right through that territory, a railway hundreds of miles in length. Australian governments do not waste thousands of public revenue on useless or unprofitable railways.

The 'bad lands' nowadays in popular superstition exist in Central Australia or the Northern Territory. Photographs and facts which will be found in other parts of this volume throw rather a different light on that matter.

The myrtle scrubs of Kingaroy were once regarded as a worthless, impenetrable thicket, but they can hardly be bought for £15 an acre a few years after a railway touches them. . . .

A few miles motor travelling over a dusty bush road brings the traveller from Nanango, at the head of the Kilkivan line, to Yarraman Creek, the rail head of the Brisbane Valley branch line, which junctions with the southern system at Ipswich.

This line runs south through the heart of pine-clad hills. There is a pulp mill at Yarraman Creek, and all through the ranges timber-getters are busy 'snigging out' huge logs and hauling them, by bullock drays and traction engines, to the railway sidings, whence they are trucked to mills or exported in the log from Brisbane to the southern States.

Bunya, hoop pine, and kauri crown the granite ridges—forest after forest, for miles.

Blackbutt, grey gum, ironbark, and tallowwood grow over the slopes and flats. The watershed of the Brisbane River is a natural treasury of durable and valuable timbers, in which the best hardwoods and softwoods of the Australian Continent are represented in magnificent straight trunks of finest grain and quality.

The Brisbane Valley line is just 102 miles in length. Dropping the ranges it descends into rich pastoral and agricultural districts towards Esk, Coominya, and Ipswich.

Within this circular journey of 370 miles (without counting the districts between the prosperous city of Maryborough and Gayndah, crossed by another branch line 90 miles in length) there is a rich undeveloped principality offering prosperity to any man of industry and intelligence who cares to accept it.

There is room all over Southern Queensland for hundreds of thousands of people. Northern, Central, and Southern Queensland are equally good.

In fine, the man or woman who decides upon migrating to Queensland, will find a fair field and the favour of religious, political, and legal equality.

The education of every child is provided for; every adult is entitled to vote.

The Government encourages immigration and offers land on easy terms, and financial assistance



Emu Creek, Killarney District

through its Agricultural Bank. On mortality statistics the climate is the healthiest in the world. Nowhere else, we repeat, are there better openings, greater chances for self-governing citizens to enjoy good health, security, contentment, and ultimately, if they are of energetic and ambitious mind to win whatever success may lay nearest to their heart's desire.

For would-be landowners (and there is no human ambition healthier and saner than this) there are chances that no other country can give at the present stage of the world's progress.

From mountain, plain, and coast this sturdy young State is calling, calling for white men and women to come and share her largesse.

Hear the voice of Queensland, dwellers in the smoky cities of Europe, toilers in the crowded fields of the Old World!

It is the voice of freedom, of prosperity, of youth, of hope.

English, Irish, Scotch, and Welsh—sons of the Motherland, sons and sons' sons of the bearers of her banners across the world. Sons of the men who fought with Nelson to keep the sea-



Scene on Marburg Line

The new Queensland settler may take his choice of dairy farm, sugar plantation, tobacco plantation, vineyard, orchard, wheat farm, pig farm, sheep farm, poultry farm, mixed farm, horse run or cattle run. He may grow cotton, coffee, maize, bananas, pineapples, citrus fruits, or stone fruits, hay, potatoes, or barley. He may devote himself to mining or mineral discovery, to timber getting, to hunting or fishing for profit. No matter what his trade, profession, or occupation, the man who wants a fair chance in a new country need have no fear of failure. There is room for men and room for money in the great north-east State of the Commonwealth, and no fear that either will be as water spilled on sand; rather will they be as good seed sown in rich soil—a productive and ever-increasing quantity.

roads open; breed of the breed that has turned the furrow on Cymric hillsides, in Celtic meadows, by Caledonian braes, on English leas, descendants of the yeomanry, the peasantry, the soldiery, the guilds, and the companies, college men and public school men. This message for you, *especially for you*.

A great possession, one of England's greatest possessions, is in need of men. Six hundred odd thousand British colonists are holding as an outpost a territory that will support sixty millions of people! The outpost calls for reinforcements from the main army. Broad-browed, hard-sinewed speakers of Shakespeare's speech,—if the old love of Adventure is not dead, if the old splendid spirit of conquest and colonization has not vanished—this message will not be sent in vain.

Russians, sons of the steppes, communal sons and daughters of the villages, hardy, enduring, patient and strong, Queensland has black soils for ploughing. There you shall be freeholders, and your children will eat white bread. Come!

Finns, in the forests of Queensland winds of Freedom sing natal songs through tall dark pines. Through all the winters their high heads are free from snow. Come!

Danes, Norwegians and Swedes, Queensland has dairy lands where, with less labour, the farmer may win ten times more than Northern Europe can ever give. Your highest mental and social and scientific standards are here upheld. Come!

Dutchmen, you whose colonizing genius has paralleled that of Britain. Frugal, cleanly, methodical, and intelligent, for you, particularly for your people in the East Indies, tropic tired, here is a land where any man can establish and uplift a European home. Come!

Brave Belgians, where the flag of Britain flies you are doubly welcome for evermore. Beneath the peaceful skies of Queensland—deep and holy as the heroic spirit that has burned the name of your native land eternally upon the banner of human glory—there is, mayhap, a solace for your sorrows and a salve for your wounds. Come!

Frenchmen, Swiss, here are acres and olives and vines; beef food on every man's table, fine wools for growing, sugar, silks, tobacco and cotton, asking culture. A land of sunlight, flowers, fertility, beauty. Valiant, light-hearted husbandmen, vigneron, sowers and tillers of France, scientific, economic, devoted sons of the soil, good citizens, liberty lovers, life lovers. Come!

Men of Southern Europe, here is a climate that appeals to you, in which you may live and labour as happily as under your own blue skies, but with far greater hope of ultimate independence and ease. Here there is *no* poverty, no crushing burdens of taxation, work for all, cheap living, opportunities for saving money. Come!

To men of North America, desiring less strenuous conditions, milder climates, immediate openings for enterprise; to the South African, tired of turmoil; to the European who is weary of sojourn in Asia, yet dreads the return to his cold northern winters; to White Men all over the world, Queensland calls!

It is a siren voice. One that the dweller in southern Australia is also likely to answer if the spirit of adventure or unrest should seize him.

You hear it in the rustling of the sugarcane when the north-east monsoon blows along the coastland—

"The silken soft nor'-easter,
The little lady breeze,
The Lord sends down from China
To cool His summer seas."

You hear it in the lap of tides that make and ebb across those pearling grounds of the deep-dyed Arafura Sea. You hear it when the wind sways those festooned jungles, where the flame-trees blaze like torches amid the green.



Bottle Tree, Burnett District

You hear it through the bronze-green brigalow trees, among the sandalwood, and over the bunya pines.

You hear it down the granite gorges, over the gnarled gums, and out on the hills, where the stampers and rollers are at work pounding and grinding the glittering metal from its matrices of rock.

You hear it calling from the West, from the rivers of the gulf, from the Diamantina and the Barcoo, from the farm lands of the Southern Downs, from the sheep lands of the Centre, from the cattle lands of the North, over the salt-bush, over the grassy plains, over the forests and scrubs—a wonderful, exultant, anthem of boundless potentiality, incalculable riches, undeveloped

resources and unlimited opportunities for the profitable investment of Labor, and Money, and Brains.

It needs no prophet to foretell that this Call of the North will be answered. The world has grown too small for such a wide rich field of human enterprise, energy, and investment to re-

main undeveloped. The tide of immigration will set more rapidly towards Queensland's shores. The way of the Commonwealth is forward. Her battalions of the north will march in the forefront of the army of advance, the silken banners of progress waving before them, the golden bugles of prosperity cheering them on.



Nambour Sugar Mill

NORTHERN TERRITORY



A NORTHERN TERRITORY
BILLABONG



PIONEERS AND OUTPOSTS.

SOME of the most interesting and productive lands in Australia lie within the boundaries of the Northern Territory. Despite all that has been written, said, and imagined about these yet unexploited regions—which extend north and south, between the 11th and 26th lines of latitude, and east and west from the 129th degree of longitude to the 138th—they hold in their 523,620 square miles potential wealth above and below the ground.

The Territory has a much larger area of land in proportion to its coast line than any other division of the Commonwealth; but that coast-line is still over a thousand miles in length, with more than one fine natural harbor between Carpentaria and Kimberley. Much of the coast is scarcely known, and yet imperfectly charted. Large tracts of virgin country in the Territory remain practically unexplored; other large areas are being profitably devoted to pastoral purposes: the remainder awaits occupation and development.

It is a land of unexpected distances, silent, unique, and lone. Its broad coastal rivers, fed by heavy monsoonal rains, flow rapidly towards the sea.

When the volume of flood-waters is greater than they can contain, these rivers overflow their muddy banks and inundate rich alluvial plains—through which their final courses wend—leaving behind a heritage of delta, swamp, billabong, and

lagoon, wherein buffaloes wallow and wildfowl feed.

Some of these rivers are navigable for greater distances inland than the rivers of northern New South Wales. They water land rich in quality, but more tropical in character, than the lands of the Clarence, Richmond and Tweed.

They form, in the writer's opinion, close settlement areas of greater economic value than any other series of coastal rivers in Australia.

Three years' sojourn on the Clarence River, and a close study of sub-tropical and tropical conditions along the eastern seaboard, from Shoalhaven to the Barron, strengthen this conviction.

If a large agricultural population can find habitation and scope anywhere in the Northern Territory of Australia, it will surely be along those fertile river belts, which may, with available irrigation, be converted into hotbeds of production.

Whatever immediate difficulties stand in the way of this desired result, the future possibility stands good. Capital must be expended; local experience may have to be acquired and carefully sifted; reliable labor must be made available, special inducements offered to settlers, and profitable markets established, before effective occupation of the Territory is accomplished.

These matters are likely to give the Federal Administration some concern for years to come.

Inland, the Territory presents the usual differences of forest, hill, and plain which feature the interior of our continent. They are the result of geographical and physiographical conditions, and are in no wise determined by survey lines.

The straight edges of the map give 1,970 miles of boundary in all.

If we are not influenced by prejudice, pique, or ignorance, we realize that stepping across one of these lines (respectively 550, 650, and 770 miles in length), at any point, does not take us at once

ties of the Adelaide River might have to be accepted with reservations.

It may be postulated, that, of the 335,116,800 acres contained within those geographical lines, there will be pastoral, mineral, and agricultural values as good as those in other Australian States, and in average proportion.

Of all these acres, in the year of grace 1916 there were not a thousand under cultivation. Following pages will show what potential crops their fertile expanses undoubtedly hold.



Territorial Inland

into land radically different from the adjacent land of Western Australia, South Australia, or Queensland.

Much of the hostile color in which the Northern Territory is painted has been acquired by casual travellers between Darwin and Pine Creek, a journey of 145 miles along a railway which was built primarily as an outlet for a rather monotonous belt of mineral country.

The difficulties of transport in Northern Australia are so great, the distances so vast, that very few people have been enabled to form anything like a comprehensive impression of the country. Those were, as a rule, either untrained or unreliable observers. Even the eye of science is often limited to one perspective. The opinion of an anthropologist on the agricultural possibili-

But a few preliminary facts must be presented to throw an explanatory light on the position.

To understand why the whole Territory has at the present time a population of less than 3,000 white people, we must go back a little into the history of this remarkable country, bearing in mind all the time that, mile for mile, the Territory comparatively holds no greater vacancies than adjoining parts of northern Australia—that the problems of colonization it presents are no more complex than those of Carpentaria or Kimberley.

Abel Tasman visited it in 1644, and found "cruel, treacherous, and murderous savages."

In 1803—on his voyage of discovery along the Australian coast—the indefatigable Flinders met six Malay proas near Blue Mud Bay. He learned



Sawmillers' Camp, Melville Island

that they were part of a fleet of 60 vessels then fishing along the coast for trepang.

The Macassar headmen informed him that regular excursions to the North of Australia had been made by their proas as far back as they could remember.

There is a noticeable Malay type among certain coastal tribes in the North. It is probable that intermittent Malaysian trade in trepang, tortoise-shell, and pearls went on for centuries before Europe knew definitely of the existence of a Southern Continent.

With their little bamboo barrels full of fresh water; with rice, coconuts, dried fish, and fowls for provender, the hardy Malays may have ventured South seeking Australian delicacies for the tables of Chinese mandarins, before Columbus sailed out of Palos on his memorable first voyage across the Atlantic.

It has been calculated that trepang, tortoise-shell, and pearls to the value of a million and a half, left the North Australian coast in this manner during the hundred years that followed Flinders' visit.

In 1825 the British Government established a military depot on Melville Island. Bathurst Island is separated from it by the narrow Apsley Strait. These two islands, holding two million acres, lie to the northward of Darwin.

The nearest point of the mainland is about 15 miles. The distance to Timor 330 miles.

This settlement, known as Fort Dundas, was located on the north-western side of Melville, on the shores of Apsley Strait, which is 40 miles in length, and varies from $1\frac{1}{2}$ to 5 miles in width.

In 1826 Major Campbell, of the 57th Foot, was appointed commandant by Governor Darling. He left Sydney in the colonial schooner *Isabella*, on August 19, and arrived on September 19. Campbell took charge of a population of 115 men and six women. The males included 54 prisoners. The live stock included 16 cattle, 23 sheep, and 54 pigs. Sixteen buffaloes had just been landed from Timor, intended for killing. The buffaloes imported from Timor for breeding purposes spread all over Melville Island in thousands, and are in large numbers there at the present time.

It was an unfortunate position. The natives proved constantly troublesome. The short-range muskets and pistols of the period left the advantage with spears thrown from ambush. They killed two officials, two soldiers, and three prisoners in all. So the settlement was removed in 1827 to Raffles Bay on the mainland, where it remained until abandoned in 1829 by peremptory orders from England. During this period the Malays visited the depot for trade.

magnitude. It is not enough for the purposes of commerce to know that a certain plant has flourished in a garden, or has grown spontaneously in particular localities. The questions are whether over large tracts of country it can be raised for the protection of the capitalists, and by means of labor not dear in proportion to that of other places producing the same commodity, and moreover, capable of being brought to sale of that quality and condition which the estab-



Scene in Central Australia

In 1837, under instructions from the Imperial Government, Sir Gordon Bremer founded the settlement of Victoria at Port Essington, on the northern shore of Coburg Peninsula. The old stone jetty, the ruins of the bakehouse, and some Government buildings still stand. The clearings have been re-covered by forest. A fine tamarind tree occupies a site near the church.

In 1840 we find Messrs. Elliot and Villiers reporting to Lord John Russell, as to whether this settlement should be maintained or not.

On the question of agriculture, they said, "No partial experiment can decide a subject of this

lished markets would require. To form an opinion in the present case, we do not find that enough is known, either of the soil or of the seasons."

These very wise and pertinent conclusions still apply in some degree to Northern Territory production; but seventy-five years' experience and change must be taken into our modern consideration of the Northern problem.

In 1842 Captain MacArthur, who had two years previously succeeded Sir Gordon Bremer as Governor of Port Essington, recording the convictions of his experience, said:—"Sugar cane-



Permanent Water—Batchelor Demonstration Farm

will doubtless answer well here; indigo and cotton, though totally neglected, have attracted much attention. The soil appears to be particularly favorable to arrowroot. Rice will grow, . . . but I fearlessly pronounce that European laborers will never be successfully employed here whilst amongst that class of people the love of ardent spirits is so prevalent. It must be considered that the moment they land here they literally commence life *de novo*: strange climate, strange soil, strange products, strange pursuits, all demanding change of habits, change of prospects, and at last, effecting a change even in the constitution!"

Captain MacArthur's pronouncement, made over seventy years ago, might be accepted as a working guide for the Territory to-day. A consensus of medical experience, gained in the North during the long interval which has elapsed, strengthens his declaration regarding the effects of alcohol in our tropics. Much of the ill-health and most of the deaths which have been attributed to Territory climate, are in reality the result of individual intemperance. On this point the author made special inquiries in the Northern Territory, and, from a mass of local evidence, is forced to the conclusion that alcohol is much more to be dreaded than fever in the North; that in a great many burial certificates, where the cause of death in a kindly way has been set down as

"Fever," it should in reality have been written "Drink."

It may be added, in justice to the victims, that the ways of outposts are hard; that lack of social enjoyment and restraining feminine influences in the past, have led men to habits which inevitably undermine health in any climate, but spell swift death in the Tropics.

There are men alive in the Territory who have been intermittent hard drinkers for years—the frontiersman has rarely been conspicuous for sobriety anywhere,—but these are mostly bushmen of iron constitutions who live active outdoor lives: the toughest, hardiest, pluckiest, most picturesque bunch of wild birds on the continent—native characters such as Mrs. Gunn depicts—somewhat conventionalized—in her charming little book, "*We of the Never Never*." Between such specialized types and the average product of civilization, who has gone unacclimatized, too often unadapted, to the Territory there is no comparison.

Without pursuing this contentious subject further, the writer gives Captain MacArthur's seventy-year-old opinion a general endorsement. It is one of the most valuable contributions yet made on the subject of European life in a part of Australia, situated no further from the equator than Sydney is from Brisbane.



Goats and Ant-Hills

After McDouall Stuart's last expedition, organized from Adelaide, had reached the shores of Van Diemen's Gulf, the Province of South Australia began to cast an acquisitive eye on the country between the 26th parallel (her Northern boundary) and the Arafura Sea.

Between the year 1840, when the Governor of New South Wales, under instructions from Lord John Russell, sent Captain MacArthur from Sydney to take charge of the settlement at Port Essington, and 1863, the Mother Colony held possession of all that northern hinterland. She retained it long after the Colony of Queensland had been formed, and the boundary of the Central Province extended along the 26th parallel to the West Australian border.

It was suggested about 1862 that the Home Government should create a separate colony of North Australia. South Australia succeeded in turning this proposition aside. In 1863 the Imperial Government temporarily annexed the Territory to South Australia, with the right to revoke or alter the arrangement at pleasure.

This right was never exercised, and the Territory remained under the Government at Adelaide until taken over by the Commonwealth.

The history of the Northern Territory under South Australian administration is rather the story of a child endeavoring to carry a grown miner's burden of ore to the crusher. The effort weakened the child. When the stone was brought to the mill it proved rich but refractory. It could not be converted by any known process.

In 1864 the first South Australian Resident—B. T. Finnis—and his staff arrived in the Territory by sea, and promptly selected a site for the capital settlement at Escape Cliffs, which proved utterly unsuitable.

The members of this outpost quarrelled with Finnis, on whom a Royal Commission shortly

sat and condemned for mismanagement, destruction of stores, and other great waste of the funds of the settlement.

The Commissioners pointed out that many of the party sent were quite unfitted for the work; that a proper supply of food was lacking; that a sense of neglect arising from infrequent communication with remote Adelaide and the effects of a climate "not favorable to European labor," had tended to increase insubordination.

It was a bad start.

The South Australian Government, under the Northern Territory Act, had sold at auction in Adelaide 243,840 acres of land, and received purchase money amounting to £82,553 4s. 6d. in return. The Government was to complete surveys of the area sold, so as to enable purchasers to take possession within five years.

Finniss had instructions to carry out this survey, which he failed to comply with during his short and stormy career as Government Resident. In 1866, three years after the sale, the Government's obligations to the purchasers began to press sorely on the Administration, who cast about for some means of evading them.

Accordingly they moved a series of resolutions in the Legislative Council, that the "Government Resident and his party be withdrawn, that no further attempt at the survey be made, and that the money paid by purchasers for land be refunded them."

It was said in the course of the debate that undertaking the colonization of the Territory was a mistake from the beginning, that the community in the South was too small and too remote to attempt so big a task.

The resolutions were carried in the Council, but negatived in the Assembly; except that which related to the withdrawal of the Acting Resident and his party from Escape Cliffs.

A steamer was sent from Adelaide to retrieve the unhappy first settlers. The land purchasers warmly memorialized the Government on the matter of its obligations and demanded the refund of their money, with interest at 10 per cent., from date of payment.

Trouble and expense occasioned by this unfortunate transaction, continued until 1869, when Surveyor-General Goyder and a staff were finally despatched to the North to select a site for the capital and undertake the survey of the town lots and broad acres disposed of in 1863.

were it not that the remoteness of the field opened a door to promoters and incompetent mine managers. As a result of companies overweighted with promoters' shares, unnecessary purchase of expensive machinery before any work was done, labor troubles and incapable mine managers, an undoubtedly rich mineral region was unfairly slumped.

In 1870 the South Australian Parliament, refusing assistance or co-operation from the other Colonies, hurriedly passed a Bill to authorize the construction of an overland telegraph line from



Cyanide Plant

Mr. Goyder, one of the most reliable officials ever connected with a government service (although South Australia has had conspicuously able officers, as well as splendid explorers), selected Darwin as the site of the northern capital.

He reported that South Australia had no reason to fear the result of her connection with the place chosen. The country, he declared, was suitable for horses and cattle; the soil in the slopes, valleys, and parts of the tablelands well adapted for cultivation and mostly rich.

Goyder completed his survey in quick time, and kept its cost within his estimates. The Government of the day backed up its position by an act extending the time for applications for land, but the mischief was done.

As a result of a lawsuit brought by certain purchasers, and finally determined in 1873, the Government had to pay out £73,396 12s. principal, interest and costs.

By the end of 1875 the Territory bill was £333,546—an initial expenditure practically barren of results.

The discovery of gold at Pine Creek in 1871 might have been a good thing for the North

Port Augusta to Darwin. An arrangement had been made in London with the Eastern and Australian Telegraph Company, whereby the latter agreed, upon certain conditions, to extend the cable service from England to Port Darwin, and to complete it by the end of 1871.

The estimate for the line between Port Augusta and Darwin laid before the Houses of Parliament was £120,000. It cost in actual figures £420,721/9/10, and proved a rather expensive honor to the quixotic young Colony.

Parliamentary agitation for the construction of a transcontinental railway—Adelaide to Port Darwin—definitely began in 1872.

In 1883 an Act was passed by South Australia authorizing the importation of Indian Coolie labor into the North for the purpose of carrying on the work.

In 1883 the construction of the Darwin-Pine Creek Section was authorized by the House. G. R. McMinn, the senior surveyor of the Territory, had described the country along the telegraph line as some of the poorest within its boundaries, and recommended a deviation in choosing the route for the railway.

It was originally intended that the line should be constructed by European and cheap Indian labor.

The work of construction began in 1887, and was carried out with Chinese coolies. Inevitably, no land settlement resulted.

Various efforts were made during the years that followed to have this transcontinental railway completed on the land-grant system. Both Houses of the South Australian Parliament, in 1890, passed a motion to that effect, and followed it in 1902, twelve years later, with a Transcontinental Railway Act. This Act provided for building, on the land grant system, a link line from Oodnadatta—where the railway had then been carried from Port Augusta—to Pine Creek.

The open authority granted by Parliament never materialized in fact, and the responsibility of the construction of this railway was laid upon the Commonwealth, as a condition of the transfer of the Territory in 1911.

While main lines of developmental policy were being discussed or attempted in Adelaide, practical experiences were being gained in the Territory. It was demonstrated that valuable tropical products *could* be grown, if not yet grown to pay. It was proved that on large sections of the country beef cattle could be raised to profit, that sheep and horses would thrive, that pearls, gold and precious metals might be won.

Whether or not the Territory could be developed by white labor alone, had not been decided. South Australian opinion was generally against it; but with the installation of a Federal White-Australia policy, it became a *sine qua non* that the attempt must be made. Legislation permitting colored immigration to the Territory, placed on the Statutes of South Australia, no longer applied. No more railways would be constructed by Asiatic labor, and outside of aboriginals and the aliens already in the North—nearly eight times the number of the white population, by the way—no more colored labor could be imported.

Doubtless this consideration influenced South Australia in handing over the Territory to the Commonwealth.

It was argued that the difficulties attending on tropical agriculture in the North without colored field labor had been clearly established; that, under the circumstances, it was wiser and fairer to hand over the country to the Federal Government which had instituted a policy locally regarded as inimical to the welfare of the Territory. On the Commonwealth, therefore, has been laid the burden of South Australia's Territory debt, and the onus of development under its strictly White-Australian conditions. The working out of this problem by the administration in Melbourne is being watched with close interest throughout Tropical Australia. In it are bound



The Wealth of Tropical Production



A Flooded River

up momentous questions of race deterioration, effective occupation, the very existence of the Commonwealth itself.

Such being the case, it may be taken for granted that the Administration will spare neither effort nor expense in the endeavor to make the Northern Territory attractive and liveable for Europeans. A great deal has already been done with that end in view, and the Governmental programme includes a great deal more.

The main conditions of the transfer were: (1) That the Commonwealth should assume the responsibility of loans effected by South Australia in connection with the Territory (which amounted in June, 1909, to £2,748,062), "by annually reimbursing the State the amount of interest paid in connection with Territory loans; by providing a sinking fund to pay off such loans on maturity, and by paying off the deficit in re-

spect of the Northern Territory." (2) That the Commonwealth should construct a transcontinental railway from Pine Creek southwards to a point on the northern boundary of South Australia. (3) That the Commonwealth should, at the time of the acquisition of the Territory, purchase from South Australia the railway from Port Augusta to Oodnadatta; and (4) That the Commonwealth should construct a railway from a point on the Port Augusta railway to connect with the other part of the transcontinental railway at a point on the northern boundary of South Australia.

The total cost of the investment to the Commonwealth was then calculated at about ten and a quarter millions of money, and the annual deficit for the first year or two after the completion of the transcontinental railway at about £400,000.



Kapok Trees, near Darwin

COASTAL CLIMATE AND PRODUCTION.

ALTHOUGH South Australian administration passed over to the Commonwealth an annual deficit of £130,000 on the Northern Territory, and an annual loss on the working of the Oodnadatta line of £82,000, her dearly-bought and Federally-paid-for experience should be of some value.

During the years in which she controlled those broad demesnes to the northward of parallel 26, certain resources were determined and certain possibilities outlined.

Apart from public expenditure, admittedly mispent in some directions, there was considerable commercial investment.

An analysis of this investment shows that Territorial outlay, generally speaking, was not safeguarded with that discretion and judgment currently credited to private enterprise.

In the process of pioneering industries anywhere, losses are liable to overbalance gains. Our sympathy and admiration are due to those who

take risks from which the benefits, if any, are as much national as individual.

One cannot help thinking that many little industrial attempts in the Territory might have proved commercially successful if better judgment had been exercised by the capitalists behind them.

Still, they cannot be regarded as absolute losses; inasmuch as they established facts which, like beacons in the night, may yet guide the ships of Northern enterprise to safe havens.

Without doubt the coastal districts of the Northern Territory will grow sugarcane. I have personally examined country on the Adelaide and Daly Rivers which I am convinced will produce certain varieties of cane as well as any lands in tropical Australia, the Malay States, or the Dutch Indies.

I had lived beforehand for years in Australian sugar country, travelled over practically every



Coconut Palms and Sisal Hemp, in the Botanic Gardens, Darwin

mile of it in Queensland, been out into the northwest of Western Australia, and had just come from Java, where I had spent some time gathering information on tropical agriculture. Accurate as I desire to be in all my pronouncements throughout this volume, I feel under the circumstances that this opinion should prove correct.

I might go further and predict that with necessary irrigation, drainage, and the introduction of specialized varieties of cane, the sugar yield in the Territory is likely to be heavier than in most parts of Queensland.

Sun, soil, and water are there. Correct treatment will ensure results.

The failure of the De Lissaville plantation, on Cox's Peninsula opposite Darwin, in the eighties, was reported due to the method in which the cane was planted. Although an expert from Antigua, sent by the South Australian Government to report on this matter, pronounced the area "first-class sugar land and well watered in every place," I do not regard the locality as suitable for sugar growing like the Adelaide River, which is navigable for eighty or ninety miles for the class of steamers used for freighting sugar on the East Coast of Australia, and could easily be command-

ed by railway, tramway, or motor traction from Darwin.

In 1884 the Acting Government Resident at Darwin reported that, through wrong methods, capital and energy were literally being thrown away in respect to local sugar-growing. The only results were conclusive proofs that the Territory *would* grow sugarcane; and that it *could* be profitably grown—under exact agriculture.

About this time an English Company started a plantation on the Adelaide River, which passed, later on, to other hands. Ultimately its capital was diverted into pastoral investment, but it left behind a number of coffee and rubber trees, which continued to flourish for many years.

This abandoned plantation was visited by Mr. Holtze, the Director of the Government Botanic Gardens at Darwin, in 1890. He reported that the Liberian coffee plants, "which had been neglected for three years and were smothered in weeds, were many of them up to 10 feet high, and covered from top to bottom with fruits."

In 1895 a special Commissioner sent from South Australia to report on the agricultural lands of the Territory, inspected the remains of the plantation, and was surprised at the vitality



Date Palms

of rubber and coffee trees, which he found still there, in spite of bush fires and neglect!

With the retirement of Mr. Otto Brandt, who for five years endeavored to establish a plantation at Shoal Bay on the north-eastern side of Darwin, desultory attempts at sugar planting ceased in the Territory.

A good quality of sugar was actually expressed in some quantity at Shoal Bay, but owing to a series of unlucky happenings, this plucky planter gave up in 1890.

In the writer's opinion, neither Cox's Peninsula nor Shoal Bay holds the same possibilities for successful sugar growing as other parts of the coast. The failure to make a financial success of these two main efforts can in no way be taken as a proof that the Territory is unsuitable for tropical agriculture.

It is generally admitted by those whose experience is of any value, that the country is peculiarly adapted for the growth not only of sugar but other commercial products of the tropics. The question will be how to make those things pay. The cost of irrigation I do not take so much into account—irrigation and fertilizers can always be good investments—but the cost of labor and the distance from markets, must be reckoned with

at present. The Federal Administration, recognizing these facts, is endeavoring to equalize matters, so that intending white settlers will be placed on a fair footing with producers in other parts of Australia. By a special bonus system and the installation of central mills, as in Queensland, the Federal Government should be able to establish the sugar industry.

In the Botanic Gardens at Darwin, the Holtzes, father and son, have proved over a period that no less than six hundred different tropical plants will grow in the Territory.

Twenty years' experience with Para rubber has shown that it can be successfully grown; that Cera rubber, the finest species, is best suited to the country. Liberian and robusta coffees can be cultivated with the best results. Coconut palms in these gardens twenty years old were carrying a heavier crop in 1912 than trees at Singapore or Batavia. These trees had been hollowed by white ants, but were still robust and prolific.

The Darwin Gardens form a green and verdant object-lesson in Territorial possibility. There one sees breadfruit and jackfruit, sapodilla plums, custard apples, durians, pomelos, Indian gooseberries, Bengal quinces, bananas.



Pine-Apple Plant

blimbing (an East Indian fruit of flavor), and other delicate fruits of the tropics, all flourishing and bearing. There grow nutmegs, vanilla, pimento, cinnamon, patchouli, turmeric (used in the manufacture of curry powder), and other valuable condiments and spices of commerce.

There tea and cocoa thrive.



Bananas

Cocaine plants, worth $\frac{1}{3}$ a lb. in Java in 1912, kola nuts, and tamarinds grow without difficulty. The tamarind grows freely on the north coasts of Australia, although it may originally have been introduced there by the Malays.

Of tropical flowers, palms, and grasses this garden displays a florid variety.

Within its leafy avenues and open spaces one sees coral trees covered with blood-red blossoms, splendid poinciana, glorious bougainvillea, white bunches of frangipanni centred with yellow, scarlet-flowered quassia, and allamandas with ever-flowering golden bells.

Dwarf palms, sago palms, tobacco, Bermuda arrowroot, citrus fruits—which will require irri-

gation to become commercially possible—pine-apples, mangoes, pawpaws, these have all been tested and proved prolific.

Among fodder plants which have been experimented with, *Coapin*, a South African native, seems likely to prove one of the best grasses for the Territory. It will grow in swamps as well as on poor ridges; is always green and always good for dairy stock.

Paspalum grows luxuriantly, and other foreign and native grasses of value can be introduced.

Arrowroot, maize, rice, and tobacco are agricultural certainties.

The rice plant is indigenous to Northern Australia; also the *Tacca primatifida*, which forms the main supply for Fiji arrowroot.

Indigo is classed, locally, as a noxious plant.

These experimental gardens alone have demonstrated that in the ordinary soils and conditions of the Territory there is nothing to prevent a highly successful cultivation of useful and valuable tropical plants.

This knowledge gained, the only problem which remains for the Commonwealth is *how to produce them profitably; and at the same time keep up to racial and economic standards established by existing legislation.*

Like most problems of human progress, there is no doubt a solution; but recent world happenings have shown that this matter can no longer be delayed.

The policy of the Cook Government with regard to the Northern Territory was disclosed in a statement by the Minister for External Affairs, which was laid on the table of the House of Representatives in the last session of 1914.

"The development of the Northern Territory, having been assumed as a continental responsibility, must," says Mr. Glynn, "involve for a time a draft, without direct or immediate return, upon the resources of the Commonwealth. Its relation to defence, and to the maintenance of the associated policy of settlement by white races, suggests that the necessity for and justification of the expenditure of the earlier years must be determined by other than purely commercial considerations.

"It is thought that the time is come for a comprehensive and continuing policy to be systematically applied. Notwithstanding the comparative failure of more or less fitful and irregular attempts of now nearly 60 years to settle the Northern Territory, Parliament will doubtless authorise a substantial capital expenditure towards definite, comprehensive and correlated objects, especially if made as a loan to



How the Grass grows at Darwin

be repaid by the Territory in the event of success.

"In view of the possibility of the Territory being erected into a State, or subdivided, it is proposed to debit it with the capital expenditure of the works to be carried out. For the purpose of railway and other works of development a loan, the amount of which will be determined by the estimates, may well be placed in a trust fund to the credit of the Territory, repayable as the Territory shows a sufficient balance of revenue over expenditure. The land bill will make provision for moderate or small freehold areas to be acquired in compliance with prescribed conditions."

Briefly, the developmental policy outlined by the Minister included the building of nearly 2,000 miles of railway, at a cost of ten million pounds.

"Under the authority of the Pine Creek to Katherine River Railway Act 1913 this line is being built. A survey is being made of the route from the Katherine to Bitter Springs. Proposals will be submitted for the construction of railways to connect, through the MacDonnell Ranges, Oodnadatta and the Katherine River; to connect Newcastle Waters, or some other point on the transcontinental railway, with the Queensland border at Camooweal

or elsewhere, when the Great Western railways system of Queensland is in course of construction to such place; and, as probably a later project, to link Anthony's Lagoon on the branch line to Queensland with the Pellew Islands at the mouth of the MacArthur River. The lengths of line would be:—Oodnadatta to the Katherine, 1,026 miles; Newcastle Waters to Camooweal, 360 miles; Anthony's Lagoon to Pellew Islands, 230 miles; a total of 1,616 miles. The cost, with water, roads, &c., would probably amount to £10,000,000. The work of construction and the expenditure will be spread over about eight years. Construction will be supported by statutory provisions for some reasonable and direct contribution towards expenditure by the land owners, lessees and others directly benefited, and for the promotion of closer settlement.

"It is desired to make railway construction minister to settlement by holding out reasonable inducements to suitable workers to immigrate to the Territory, by making provision for them to work on the lines at the standard rate of wages and conditions of employment prescribed for similar areas, say, in Queensland, by any Commonwealth or State industrial authority, or under the small contract system, and take up available land for agricultural pur-

poses or mixed farming in the vicinity or within reasonable distance of the railways. The labor desired (and to secure which steps will be taken directly by the Government or, when the construction is by large contract, under arrangements with the contractor), is efficient white workers, with a large proportion of married men, from the States of the Commonwealth or from Southern European countries. The proposed land legislation will make provision for group settlement.

"Bores, which are necessary for communications, will be put down to tap the underground water supplies and, incidentally, to make available permanent stock routes. The three great lines of development are clearly pastoral, mining, and, as an aid to these, boring for water.

"Each bore on completion will be leased with an area of pastoral country sufficient to enable the lessee to make a livelihood. This will make the route at all times safe, and demonstrate the possibilities of the country for pastoral development. Covenants by the lessee to maintain the wells and the supply of water for the purposes of others will be inserted in the lease. Approximately, the cost of sinking and equipment of each bore would be £1,000 to £1,250. To carry out this policy would probably mean the establishment of about twelve complete bores and ten trial bores, costing, including equipment, about £15,000 to £20,000."

In addition to this, it was proposed to establish roads, foster agriculture, and secure a more adequate return from existing pastoral leases. Particular encouragement was also to be given to mining and dairy farming. With a view to assisting immigrants who desire to obtain land

immediately upon their arrival in the Commonwealth, the Minister decided that the Administrator of the Northern Territory should have power under certain conditions to lease land without inviting applications by advertisement. In exercising this power the administrator must be satisfied that any person desirous of leasing land is a *bona fide* resident of the Territory, or has a *bona fide* intention to become such a resident within such period not exceeding six months, as is fixed by the Administrator. The granting of the lease must also be recommended by the Classification Board, which is to fix the annual rental for the first period of the lease. There is a further provision that if the lessee does not occupy the land within six months the lease shall be liable to forfeiture.

It must be remembered that these outlines of policy were settled before the war, and that the financial stringency which has arisen as a result has made it impossible to carry out the proposed works with the expedition that was hoped at the time the Minister made his statement.

* * * *

Opinions differ very greatly on the question of colored labor. The late Hon. (afterwards Senator) T. Playford, of South Australia, after a visit to India and the Territory, some years ago, reported:—

"On the question of the kind of labor required for the growth of tropical products in the Territory, I have come to the following conclusion:

"That the Territory must have cheap labor for tropical products if tropical products are to be grown and sold with profit *in the markets of the world*. This is admitted by all who have



In the Sand Hills

any special knowledge of the subject. Only tropical products can be grown in the Territory. European labor is not cheap; therefore, if Europeans could stand the climate, tropical products could not be produced at a profit.

"It is generally admitted that Europeans cannot stand field work in tropical countries; therefore, first on the ground that European labor is not cheap; and, secondly, on the ground that laborers cannot stand the climate, it is not possible to employ Europeans for tropical agriculture."

Out of a mass of evidence and opinion favorable to colored labor, we will take the preceding statements as representative of past political and scientific outlook. It is a momentous question, and should be approached in the most judicial manner. It may be politically said that degrees of latitude cannot be affected by Federal Acts of legislation. It may be scientifically affirmed that where the wet bulb of the thermometer stands constantly at 80 degrees the efficiency of Europeans is inevitably impaired—with deterioration of the race after one or more generations as the



Weighing Pearl Shell, Port Darwin

After 22 years of experience as Director of the Botanical Gardens in Darwin, Mr. Maurice Holtze, since Director of Adelaide Botanical Gardens, a scientist of great reputation, gave it as his opinion that the Territory would surely become a prosperous field for plantation enterprise, providing that facilities to obtain land were granted to investors and facilities given to obtain suitable cheap labor. Mr. Holtze recommended the Tamil coolie, adding, of course, that intelligent management and careful conservation of capital on these virgin enterprises were essential to success.

inevitable result. Just as there are people who would like to believe in heaven and cannot, because they consider that the facts are against the possibility, so there are people who desire to believe in an all-white Australia but cannot, for the same reason.

These people may find statements from the other side helpful to their conversion. First, with regard to competition in the markets of the world, it is contended that Australia does not need to come into competition with her neighbors in the East Indies, with Ceylon, Central America, and other countries as a grower of tropical commodi-



A Frontiersman

ties; that for the time being there will be ample field for growers to supply local markets—under a bonus or protection from the Federal Government, if necessary—and that, as Australian population increases, Australian demands for these particular commodities will increase with it.

Regarding the efficiency of European labor, it is argued that the heat of the Australian tropics is different in character from that of other tropical countries, Java for instance; that it is distinctly healthier, drier, and more endurable—all of which is undoubtedly true.

Further, it is asserted that European labor, and particularly that of Southern Europe, can now be permanently and satisfactorily employed in field work throughout tropical Queensland.

The introduction of white labor into Queensland sugar-growing has been admittedly a good thing for the State. Further statements in support of this contention will be found in chapters of *Australia Unlimited* dealing with the question of tropical agriculture in Queensland.

The Hon. T. Playford's sweeping statement that only tropical products can be grown in the Territory was evidently based on coastal experience.

Millions of acres will grow products other than tropical. The climatic conditions of Port Darwin apply as little to the MacDonnell Ranges or

Barkly Tableland as those of the Riviera apply to Southern Russia.

With Federal encouragement tropical products *can* be produced at a local profit by Europeans *if* European laborers can stand the climate. Experience gained by Queensland since the introduction of the White-Australia policy indicates that European labor is at least temporarily possible.

The experience gained at Hawaii, the Philippines, and in the construction of the Panama Canal, proves that white men can prevail in the tropics.

Experiences gained at Ismailia—where in six years malaria was exterminated—and Rio Janeiro, show that this serious obstacle can be surmounted.

Professor Sir Baldwin Spencer, who has had an extended experience of the North, claims that the climate, though trying at times for women and children, is not unhealthy. Inland, at a height of from two to three hundred feet, general good health prevails. "This," says Professor Spencer, "is an important aspect of the Territory in regard to its future population. The most striking feature of the whole country is the gum tree, and *the Territory is pre-eminently not tropi-*



After Ten Years' Tent Life in the Territory



Pastoral and Mineral Areas

cal either in vegetation or climate. In all except the coastal districts, you have a really cool and delightful climate for three or four months in the year." . . .

Since the establishment of an Institute of Tropical Medicine at Townsville in 1911, Dr. Anton Breinl, the director, has made some cautious pronouncements on the subject. In a recent interview he has pointed out that it is quite wrong to approach the matter as if the Northern Territory was one tract of land with even conditions. Interior and coast districts differ immensely, especially in regard to wet-bulb readings, which are the proper estimate of habitable conditions. The tropical diseases which might affect a white population in the Territory were not the most important consideration; it was simply a question of the effect of climate. As far as tropical diseases went, he was firmly convinced that this division of Australia could be inhabited by a white population.

In his first annual report, the Administrator, Dr. Gilruth, said "he was satisfied that neither by reason of climate nor of poverty of soil did the development of the Territory by white people present insuperable difficulties or even difficulties of an extraordinary nature. The health of the

European population was distinctly good, and that of the children excellent."

Dr. M. J. Holmes—the Officer of Health appointed by the Federal Government—in his first annual report stated:

"The climatic conditions of the Territory are absolutely compatible with the highest standards of health. The great majority of deaths occur from diseases of world-wide distribution, and not from diseases which could in any way be attributed to any adverse peculiarity of climate or unhealthy geographical situation.

"From the point of view of the question of the suitability of the Territory for the upbringing of white children, a routine medical inspection of the schools would furnish important data. Appearances indicate no deterioration whatever, mental or physical, in the rising generation, which appears to enjoy, if anything, a greater freedom from ill-health than the children of the southern States. This, however, is a matter which will require careful observation before a positive statement can be made. The influence of the climatic and other conditions on successive generations will have to be considered; but, in my opinion, we need not



Natives of Oodnadatta

fear that the influences will tend towards deterioration."

In an unofficial report recently forwarded to the Minister, Dr. Richard Jones, formerly medical inspector at Hawaii, based his conclusions on the investigations made by some of the greatest and most widely recognized authorities in the world.

He says that "through the gigantic strides in sanitation and rational hygiene, together with the scientific discoveries made in the department of tropical diseases, we have arrived at a new era, when the possibility of the acclimatisation of the white man within tropical regions must be regarded in a totally different light from that of earlier periods. On inquiry as to the effect of heat on human beings, it was found that high temperatures could be tolerated without harm.

"Though resident in the Hawaiian Islands for some years, I cannot recall one single instance where an illness could be attributed to the heat of the sun. And the laborers, many

of them Europeans and Americans, worked in exceptional heat in the midst of tall sugar cane.

"Experience proves that, under proper hygienic conditions and careful management, the European child might live and thrive almost as well as in a temperate climate.

"Those going to tropical Australia must be of robust constitution and in perfect health. Personal habits are also of the utmost importance. Temperance and morality are powerful weapons in the struggle of life."

Dr. Jones considers it has been proved that the European can live and perpetuate his kind in tropical regions, that the difficulties in the way of colonisation are not due to climate, but to parasitism, and that acclimatisation to a great extent is a mere question of hygiene and sanitation. The continuous forward march of the sciences which enables public health measures to be put into operation, will, in the end, secure for the Commonwealth Government all that its ambition desires—not only for the opening up of the Northern Territory, but for the advancement of the whole continent.

From all this may we not conclude that—with proper sanitation, food, and clothing—European labor in our tropics is possible, and that, with compensations, there should be no deterioration of type?

Against this again, Territorians of any extended experience seem unanimously of opinion that agricultural development on the coastal districts will never be permanently established without colored labor. I give an excerpt from a personal letter just received from an observant Territorian:—

"I will give you the correct definition of this climate, after eighteen years' sojourn in it, and you can form your own conclusions. The climate of the Northern Territory of course is not fatal; nor is it for most of the year in any part uncomfortable; in fact, one can live in it for the first year or two without effects of any description beyond finding it extremely trying during the hot season to unseasoned Europeans. After the first three years, with the majority, it starts to tell by way of feeling run-down. From that out with some people it is a tremendous drain on one's vitality. It is like all tropical climates; the longer one remains in them the greater is the sap on one's vitality. You bring men, even horses, from a cooler climate to this. After a certain time they lose 50 per cent. of their actual energy. That is to say, a navvy who can bury the shovel to the maker's name for eight hours a day in

a temperate climate can only do it in this, after awhile, for four hours. A horse from the temperate country that you can ride eighty miles per day, in this climate will after a time only carry you forty. I think my judgment, borne out by experience, worth more than the opinions of those who have been only a year or two in the Territory. There is not a greater supporter of a White Australia than myself, but I am bound to confess it will not work in the northern portion of Australia."

Furthermore, in populating the Northern Territory it will be advisable at first to select Southern Europeans, or people, especially females, who have been born in or acclimatized to the more northern parts of Australia.

With anything like reasonable domestic surroundings the robust Westralian or Queensland-bred woman will experience little or no inconvenience in the Further North.

But the object of Northern Territory architecture, public and private, should be for the



A Northern Territory School

Such conclusions must, of course, be carefully examined. At the same time, the author is constrained to point out that the effective occupation of the Northern Territory lies not so much in the adaptability of white men as white women. Here another argument enters, and may not be lightly dismissed.

Experience of Northern Australia has shown that in some cases the health of the white woman has undoubtedly suffered. Housing, in the writer's opinion, has had much to do with this. Galvanized iron, being portable, has been universally used as a building material. The Dutch, with their four hundred years' experience of tropical colonization northward of Australia, pay greater attention to this matter. White women, wives of the official and military classes, are not constantly housed under galvanized iron in India or the Malay States and expected to carry out their own house duties and bear children as well.

future to provide a maximum of shade, coolness, and comfort for the women of the house.

Accepting that European life and labor are assured, the main things are the establishment of transport and the encouragement of profitable production.

We have seen that no fewer than 600 varieties of tropical plants can be grown in the Northern Territory, in parts of the coastal districts.

This would give a substantial area on which tobacco, cotton, rice, coconuts, rubber, and other commercial growths may be successfully cultivated by the right people under the right methods.

In South Timor, only a few hours' sail from Darwin, the production of copra is a sound commercial project. The land devoted to this industry is very often not to be compared to that of the Northern Territory. The initial cost of planting coconuts should not be prohibitive, and subsequent costs to the time of first harvest in-



Dairy Stock—Batchelor Demonstration Farm



Merino Sheep—Batchelor Demonstration Farm



Stack of Upland Rice Hay

finitesimal. The preparation of copra for the market is simple; the sun does the most of it. The by-products of the cocoanut are always valuable, the commercial demand for copra constant. Established plantations are said to return £28 to £40 an acre net on the average price since 1910.

The cultivation of coconuts along the coast seems therefore to be quite practicable, and bears every promise of profit. Colored labor in this particular industry is by no means indispensable—but a certain amount of aboriginal labor could be employed. The planter must be prepared to wait five years for his returns; but, after his coconut trees are established, he may give attention to other products.

In considering any danger from future Asiatic influences, it must always be remembered that the coastal Territory is a rice-growing country.

It has the same rainfall (60 inches), similarly distributed in season, as Saigon, and allegedly superior soils to those of French Cochin China, one of the greatest rice-growing countries in the world.

It is not generally realized here that, in the United States of America, rice is now the twelfth crop in point of value.

In 1910 U.S.A. had 723,000 acres under rice, which yielded 24½ million bushels, worth about 80 to 90 cents a bushel. The average crop per acre had increased—by more scientific cultivation, no doubt—from 29.9 bushels in the year 1907, to 33.9 per acre in 1910. The crop was worth between three and four millions sterling to the nation.

Louisiana and Texas are the principal rice-growing States. Similar soils to those on which rice farming in Louisiana is carried out are abundant in the Northern Territory. The average American farm is from 60 to 80 acres, and the

scientific methods adopted do not necessitate the exclusive employment of colored labor. The rice is sown in drills on dry land, and then artificially flooded. As the crop ripens the fields are gradually dried off and ordinary reapers-and-binders used to harvest it.

The Daly and Adelaide, and probably other coastal rivers of the Territory, seem destined by nature for the cultivation of this indigenous cereal.

It may have been that the rice plant was originally introduced from Northern Australia into the countries of Asia.

Upland rice grows without any difficulty in the Territory, and although not such a profitable crop as paddy rice, will prove of great value on soils of lesser richness.

Rice in America is harvested and threshed like wheat. Despite the fact that wages of agricultural labor are so much higher in the United States than in India, the Dutch Indies, China, or Cochin China, it is claimed that in Louisiana and Texas, under these methods, the finished product is more cheaply turned out than in China. In Java field workers earn 30 Dutch cents (sixpence) a day. Under manual labor in the Orient one man will not cultivate more than two acres of rice successfully—the average is much less. In those two States of the Republic, where machinery is employed, one man can cultivate 80 acres.



Coco-Nuts

Under similar methods—and there is apparently nothing to prevent their introduction into Australia—rice could be profitably cultivated without cheap colored labor in the North.

The proposition is one worthy of attention by prospective settlers. Rice may yet pay better than wheat in this Commonwealth.

Java, four days' steam from Darwin, is now supporting—on an area of 48,504 square miles—a population of over thirty millions. There is no starvation and nowadays no famine.

This population is largely rural, and derives its existence from the soil. There are practically no manufactures on the island.

If only a fifth (16,000 square miles) of this Territorial belt were taken as being suitable for agricultural production, it would mean on a fifty-acre basis, that a million people at least might be subsisted. On fifty-acre blocks the Government of New South Wales are settling hundreds of families on the Murrumbidgee Irrigation Area. Ten acres at Mildura, Renmark, or Wentworth make an ample living area for Australian families.

Ten drained and irrigated acres on the Daly or Adelaide Rivers would probably yield more than ten acres in any other part of the Commonwealth.

Taking, on a ten-acre basis, the usual average of five persons to a family, those 16,000 square miles would carry five million Australians.

Other things being equal, this is not expecting too much from land that will grow two crops of maize in a year.

Although I hope Mr. Maurice W. Holtze may prove wrong in his pronouncements concerning colored labor, I am convinced that he was right when, summarizing his 22 years of invaluable special experience, he pronounced the soil and climate of the Territory quite suitable for the production of "sugar, rice, coffee, tobacco, coconuts, indiarubber, jute, vanilla, arrowroot, tapioca, sesameseed, peanuts, maize, and the usual food and fodder plants and fruits of the tropics and sub-tropics."

For oil and fibre-producing plants the climate and soils of the North seem specially adapted, and there is no physical reason why they should not be successfully grown.

The Northern Territory will grow cotton equal to the best grown in the United States. When we take into account that the U.S.A., after the crisis of 1903, was producing eleven million bales out of the estimated world's total production of 16 million bales, this fact assumes a peculiar importance.

Between Brock's Creek and the Daly River the writer recently culled specimens of sea-island cotton from beside the track at many places. This cotton was growing wild through the bush, and not in soils evidencing any special fertility. It was then the end of the dry season, and the plants were podding freely. The cotton, it is said, has been reproduced in this semi-wild state from stock introduced into the Territory at Darwin experimental plots. Seven

of the eight known species of cotton have thus become native to the country. This shows that the coast is particularly favorable to the growth of this ever-valuable plant. If, as asserted, cotton-picking machines have now been perfected and the hybridizing of a species of cotton which will ripen simultaneously proves successful, there is no reason why Australia should not become one of the world's greatest cotton producers. It has been accepted by the British Cotton Growers' Association that the Northern Territory of Australia is highly suitable for cotton-growing; but the question of cheap labor enters into the proposition—until such time, at least, as the experiments mentioned have brought even-ripening and machine-picking into practical commercial existence.

Ideal conditions for the growth of cotton are understood to be deep, mellow soils; plenty of moisture until the bolls are well-developed, and a drier atmosphere while the ripening and harvesting are in process. These conditions certainly obtain in the Territory.

Expert comparisons have been carefully taken out between the expected productiveness of our Northern cotton lands and those of the United States, which are all in favor of Australia. The value of cotton land in the United States averages £6 an acre. In the Northern Territory more



Spiders' Nests

productive lands might be secured for practically nothing. The cultivation of cotton is not so trying to white labor as that of sugar cane. It seems to me that as sugar can now be generally grown in Queensland (with Federal Government support) by white labor, cotton-growing in the Northern Territory under the same auspices, on small areas, is a possible development.

The bonus system would doubtless meet with the approval of the Australian States. We have all the advantages of modern invention, and there is no reason to suppose that prejudice against Australian cotton would be any greater than prejudice against Australian wool.

If, at any future time, the cultivation of tobacco on a large scale is encouraged in Australia, there will be no difficulty in growing large quantities of leaf in the Territory. Small plantings have already been tried with excellent results.

If local manufacturers should decide that the million a year which the Commonwealth is spending on imported leaf, can be more profitably filtered through the retaining medium of local industry, there is nothing in climate or conditions to prevent the establishment of tobacco plantations in the far North.

In fact, rice, cotton, coffee, and tobacco appear to be Territorial certainties, if correct treatments are followed and the economic side of production is carefully considered.

Recent Government experiments at Batchelor Farm, 57 miles from Darwin, indicate that European fodder plants will thrive on country which, to the casual observer, certainly does not appear to be of special fertility.

Despite this, it is too early to predict success for mixed farming and dairying on this class of land.

If dairy farming can be made successful anywhere in the Territory—on the coast, or along the line of the Transcontinental Railway, with its terminus at Darwin—the markets of Asia and Malaysia lie close at hand.

Again, if European cattle and horses will not thrive, Zebu and Indian cattle, buffalo, donkeys, pigs, goats, Timor ponies have all been tested and found to succeed admirably.

Freezing works—the buildings covering over an acre of ground surface exclusive of yards, etc.—have been established at Darwin, and the treatment of cattle for export was commenced in April, 1917. The Works are the property of the North Australian Meat Co. Ltd., and have been erected at a cost of over half a million sterling.

By a special arrangement with the Government, private owners of cattle may have their stock treated at the works under reasonable terms and conditions.

The Government gave no subsidy whatever towards the cost of the works, but in the agreement mentioned it has been provided that special rates are to be charged for the haulage of full train loads of cattle for the works—these rates being based upon those ruling in North Queensland.

The establishment of these Works has necessitated the enlargement of the wharf at Darwin in order to berth the additional shipping consequent upon the increased trade.

The extension of the railway from Pine Creek to the Katherine River was undertaken in consequence of the establishment of these works. When in full swing it is expected that from 400 to 500 head of large stock will be treated daily.



A Native Canoe



Pearling Luggers, Darwin

DARWIN AND PINE CREEK.

FROM the harbor of Dilli, in Timor, to Darwin is only a run of 36 hours; but Darwin is usually the visitor's first impression of the Territory. The change from vivid coloring, dense life, and intense vegetation in the Dutch Indies, to rather sombre first glimpses of our Australian coast might be somewhat disappointing to strangers, but to one Australian, homeward-bound from Java in September, 1912, the light on Point Charles, fading out with dawn, was very good to see.

The sun rose as the *Mataram* steamed slowly into one of the finest open deepwater harbors in Australia.

Darwin was long ago proclaimed the "Key to the East." It must ultimately become among the most important shipping depots in the Commonwealth.

A cool morning breeze was blowing. The Bay was clear—a wide expanse of blue and green waters, with a glimpse of white sand and red rock here and there around its shores. A tabletop hill stood out prominently in the north-west. These flat-topped hills are typical of the Territory.

The outlines of many bays and coves were visible, some ending in the misty indefiniteness of distance.

The sunlight possessed those actinic qualities which the Australian abroad misses so sadly and which are most pronounced in the North-West.

There is no sunlight like that.

An L-shaped wharf, with a crane and portable engine; Fort Hill—without guns—a retaining wall, ending in a red road leading townwards; Government House, embowered in tropical foliage; a lugger and a Chinese junk stealing along close to the mangroves—that is the port of Darwin.

There are other trading and pearling luggers laid up around some of the bays, and a decrepit steamer or so may be coughing in from some land of romance and mystery, but that is all the visible shipping of this "Key to the East."

Low, wooded shores, long arms of water reaching inland towards unknown hills—a sense of great distance, an indescribable quietness, the quietness of a vast, unoccupied land, hang over it all. Oriental odors, Australian houses, and figures in tropical clothing make the passing picture.

Instinctively, one's imagination follows that coastline,—eastward to Burketown in the Gulf of Carpentaria, there is not a township; westward to Wyndham on the borders of the Kimberley, there is not a village within 1,500 miles.



Chinese Residents at Darwin

The shores are covered with high brown grass, and everything is dry. In a few weeks, after the rains, everything will be more than green.

Just over a hill is Darwin, the unfinished metropolis of an empty country.

Its Asiatic quarter, housing now only about 600 aliens, presents the usual squalor; but the situation of the city—that is to be—seems an excellent one, and the town, as far as it has developed, is to a writer vastly interesting. Here one might meet some of the most delightful characters in all the world.

Here you can talk with men out of unknown, unmapped, unvisited Australia. You will meet stray wanderers from Borroloola on the MacArthur, which is an outpost of seven white men, 500 miles from Camooweal—its nearest post office. It also gets a mail from Darwin every six weeks. You will drink with a man from the remote field of Tanami, which is 600 miles from Pine Creek. You may interview here a prospector from Kimberley, or an explorer from Arnhem's Land, each with tales of the remoteness to tell.

To these men the life of Darwin is one of luxury and ease. To them the officials are drawing-room experts, who know nothing about the requirements of the country or its treatment.

You will meet buffalo shooters, pearlers, stockmen, adventurers, and hear a gossip gathered over five hundred thousand square miles of Australia; wherein there is not another place as great and populous as Darwin, with its few hundred European inhabitants, of which 100 are white women.

Our literary sympathies are with these picturesque characters. We admire their stamina, courage, and endurance; but we must often allow

for their prejudices in coming at practical conclusions. They lack comparisons, and, being a few people in a great country, are perhaps inclined to be over-critical of newcomers and new methods. But for manliness, hospitality, generosity, bush knowledge, they are not to be outclassed on this continent.

Life in Darwin is distinctly different from life in Hobart. It has a slightly Asiatic flavor; but it could be made enjoyable enough. People who have lived there for 30 years attest its healthiness. Its rainy season is tepid and trying; but the dry months of winter are perfect. From May to September Darwin might be a sanatorium for the South.

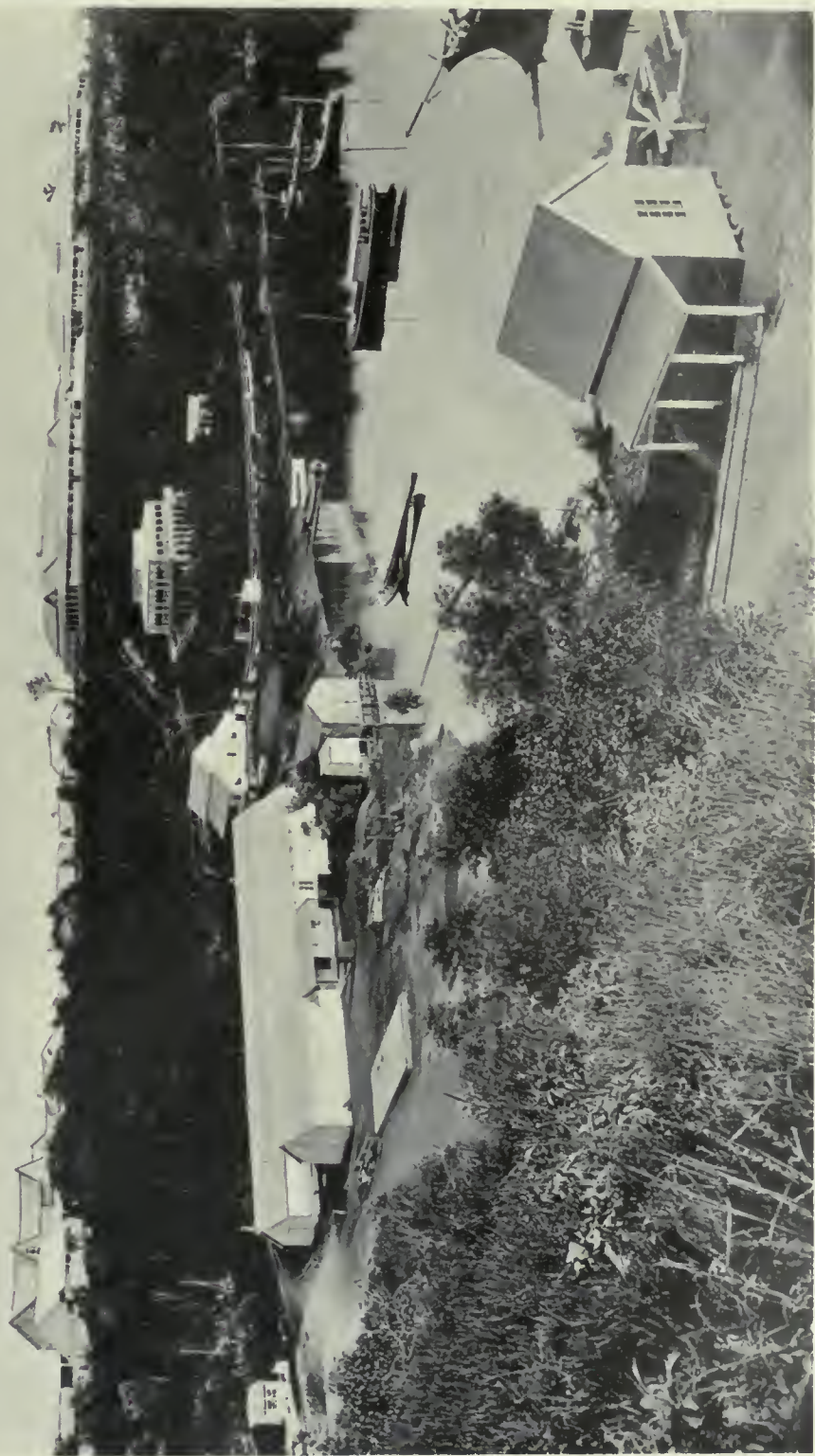
There are nowadays ice, fruit, vegetables, the little conveniences of civilization. The finest mangoes and pineapples I have ever tasted—North Queensland, Dutch Indies, and Pacific Islands not excluded—are grown on the outskirts of the town. These little pineapple plantations are located in most unpromising, dry, stiff soils; but the fruit has a flavor unequalled, and the plants—apparently without any special cultivation—bear profusely.



Papaws at Point Charles

At Point Charles, across the bay, the lighthouse keepers are growing abundance of pawpaws, pineapples, upland rice, and cocoanuts for their own requirements on similar unpromising soil. Like other parts of Australia, one cannot judge the Territory by surface indications.

The streets of this outpost are not overhung as yet by tall buildings. There are public offices, three hotels, and the scattered cottages of officials and residents; some beautified by tropical



Darwin



Guinea Grass, Residency Grounds, Darwin

trees and flowers, among which the glorious poinciana and the subtle frangipanni seem most popular.

The dwelling houses are mostly wooden, with galvanized-iron partitions or walls, concrete or cement floors, and verandahs of latticed bamboo.

The Asiatic quarter is unbeautiful, but not now insanitary. Unfortunately, it occupies a prominent position along the main highway from the harbor. The reserve for aboriginals is on the other side of the town, and some distance from it. Here a paternal Government in Melbourne is doing its best for the dispossessed.

The Hospital of Darwin has doubtless a most interesting medical history. Since the Federal regime began it has been enlarged and improved. I make bold to suggest that the Government will do well to fill the rather frequent vacancies in its nursing staff by recruits from Queensland or Western Australia, if they can be got.

While comings and goings among nurses from the South have been frequent, there is one local nurse who has been 19 years connected with this hospital, who had been for a period of five years constantly attending to her duties without an

annual holiday, and who claimed that she had not had a day's sickness during the whole period.

Nurses, professional men, officials generally who take up their residences in the Far North, must prepare to adapt themselves to pioneer conditions for years to come. The spirit of the Indian Civil Service must be infused into the Territory. Men and women of sound physical development, with altruistic temperaments, are needed.

They must feel that they are soldiers in a righteous war of conquest, and accept hardships incidental to the campaign with courage and philosophy.

They may not see the victory or participate in the spoils; but that sense of national duty and those invaluable sentiments of patriotism and self-sacrifice, which have made England a great *Colonial* Empire, will uphold them in their allotted tasks.

After all, life in Darwin is not nearly so monotonous as in some inland towns. Facing the sea on three sides, with broad streets and open spaces; with tree-shaded drives, fishing grounds, good shooting, yachting, sea beaches, and natural pleasure resorts, blue skies, calm seas, there is



A DARWIN VERANDAH.



NEW TYPE OF RESIDENCE, DARWIN.



An Artesian Boring Party

plenty of interest for those who are not wedded to a purely artificial life. There may be at present a lack of social enjoyment and of feminine association—a condition neither less nor more severe than other Australian places have passed and are passing through in the course of their evolution from townships into cities.

There are thousands of uncomplaining bush-folk elsewhere who would find Darwin a place of gaiety and interest.

With proper health regulations, tree planting, the encouragement of a sane civic and social spirit, this capital of the Furthest North will become more and more liveable as the Territory develops its resources and increases its population.

What has to be guarded against in the establishment of all colonies, if the lessons of history are of any value, is the untrained, unskilled pioneer, whose incompetence and failure handicap other would-be starters in the race.

In my opinion it is absurd to talk of haphazard agricultural settlement in the Northern Territory at this juncture.

The very best modern, commercial, and scientific brains, and the widest comparative experi-

ence of tropical methods of production will have to be brought to bear.

If industries, by protective legislation, can be placed on a sound economic basis, I have no doubt that capital could be organized for their development, but no sane investor approaches a proposition where he cannot see at least reasonable security of investment and a possibility of profit.

The development of the Northern Territory will not be effected by officials, experimental stations, and government action alone. Encouragement must be given to private settlement and enterprise.

Let the economic basis of modern production be right or wrong, just or unjust, evolutionary or enduring, the fact remains that lands which are rendered profitable by Nature or man can be occupied, developed, and exploited; while lands, which from natural or human causes, are not profitable will be left alone.

After spending some busy time in the country, after closest study of all available historical, scientific, official and general information on the subject, and with a comparative knowledge of Australia probably unique, I say, with due con-

sideration of all the difficulties, that if adequate settlement is not effected in the Northern Territory, Man and not Nature will be to blame.

It would indeed be a reflection on that transmitted genius of colonization—which, in little more than a hundred years, has enabled us to make our Commonwealth the richest, the freest, the most vital of all the younger nations—if we were to confess ourselves beaten by this problem of white settlement in the North.

Let any patriotic Southerner stand on the cliffs overlooking Darwin, "the Key to the East," and survey the scene. The land before him is Australian in contour, foliage, color, and formation. It is the Australia of anywhere north of the Tropic of Capricorn, where a third part of Australia lies. The only un-Australian object in sight will be the corrugated shanties of the Asiatic quarter, the days of which are now definitely numbered.

The land, if he could traverse it, would present to him few features which his general knowledge of the Continent would not make familiar; the risks of travel are no greater than Australian bushmen have been taking, as part of their day's work, for the last hundred and twenty years.

Let us go out and see some of it:—

The train for Pine Creek, a composite train, leaves Darwin about seven o'clock in the morning, twice a week.

It is pleasant to get up early and enjoy the bath and morning coolness, which rank among the constant pleasures of the Tropics.

The hotel breakfast is reasonably good; not so light and suitable, or so well served as breakfast in the Dutch colonies across the water, but better than some back-country hotels of our experience.

At the railway station there is a little crowd of people dressed for the most part in tropical or sub-tropical clothing—khaki or linen.

The passengers are an assorted company.

A gang of white labourers is going down to the Government Experimental Farm. They are by no means representative Australian workers; but labor happens to be at a premium in Darwin just now.

In our carriage are a French priest, a pastoralist, and a prospector.

The priest has been a missionary in New Guinea; the pastoralist is returning to his station 300 miles south of the rail-head; and the prospector is going back to his "tin show" somewhere beyond Pine Creek.

The priest tells us that the people are, religiously speaking, no worse than people anywhere else. The pastoralist informs us that he has 1,000 head of bullocks which he can send to

Darwin, but he considers they are worth more than £3 a head.

With his wife and grown-up family he occupies a considerable area of grazing lands, twenty or thirty miles north and east of Daly Waters telegraph station, on the overland route. He describes his holding as rolling downs, well grassed and eminently suitable for stock-raising. There is a 30-inch rainfall, although it lies along the 16th parallel, and is 250 miles in a direct line from the sea coast. It is situated midway across the Territory, going from east to west.

This sturdy old citizen has lived out in the heart of the Bush all his life. He regards the Northern Territory as the best part of Australia. Whatever the coast may be, he avows that its inland districts will grow beef and wool as well as Queensland and Western Australia. With a railway to the Katherine, and freezing works at Darwin, he will be quite content.

As to climate, he claims that he and his family have lived all their lives four hundred miles from the nearest doctor. Certainly, his son recently had to go to Darwin for medical treatment, as the result of a mishap.

He was out riding, when the accidental discharge of a revolver put a bullet through his leg. This was no ordinary ailment, which could be remedied by a box of Cockle's Pills.

So the wounded youth was carried, on horseback chiefly, 300 miles to the railway at Pine Creek; taken down to Darwin, and, in due course, completely cured.

The rapidity of his recovery, the old man argues, is a testimony to the healthfulness of climate of the Territory.

The prospector has just come to the end of £400 worth of tin, and is going back to make a fresh start in life. He is of a different type, but he has a similar faith in the Territory. He says "as long as a man keeps in the Bush he is all right. It is town life that kills people": whereat the eyes of the French priest twinkle merrily.



Botanic Gardens, Darwin

The train affects no express speed. The line is unfenced, and the country either side covered with long rank grass—very dry just now. After the rainy season it will be a different matter. Then, they tell you, it will be as high as the telegraph wires, and green! Tall anthills and stunted eucalypts are the outstanding features.

At Adelaide River we stay a long time for lunch. Everybody is entirely friendly, and solicitous for the welfare of strangers. The conductor of the train brings along hot water for tea, and half-a-dozen lunch baskets are opened and offered. There is no hotel or refreshment room, but a smiling half-caste presents some ripe pawpaws at the train windows, and dessert is assured.

So, through similar country, the only railway in the Territory goes down by Yam Creek and Brock's Creek, to its terminus at Pine Creek.

As the present northern rail-head of a trans-Australian line, that will travel through the heart of the Continent to the southern rail-head at Oodnadatta, Pine Creek has an interest for us. Even when this continental gap is bridged by 1063 miles of steel, Oodnadatta will be still 688 miles from Adelaide. The time is coming when one will be able to travel from Perth to Darwin by rail. Australia is approaching a new era, one in which her progress will necessarily be more rapid and general.

First as an outpost, and then as a mineral field with a history, Pine Creek is worth attention.

It is an unpicturesque bush township of galvanised iron. But from here a man can travel southward by the one overland route for a thousand miles, and not come to another. From here he may cross, via the Katherine, to the Roper and thence overland to Burketown, if he can get through. Or he may pick up the trail from Brock's Creek to the Victoria River and go on across the Kimberleys to Derby, before he finds another village as great. That journey will take him a good thousand miles.

He might leave the Ord River track on his right hand and go down through Victoria River downs and Wave Hill stations to Tanami. From Tanami, if he dared, he could take the western trail over the border into Hall's Creek (W.A.)

Or he might go south as far as Newcastle Waters on the Overland Telegraph Line, and thence, through Anthony Lagoon and Avon Downs Station, into Camooweal (Q.). These are about all the regular trails, and on none of them is there a township like Pine Creek. In fact, the journeys would be from station to station on the east and west, with many camping places in between.

Men take these trails and come through all right. "Paddy" Ryan, working with the survey

party at Daly River in the spring of 1913, had carried his swag across Western Queensland, through Camooweal to Borroloola, the outpost of seven whites on the MacArthur, and from there to the Daly, 2,500 miles in all, unarmed. It was a long way to walk to a job perhaps; but it served to demonstrate that the despised "melancholy colonial" can overcome distances in his own quiet way.

* * * *

A geodetic survey party—Carnegie Institute men—has just arrived from Oodnadatta. The quiet, capable young Australian in charge has good words to say of the great hinterland to the southward. Men and horses alike are in healthiest, hardest condition after their long journey.

Pine Creek being the furthest outpost of education in the Territory—the next Public School is 1000 miles south—we will go and examine the Federal School. The teacher is a North Queensland, who has been here since 1906. She thinks, given a change at the end of every three years, white women will endure the climate without trouble. Her 25 scholars—nearly all born at Pine Creek—she says are just as healthy and intelligent as the children of Queensland, where she had 12 or 13 years' experience as a teacher. School hours are from 8 a.m. to 12.30. The schoolroom is constructed to give as much air and coolness as possible. The attendance is good.

Pine Creek is supplied with good sub-artesian water pumped from a depth of 80 feet by wind-mill into a 16,000-gallon storage tank. Water free from mineral taint may be obtained in this way throughout large areas of known country. As far as exploration for subterranean water has been followed, it would seem that all inland and Central Australia is adequately supplied. Facts bearing on this interesting subject will be found in another section of *Australia Unlimited*.

Pine Creek people may have plenty of fresh meat, green vegetables, pineapples, water-melons, bananas, and various other local products.

Although the land is far from agricultural in appearance, old residents claim that it will grow anything in the way of fruits and garden stuff.

They tell you that at Mt. Ellison, near Pine Creek, half a ton of pumpkins were harvested from one seed!

But they are not as proud of this as they are of the statement that, from one of the claims on the hills overlooking the town, in six weeks recently, tributary Chinese miners raised 600 tons of stone, which went over six ounces of gold to the ton.

These auriferous hills have been burrowed by Chinamen for years. The Cosmopolitan, worked by Chinese on tribute for an English company,

seems to be the only proposition with any great vitality left. One-half its revenue goes to England; the other half to China. Even the miners' supplies are bought from local Chinese store-keepers.

As a miner the Chinaman is no acquisition to any country. Blind stabbing for "followers" is his primitive method. As a "fossicker" he roots over everything, covers over everything, cannot work below water level; generally speaking, is no

hundred pounds he has made he will saddle his horse, fill his packs—on credit—and get him gone into the Silence. There are a few little camps of "fossickers" away out there in the Night, where adventurous spirits engage in solitary combat with Nature's elemental forces—their lives almost as primitive as those of the blacks. Our sympathies would be wasted on these Bohemians of the Back Blocks. They are a free and happy band of Bushmen, to whom the restraint and regularity



A Creek in Central Australia

good to any field, young or old. His joss-house, his hovel, his bags and kerosene tins, his insanitary Asiatic presence are no acquisition to any mining field.

We are glad to leave the surface workings on the hills, the ramshackle shafts covered by dry boughs, the Oriental shacks, built of all sorts of ugly scraps, and get back to the cleaner corrugated surroundings of Pine Creek Hotel.

Even the gentleman from the Interior who, in blue dungarees and shirt, wanders around the precincts inviting utter strangers to take drinks with him, is not so depressing.

This gentleman is also "doing in" the proceeds of some months solitary work on a "tin show" over there. When he has spent the two or three

of civilization are unbearable. As the fast-dying Australian aboriginal is the last lineal descendant of the Stone Age, so they will probably be the last of the true frontiersmen—about whom future children of civilization will ever love to read.

The dividing walls of our hotel are of galvanised iron; the floors concrete, with a strip of matting by each bedside. The service is easy-going. In our absence at the mines the aboriginal groom, acting on some unexplainable impulse, has taken all our luggage back to the railway station. It is lucky he did not put it on the coach going to the Katherine.

The passengers by that vehicle will camp out on the road to-night. The region of regular accommodation ends at Pine Creek, and is not

picked up again, saving the Katherine pub, till the traveller reaches Camooweal or Oodnadatta.

For dinner at this, the last bush hotel for a 1,000 miles, they give us good beef soup, sucking pig—with three or four kinds of fresh vegetables—plum pudding and watermelon—all in utter abundance. If the appetites of the Territory are to be judged by the contents of the guests' plates, there is no need to enquire further if this is a healthy country.

They tell you that there have been no cases in the local hospital for 19 months: which is accounted for by the fact that the few sick and injured people are more likely to go down to Darwin than remain here. The girl who waits at the table is one of a family who trekked across here from Camooweal. She is vigorous and healthy, and in spite of her onerous duties professes that she never feels the heat, not even in summer time. . . .

We must go back from Pine Creek to Brock's Creek to outfit for the Daly River. We leave the pack-horses from the Heart of Australia to rest and meditate; leave the southern trail winding away between the flat-topped hills into wooded distances and open plains, still unfenced, untenanted, and lone; leave the tin-roofed outpost that faces Oodnadatta across a thousand unoccupied miles, and entrain for our next stepping-off place.

Stony ridges, covered with long brown grass, magnetic anthills, which face always north and south, creeks fringed by bamboos, with occasional screw palms and patches of macrozamia, seem to be the features of this mineralized belt, which covers a large area north and south of Pine Creek, and has produced already gold, copper, tin and wolfram in payable quantities.

At one time Yam Creek had a population of 1,400 people; but it is now a place of rusty kerosene tins and empty bottles.

Brock's Creek occupies a depression between small hills, thinly covered with trees. It may be briefly described: A tin goods-shed, waiting-room and telegraph office, with a platform and hoist, made the railway depot. There is a police station, a public school, two tin houses, and a combined galvanized store and "pub." Some straggling banana trees, rambling goats, and listless natives complete the picture.

Ugly as it seems, Brock's Creek is a place of some importance. A traveller leaving here by the South-western trail would not meet another "pub" until he got to Wyndham or Hall's Creek, in Western Australia; nor would he find another railway platform until he reached Meekatharra or Marble Bar.

Over hundreds and hundreds of those miles there would be no pubs, no houses, nothing but the sun by day, the stars at night—and the long, lonely, blazed trail that winds through the vastness of yet unoccupied regions, for which the Future holds a destiny which cannot be foretold.

Travelling eastward of Brock's Creek for twenty or thirty miles, one enters the watershed of the Mary, which follows—as far as its lower reaches are known—a parallel course to the Adelaide; and empties into a swamp near Chambers Bay. So far only its head-waters and tributaries are marked on the map. I am assured by those few people who have a knowledge of the Upper river that it is as good as anything in the Territory.

Rev. Tenison Woods visited the Mary, which appeared to impress him from more than one point of view:—

"The country south-east from Mount Wells, as far as the Mary River," he said, "is exceedingly rugged, and many of the ranges and valleys almost inaccessible. The most closely metalled road would not be more deeply and thickly covered with stones than the valley and ranges. Several long and high spurs (500 feet above the plain) are continued to the eastward into the valley of the Mary River, but at about 100 miles from South-port the ranges decline to the level of the plain.

"At the sources of the Mary the river takes its rise amid flat-topped cliffs of the most picturesque description. The view along the stony white gorges has few parallels in Australia. The valley of the river is hemmed in by straight cliffs of castellated outlines some 150 or 200 feet high. There is often a slope or talus at the bottom, but they are only accessible in a few places, and the valley is for the most part fertile and shaded by fine graceful palm trees; springs bubble out from the shady thickets at the foot of the cliffs giving rise to streams many feet wide, and deep from their sources. The valley is strewn to a bewildering extent with huge boulders and masses of rock, which have fallen down from above, because the magnesite is very brittle, with a foundation of loose and very friable sandstone. Thus no very long time would be required for the springs to crumble and break away the edge of the tableland, or scoop away the valleys as we see them now.

"The springs, therefore, I believe to be the origin of the cliffs and gorges at the head, not only of the Mary but of the West and South Alligator Rivers, and many besides. The magnesite and sandstone strata, are very permeable to water. The heavy rainfall of the

wet season easily drains through the strata, and bubbles out at the base, where it has weathered and broken it away into abrupt, precipitous, and fortress-like hills.

"Beyond the Mary to the eastward there is a tableland of a very broken character, forming scenery which has few parallels, I think, on the face of the earth. To use the words of my journal at the time of my visit:—

"There was no high hill near us, but from the summit of the steep slope above the camp a fine view was to be obtained. A fine view and a strange one; indeed, I doubt if there be another like it in the world. All around was such a sight of cliffs and gorge, isolated hills and flat-topped hills, hills like lighthouses, hills like fortresses and bastions, and city gates, and ruined palaces—in short, like everything and anything except the common-place and monotonous. And then there were such combinations of colours—white cliffs and red cliffs, blue cliffs and striped cliffs; in fact, I am afraid to go on for fear of overtaxing the confidence of my readers. I could have gazed and wondered

at the scene for a long time, and still found plenty to wonder at and ponder over, for it is a prospect about which one could imagine anything. It seemed to me so lifelike and so deathlike, so real and so imaginary, that I knew not what to compare it to. One could hardly believe that such startling shapes, so like the work of man, could be entirely a freak of nature, and then the utter absence of anything like human life about it suggested all sorts of associations.'"

Foregoing facts go to prove that even those comparatively unfertile areas such as the railway has penetrated are suitable for occupation. A large and valuable mineralized area is interspersed with lands either capable of agricultural production or possible for pastoral purposes. The Darwin and Pine Creek sections and the adjacent districts will all have their values and uses. They may not, in the present state of our knowledge, compare favorably with the inland plateaux or the river belts, but that they are destined to support a considerable population the author has no doubt.



Government School at Pine Creek



On the Daly River

THE DALY RIVER.

ON the 13th September, 1912, with W. C. Kellaway, of the Public Works Department, Darwin—a good mate—a black boy, "Paddy," and two pack-horses, the writer started from Brock's Creek for the Daly River.

We would be out in the open for some time, so our plant contained the bushman's usual necessities of travel—including mosquito nets, which are indispensable items of all Territory equipment.

Each man had an enamelled mug, strapped to his saddle, and the horses carried neck-bags full of water.

The opening part of the journey lay through open forest and around or across flat-topped hills of slight elevation. Coarse grass was plentiful and creeks frequent—the majority of them dry at this time of the year.

Skies were cloudless. The midday sun all through proved exceedingly hot. But we found the heat dry and bearable. We were close upon the beginning of the rainy season, when, old Ter-

ritorians assert, the climate is more trying than at any other time of the year.

Paddy had left my horse standing in the sun while he was putting the final touches to his packs at Brock's Creek. When I got into the saddle it was like sitting on a stove. I had done no riding since I left Eastern Gippsland, eighteen months previously, save riding little Timor ponies to look at volcanoes in Java. I had been living soft and getting no physical exercise. I confess, that setting-out filled me with some anxiety, in view of tales I had heard down South of the fearsome effects of Territory suns.

After seven days' steady riding, sleeping out at night under my net, eating tinned beef from the packs and drinking black tea, I returned to Brock's Creek feeling fifty per cent. better than I had felt for twelve months. From which I conclude that rough, active life in the Northern Territory of Australia would have no more ill effects upon me personally than rough, active life in Gippsland or any other part of the Commonwealth has had to date. It is true that I have

been acclimatised to Australian Tropics, and that I had just come from a climate which by comparison with that of the Territory is as Hades to Honolulu; but, all the same, I am convinced if the right kind of men will lead the right kind of lives in the Farthest North, they can remain fit and efficient. I express no opinion here on the question of manual labor; but I should judge that this rule would be capable of general application.

There was plenty of green feed for our horses; so, belled and hobbled, we left them free to browse in equine content while we set up our cheese-cloth nets, topped with calico, over our stretchers and made ready for the night.

There was plenty of bird and insect life. Little speckled doves kept up a constant cooing; the music of the horse bells was good to hear again.

Our black boy—garbed in blue dungarees and shirt, an old cabbage-tree hat, and a native neck-



A Glimpse of Daly River

Having left the unpicturesque ridges of Brock's Creek behind, the country gradually began to improve. At the Howley, some miles along the track, a few Chinamen, presumably fossickers, are living. A genial Asiatic humorist came to the door of his cabin and invited us to a drink of "square face." He seemed hurt when we declined his hospitality. It was a hot day, and he meant well.

We made our first camp that afternoon at Green Ant Creek; a well-watered, pleasant place of biding. The creek was in reality a chain of beautiful ponds fringed with flowering water-lilies and shaded by pandanus trees.

lace and charm—unhooked the leather pack-bags, undid the oilcloth covering from the bundle of bedding, and made a camp fire.

As the sun set, flocks of white cockatoos screamed from their roosting places along the red hills, thinly timbered with eucalypts. Ironwood, and occasional flame trees, brightened the flats; while the leafless wild cotton, with its yellow flowers and silky pods proclaimed a future possibility.

Having mealed on "bully" beef, tea, and bread and jam, after a smoke and a yarn we crawled under our cheese-cloths and slept, undisturbed by the noises of the night, which were no more than the thudding of kangaroos, the calling

of night birds and those sounds of nocturnal nature which make a bushman's lullaby.

The next stage of our slow journey lay at first through poor, dry country, and then out on to fine alluvial flats watered by creeks and lagoons. Long grasses, through which mobs of marsupials fed leisurely, pandanus, palms, and tropical growths along the edges showed that the country between Port Darwin and Pine Creek was in no wise typical of the Northern Territory.



Screw Palms

We lunched at Station Creek. It must be remembered that these places are no more than local names; that between the Chinamen's huts at The Howley and Daly River there is not a single homestead.

Lunching meant getting alongside a creek or waterhole; unhooking the packs, making tea, opening another tin of "bully" beef; having some food, a smoke, and a short rest; then reloading the packs, mounting and getting on again.

A long afternoon's ride through country of no special interest brought us to Swamp Billa-

bong, where we found one, Robert Williams, of New Zealand, outspanned.

Mr. Williams had, he told us, been over to the Daly on behalf of some Welsh settlers, who thought of migrating from Patagonia. He was returning in a waggonette, with two lean, tall, furtive-eyed natives as guides and companions.

It was a lonely camp, and I think that pleasant, silver-haired, old gentleman was glad to see us ride out of the timber at sundown, with our hobbles and bells jingling a tired tune of travel.

So Kellaway, the placid and thoughtful, and withal capable Chief of Public Works, the emissary from distant Patagonian Welshmen, and the writer sat round a camp-fire in the remote bush and discussed a good many subjects, from Lafcadio Hearn's *Japan* to the breeding of Airedale dogs; while three dusky figures squatted before an adjoining camp-fire and discussed in the language of the Stone Age whatever matters of food, fight, or family may have been in their minds.

The third day's riding led us through alternating poor, fair, and good country. Certain places were literally alive with game. Kangaroos, red and gray, moved over grassy flats, where bush fires had left an aftermath of green feed—like sheep moving in a paddock.

Gigantic jabiru, making a rapid preliminary run, rose and spread their great wings in flight. Quail buzzed up from the dry grasses beneath our horses' feet.

We "spelled" during the heat of midday at some lagoons, which had been the scene of a tragical conflict with natives in early days.

All along our track we had found plenty of good water at short stages, which makes for comfort in tropical travel. One can remove the grime at the end of the day and turn in under one's cheese-cloth with a clean skin.

The last stage of our three-days' ride brought us through mineral country where some copper lodes have been worked with fair result. Beyond this spread rich, flat lands of the Daly River.

Here we found a settlement in the making. The site selected by the Government for its Experimental Farm presented a raffle of canvas and galvanized iron. Buildings were being erected, fences run up, and ground cleared for planting. Lubras in red turkey-twill, one-piece garments, and black boys in slightly less, hung round the camps, occasionally making some pretence of labor. A Government survey party was busy plotting out sections for expected settlers.

The Daly proved to be a fine, deep river, with rapid current, navigable for small craft as far as the borders of the settlement. Its banks are

bordered by beautiful trees, while cedar, Leichhardt pines, drooping gums, casuarinas, ironwood, and tea-tree.

Along this river is a stretch of alluvial plain, approximately 100 miles by 5, which, drained and irrigated, I would say is worth at least, on comparative productive values, £150 to £200 an acre. The drainage and irrigation works necessary to bring about this result would no doubt be very costly, but though the expenditure of capital would be enormous, I have no doubt that it would be amply repaid in the course of years.

appear as vast fields of green crops. The flats are crossed by frequent billabongs or back channels, through which water runs rapidly in flood time, and dotted with lagoons. Beautiful purple and pink water-lilies fringe these clear lagoons, which are the haunts of thousands of wildfowl. On green swamps regiments of wild geese parade. Spoonbills, egrets, nankeen and white cranes, jabiru, coots, and wild duck play and feed. Thousands of marsupials hop along the edges of the swamps; game in every variety, from buffalo to quail, make this rich land their habi-



A Water-Lily Lagoon

I spent a long day with members of the Government survey party, riding through these wonderful flats, covered by cane grass so dense that neither man nor horse ahead of me was visible at ten yards' distance. Never in any part of the world have I beheld a strip of country which seemed better suited for intense tropical cultivation.

To any experienced eye the alluvial plains of the Daly present possibilities which cannot be excelled north of Capricorn. Let the reader imagine an ever-flowing river, navigable for small craft over 70 miles from its mouth, winding through magnificent black-soil flats. For miles these flats are covered with coarse grass — often ten and twelve feet high. Where it has been burned off they

tat. The waters are teeming with fish, the air constantly vibrating with the flight of birds.

In days gone by some Jesuit fathers established an aboriginal station on the banks of the Daly. The station was an agricultural success, but an ethical failure. The natives of the Daly did not want religion. They made persistent efforts to spear the missionaries. Finally the good Fathers gave up the mission, leaving behind them a fine tropical garden and some tilled lands, which were speedily overrun by cane grass.

The remains of the garden are still there—groves of mango trees laden with fruit—and the Territory mango is the finest grown; cocoanuts, limes and cotton, all run wild, burnt over, neglected, weed-worried, but yet healthy and prolific.



Fruits of the Tropics

As a personal opinion, I would advance, that for new settlers on lands similar to the Daly, maize should be the most profitable first crop. The returns come in quickly, and the produce is relatively easy to handle in transport. The Daly River land ought to yield an average crop of 60 bushels to the acre

After the ground has been properly handled and worked it should pay to plant lucerne. There will be a good market for lucerne hay at Manila and Singapore. Allowing for wet months, soils such as I rode over on the Daly ought to give six prolific cuts of lucerne in the year.

Pig-breeding in the Territory, in view of the great demand for pork, frozen or salted, which always exists in the East, is certain to be among the profitable industries of the future.

The pig flourishes in the Territory. I saw hundreds of wild pigs on the Adelaide, some of which I shot and examined. They appeared to be perfectly free from disease, and were in excellent condition.

Mules for farm work may, later on, be bred locally. I saw flats on the Daly containing fully 500 acres which were ready for the plough. They would cost no more than a box of matches for clearing—no trees to fell, no stumps to remove, nothing but the long cane grass to burn off. This country might, as it stands, be used to grow maize, with certain portions perhaps devoted to rice in the wet season.

Ploughing could be done with a 25 h.p. oil tractor at the rate of ten or twelve acres a day.

Recently the Government offered 13,000 acres of these lands in holdings from 290 to 620 acres on remarkably easy terms. Many settlers availed themselves of the opportunity. They should, with reasonable luck and good management, do very well.

For the first 5000 blocks of agricultural land applied for in the Territory under the Federal regime, the title given to settlers is perpetual leasehold; no rent payable for 21 years or for the applicant's life, whichever period is the longer.

Where rent becomes payable it is subject to re-appraisal every twenty-one years. It is doubtful if anywhere in the world such lands have ever been given away on terms like these. The Federal Government has evidently determined that every inducement and compensation shall henceforward be offered to settlement in Northern Australia.

Consider that these lands are alluvial, that they are the detritus of a river which, like the Clarence or Richmond, brings water carriage to the farmer's door. The Daly is frequently over a mile wide, and 60 miles from its seaward entrance has a width of 100 yards of deep, fresh, running



Papaws and Cabbages



Pigs bred on the Adelaide River, near Darwin

water. The lower lands are flat and sometimes flooded, but 30 miles from its mouth the banks of the river are high and covered by belts of tropical jungles half a mile or more in width. At the back of these again lie the open plains with scattered white gum trees and wide stretches of tall rich grass, which is officially described as "nutritious and suitable for dairying." This grass retains its succulence for nine months of the year.

Consider that these intensely rich jungle soils can be irrigated. The land has already shown that it will grow crops of maize, sugar-cane, sorghum, sweet potatoes, and vegetables! The modern agriculturist will surely experience no great difficulty in reducing these elemental factors to actual wealth.

While out on the Daly country the writer met Mr. J. E. Palmer, since appointed Director of the Daly Government Farm. Mr. Palmer is a New Zealand farmer of considerable experience. He had just returned from an exploratory journey 50 miles up the Daly River; thence southward and westward to Anson Bay.

He reported the discovery of a series of thermal springs and a hot lake.

He found splendid plains on both sides of the River, and crossed thousands of fertile acres, covered knee-deep in meadow grasses, which might be converted into natural ensilage if there were any use for it.

Large areas which he examined Mr. Palmer pronounced to be eminently suitable for agricultural purposes. In some cases drainage of a



In Tropical Australia

simple and inexpensive character would be necessary. He classed these virgin demesnes as equal to the best in the Commonwealth.

The establishment of telephonic communication between Darwin and the Daly, and the installation of a motor service from Brock's Creek, will bring this settlement forward.

It is stated that a native has gone with mails from Daly River to Brock's Creek and back in 36 hours—total distance, 140 miles. It is true that a man who was accidentally shot with a Browning pistol was carried on a stretcher by fourteen native-bearers to the same place in a few hours, but, like the attacks on the Jesuit mission, these matters are now part of a story told. The hand of the Twentieth Century, prosaic, utilitarian, but bringing greater comfort and security with it, has closed that chapter in pioneer adventure. The more rapid the progress of the Territory is made, and the more of modern science and invention enlisted in the work, the better it will be for Australia generally. . . .

With Brother Kellaway jogging placidly beside me, and the lean, dusky Paddy spurring the packhorses along in the rear, I left Daly River one cool morning to return to Brock's Creek, altering the route in order to cover as wide a range of country as possible.



Maize, Daly River



"Good Country"

By this time I was thoroughly "set," full of vigor and appetite, and enjoying the rough life immensely.

Paddy's early morning proposal to carry my Winchester had been received with no enthusiasm. I am sorry I cannot give Paddy a certificate. He was a Daly River native, which accounts for much. The only recommendation he received when he was being attached to the expedition was that he had speared his own father. This may have been mere Brock's Creek gossip; but it influenced me in refusing him the carbine and carrying it thenceforward on my own hip, as I rode. I have found the short .38 the handiest rifle for the Bush. It is, however, useless in hunting buffalo. The weapon used by Freer, Connell, Lawrie, Paddy Cahill, and all well-known buffalo hunters of the North is a Martini service rifle with the barrel cut down to short carbine length. The shooting is mainly done from horseback, the weapon being used as a pistol at close range. The ball is planted, if possible, into the back of the shoulder or the spine. The buffalo is liable to get annoyed if shot with a .38, or even a .42 calibre Winchester.

There was no monotony about our journey. As we jogged along, to the bushman's tune of creaking saddles and jingling bells and hobble-chains, one little incident after another enlivened us. Once the ubiquitous Paddy, in dismounting, caught the flapping sole of his ancient boot in the stirrup-iron, fell, and was dragged under his frightened horse's neck for some distance. In falling our athletic, ungainly aboriginal somehow succeeded in grabbing the reins close to the bit. This opened the horse's mouth; Paddy's mouth, exceptionally large, opened also with fright and excitement, and so they plunged through the timber, mouth to mouth, a fearsome sight, until we succeeded in straightening out the mess.



A NORTHERN TERRITORY JUNGLE

Despite warnings, the same accident was repeated, only on the second occasion Paddy was dragged some distance under his horse's hoofs. He would probably have been kicked to death if his stirrup-leather had not luckily slipped out of the saddle and left him, much chastened and somewhat bruised, under an ironwood tree.

Like other travellers of the great Lone Northland, we followed a daily routine.

In that charmed hour when tropic morning is still a demure vestal in light blue and gray, we would wriggle from under our dew-wet cheese-cloths and find the most convenient place in the creek, or waterhole, near which one always camps, for a wash. All around these camping places one sees sets of stakes, four in number, to which the corners of travellers' mosquito nets have been tied. The popularity or suitability of the camp might be gauged by the number of stakes. There is plenty of room, and each wanderer gratifies his individual instinct in selecting the space for his "doss."

While we bathed, Paddy attended to the fire, and put on water to boil for our tea or coffee.

Sometimes we fried bacon for breakfast. After rashers of this, with mugs of black tea and slices of bread and jam, or fried onions or tinned cake, we would set to packing up. Mostly, Paddy left things lying around overnight. Tidiness was not one of his accomplishments. Open tins of jam had a habit of getting loose in the pack-bags, and lids were rarely closed on anything. While somebody washed the breakfast plates, somebody else sorted out the provisions from the pyjamas and packed them into leather panniers, which hung one on either side of the pack-saddles.

Rugs and bedding were rolled up, made into a swag, and covered with a waterproof.

Then the boy brought the horses back to camp from wherever they had got to, packs were hoisted, girths tightened up, and the outfit resumed its day's journey.

Towards the end of our first day's ride we struck a solitary Chinaman making his way on foot from the copper mine at the Daly to Brock's Creek. This withered old heathen carried his belongings slung on a pole. He politely asked us to have a drink of tea, which he had just brewed in an ancient billycan from the waters of Blackfellow Creek.

At night we camped at Pleasant Creek, and the following day, riding into Brock's Creek, we struck W. J. Byrne, who has a cattle-run out here on the western side of the railway line, returning from Brock's Creek with his blackboy and pack-horses.

These were all the people of the Daly River Track.

We might have gone on into the Great Quietness to the southward and travelled for weeks without meeting as many—for there are over all these half-million square miles not more than 2,000 white people.

Of the 70 miles of alternate ridge and flat between the railway line and the Daly River, which we crossed twice, it may be said that a great deal can ultimately be made profitable. A few miles to the westward of the railway the land generally improves in quality.

The track leaves mineralized and broken areas and enters open lightly-timbered country, through which there is an abundance of coarse grass and good water. Treeless flats, which are composed of rich-looking soil, and jungles, occur here and there. These rich lands could undoubtedly be converted into farms. They ought to grow cotton and tobacco to perfection. The remainder of the country seems suitable for grazing. Opinions differ regarding sheep. "Spear grass" is a present difficulty. It is likely that sheep will do better further inland. As a cattle country other parts of the Territory have been proved beyond all doubt. And, I repeat, the lands on which herds of beef-cattle flourish will ultimately support dairy herds. But, unless population increases at a greater rate in the Territory than it has done in Queensland and New South Wales during the last 50 years, it is, to my mind, much too early to talk of dairy farming as a staple industry for the North.

It must be remembered that long leases of cattle country were granted in 1901 to certain pastoral companies and individuals by the South Australian Government. These leases do not expire until the year 1943. For example, the Bovril Australian Estates Company Ltd. hold 1286 square miles in the Northern Territory, for which they pay a total annual rental of £64 6s. under "Pastoral Permit." Under pastoral lease, expiring in 1943, they also hold 11,380 square miles at a total annual rent of £723 13s.

Local authority asserts that the country between Brock's Creek and the Daly is not suitable for cattle-raising.

In the present stage of Territorial evolution it will be wise to keep to certainties, of which there are plenty, and leave doubtful propositions for later on. There is no necessity to worry now over these poor metalliferous tracts which the railway follows between Darwin and Pine Creek, when thousands of virgin acres, palpably destined for the plough, can readily be made accessible elsewhere.

By the time these have been occupied and developed, lands poorer in seeming—but as Australian experience elsewhere leads one to hope, perhaps finally richer in some special result—may

be attempted. Colonization elsewhere has followed the line of least resistance. It will have to take the same cautious course in the Northern Territory of Australia.

In the Daly River Valley and its adjacent districts alone, the Commonwealth possesses an asset, the capital value of which might some day be approximated at enormous sums.

Unless there is some fatal and utterly unforeseen flaw in human experience, some mistake in careful comparisons, some false premise to logi-

ing the monsoon and intermittent rains fall between. The line between wet and dry season in the Territory is clearly drawn. Torrential downpours feature the wet season, which lasts six months of the year. The other six months are, as a rule, quite dry. Agriculture can and will be made a success: but, as in other countries where similar climatic conditions prevail, science must supplement nature, and provisions be made for storage and application of water. What Victoria is doing at very great national expense, can



Aboriginal Drawings

cal conclusion based on established facts, this statement should hold good.

But neither on the Daly River nor elsewhere in the coastal Territory is this increase in values going to be brought about by a few passes of a magician's wand. It can only come by a step-by-step climbing of a Ladder of Experience. Men must be prepared to learn in patience what they apply with care. The valor of enterprise should be tempered with discretion. As regards agriculture, the peculiarity of Northern seasons must first of all be taken into account. In this respect the coastal districts of the Territory and the Kimberleys differ from the littoral of Northern Queensland, where heavy rainfalls occur dur-

be done in the Territory quite cheaply. People talk of Java, just over the water from Northern Australia, and draw invidious comparisons. These people are probably unaware that Java, with all its tropical rainfall, is irrigated from end to end. It may be the Garden of the World, but irrigation is the basis of its agriculture from Tanjon Priok to Pasoeran. When I came down from Garoet to Djokjakarta, in August of 1912, I found some of the intervening country suffering from a worse drought than any that has occurred in Australia in my time.

In 1867 the whole of this district was overwhelmed by an earthquake, which destroyed the capital Djokja, and thousands of its inhabitants.

It is always at the mercy of the neighboring volcano Merapi. These are evils which the greatest pessimist in Darwin need not fear. The division of the Territorial year into wet and dry seasons is nothing to the handicaps Nature has laid on the noted Island of Java, which, despite the same wet and dry season, despite earthquakes, volcanic eruptions, droughts, taxes, failures of rice crops, epidemics, and the Chinese, manages to support thirty-six millions of human beings. If a subject colored race can achieve so much in the face of such natural and social impediments, surely an independent nation of freemen

me of its honest *conviction* that without cheap, colored labor sugar-growing in that district was a rank impossibility. In 1914 Mackay told me of its honest *experience* that sugar-growing with white labor was not only possible, but that it had brought about unexpected and increasing prosperity!

We come now to the question of pests in the Territory. Cattle tick has been prevalent. So has it been in Texas, South Africa, and Queensland. It might also be mentioned that an epidemic of roup in fowls occasionally occurs in poultry yards quite remote from the tropics. Ticks, like other



Myall Blacks

can overcome infinitely lesser difficulties of settlement in the Northern Territory of Australia! It has been said that the North could not compete with the cheap labor of Java. If Texas and Louisiana can grow rice cheaper than it is grown in China—why not? Further, is it necessary that there should be any competition? Is Indian cotton, for instance, *allowed* to compete with the cotton of South Carolina?

As we can get over the dry seasons, so we can get over the cheap labor problem. Looked at from an economic viewpoint, I do not minimize the importance of the question, but I went back to Mackay in Queensland recently after thirteen years' absence. In 1900 Mackay told

parasitic diseases, have their remedies. Dips are resorted to, and cattle become immune. A little over a decade ago the herds in the Rockhampton district were decimated by tick fever. Now Rockhampton is being rapidly converted into a great dairy-farming centre. Central Queensland went through a period of despair in 1899-1900. Now the people there worry as little about cattle ticks as the residents of Hobart do about frost.

Termites are very destructive in some parts of the Territorial Coast. They attack the woodwork of houses and sometimes destroy fruit trees. Darwin, however, is not the only spot on earth which suffers from white ants. Termites are no more fatal to fruit crops than codlin moths



A Daly River Farm

or other pests. They can be eradicated or prevented in similar manner. As for their inroads on buildings, everybody knows that Parliament House in Sydney has been honeycombed with them for years, and large sums of money have to be spent to keep it in repair.

The obvious remedy is to construct buildings in ant-infested districts of resistant materials. No self-respecting termites will waste their time on bricks, stone, or re-enforced concrete or tiles—all of which are far more suitable building materials for the climate than the wood and galvanized iron so generally used.

I have heard it argued even by Territorians that certain coast lands will not carry more than one beast to the square mile, because the natural grasses are too rank and sour; that when these are burnt off in March the resultant green feed only lasts a few weeks.

This, even if true, I do not accept as a fatal objection to the future productivity of the places at issue. I examined some of this alleged sour country, and concluded that it would grow both Rhodes grass and *paspalum dilatatum*. If these do not flourish, or flourish too well—one must be prepared for contingencies in country where the ordinary grasses grow to a height of twelve and fourteen feet—then I feel sure that among the remarkable variety of native Australian forage grasses and plants—greatly neglected and unrealized—there are many which can be introduced. Out of the 360 known species of grass indigenous to this Continent there will be found many greedily acceptable of this particular climate and soil. A country cannot be classed as

unfit for grass because it overgrows one native variety which is lacking in nutrition for stock feed. It really seems as if the land in its virgin state suffers from over-activity, and requires sedatives rather than stimulants.

Again, if the coast had proved unsuitable for European cattle, it is certainly suitable for the Indian buffalo, which, from a few head of stock left behind when Port Essington was abandoned by the British Government, have grown into enormous herds.

In ten years after buffalo shooting became an industry in the North, the Customs records at Darwin showed a total export of 50,000 hides.

On Melville Island the few buffalo left behind when the flag was lowered on Fort Dundas had increased to many thousands, before people on the mainland realized either their numbers or value.

Moreover, around Port Essington are herds of English cattle and horses, bred in a wild state from some left behind by the settlement. Indian Brahmin cattle and goats thrive wonderfully. On the Adelaide, crosses between Brahmin cattle and Herefords have made excellent stock.

The increase of goats is as high as 130 per cent. The production of mohair is evidently an industry which would prove successful on the coast. Donkeys, mules, Zebu cattle, and pigs all thrive splendidly.

Taking all this into consideration, there seems no reason to doubt that mixed farming and agriculture on tropical lines can be successfully undertaken throughout the coastal districts.



Aborigines with Buffalo Horns at Melville Island

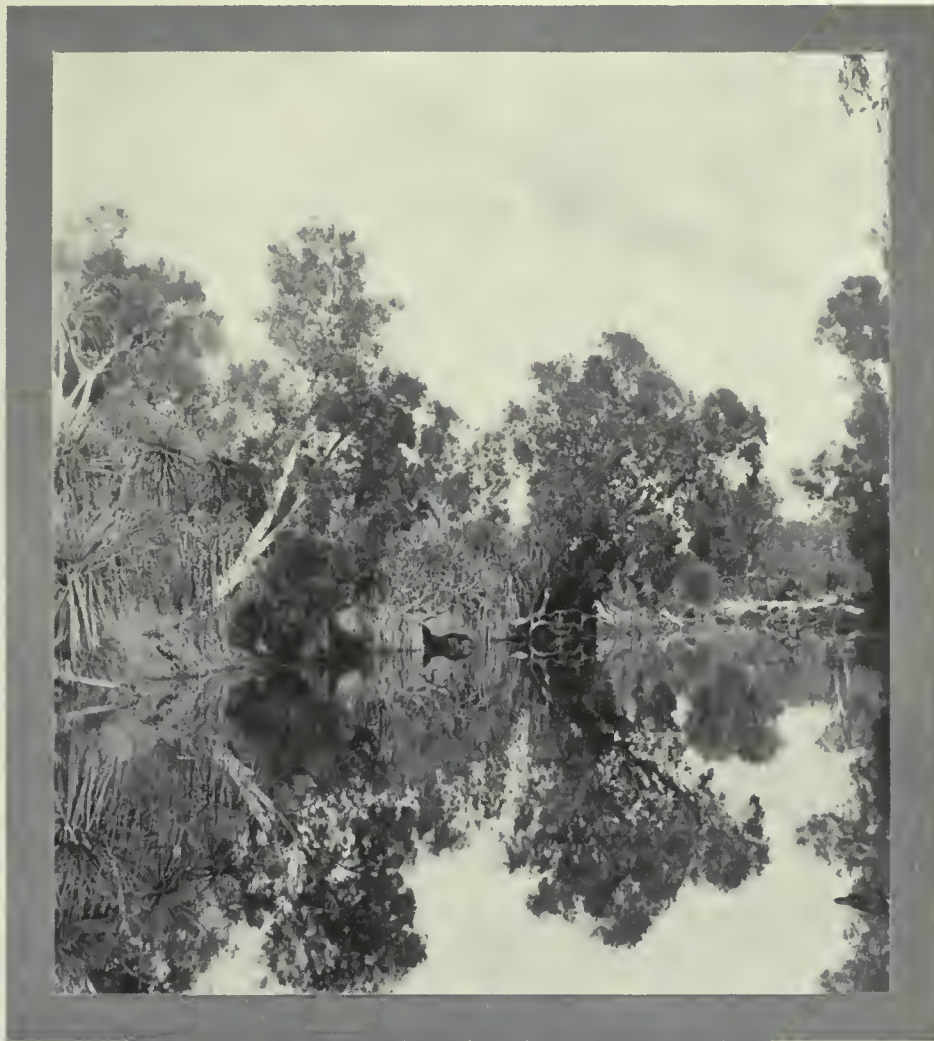
Such being the case, one naturally concludes that settlement is only a matter of effort, experience, and acclimatization.

Summarized, the wet and dry seasons are not unique, the country is well watered, exceptionally fertile in parts, has a wide range of productiveness, and is not afflicted with pests or diseases any worse than those with which pioneer settlers in

other parts of Australia have effectively coped. As Southern settlers sometimes have to wire-net their fences against the depredations of rabbits and marsupials, spray their fruit trees, protect their dwellings against white ants, so Northern settlers must meet *their* difficulties with ordinary human resource. Even cathedral spires, these days, are fitted with lightning conductors.



Bound for Melville Island



Headwaters of the Adelaide River

ON THE ADELAIDE.

AS the Daly and Adelaide Rivers can both be made readily accessible from Port Darwin by fast steamers, motor services, tramways and branch railways, they form the most likely sites for early settlement.

Thanks to the courtesy of local officials and the Department controlling the Territory, I was enabled to visit the latter district, accompanied by Constable MacDonald, of Darwin. Mac. was a hefty South Australian who had seen service in South Africa, where he had earned two medals and seven bars. He proved a first-class bushman and a good mate.

He picked me up one sunny October morning at the "Eighteen Mile," on the Darwin—Pine Creek railway line, with the police waggonette,

a blackboy and a pair of fresh horses. We had packs of bedding, stretchers, rugs, a supply of tinned beef, bacon and sundries, and flat-sided billies and dishes to do our own cooking.

The track goes out from here to Lawrie's homestead, which was all the civilization on the Adelaide in the latter part of 1912.

We had plenty of provisions and a tent and fly. I brought my shotgun, rifle and automatic Colt, for the shooting on the Adelaide was reported to be good.

A few miles along the trail we met a coatless, shirtless man carrying a Martini carbine. The stranger proved to be N. Sunter, who was on his way back to a camp where his natives were preparing buffalo hides for shipment. Mr.



A Traveller

Sunter rode with us in the waggonette so far. He was one of the most interesting characters I met, even in that Land of the Adventurous and Unusual.

Thirty-one years of age, an ex-ship's officer, of medium height, spare build, muscular, sun-tanned, and hard as nails, this little gentleman walks a hundred miles a week through pathless bush; stalking on foot the strongest animal in the world. He sleeps where darkness finds him, is frequently wetted by tropical rain, has never had a touch of fever, and swears by the Territory. A fine, hopeful little man!

Since July, he tells us, he has been charged by buffaloes once a week on an average; but he has been nimble enough on his feet and quick enough on the trigger to escape injury. He may be accepted as an example of what *is* possible to a white man in Northern Australia.

After dropping our interesting wayside acquaintance at his camp, we drove for some miles through scrub and forest until we reached a belt of beautiful jungle, through which flowed a clear creek. It was a cool, picturesque midday camp. Cinchona, screw palms, and other tropical growths shaded us from the sun, while cooing of fruit pigeons and a ripple of running water made good bush music.

That afternoon we saw our first buffaloes—three of them hurling their black bulk through scrub and undergrowth as they took alarm at our approach. Until we sighted the open plains of the Adelaide River a few hours later we travelled through country of no particular interest. But

wonderful vistas of black, alluvial flats, which met us as we came out of the timber above W. Lawrie's homestead, made amends for it.

We drove down under an enormous banyan tree beside a running creek, half a mile from the house, and set our boy Tommy, a much superior native to Paddy, to get our first camp ready. Out westward an extensive bush fire had sent up a tremendous cloud of black smoke, fringed with angry red. Eastward the sunlit plains spread away towards the sea, a corkscrew line of timber marking the serpentine windings of the Adelaide River. Just over there brave McDouall Stuart—the first man to cross the Australian Continent from South to North—stooped down and washed his face and hands in the saltwater when his splendid task was done. We had come out suddenly from a somewhat dull and monotonous forest, of no apparent value, into a region of indescribable fertility, covered with long grasses, watered by lagoons, creeks and billabongs, teeming with bird and animal life. Everywhere there was game, and the spoor of game—buffalo wallows in the mud of the watercourses, traces of wild pigs, tracks of marsupials, wild horses, wild cattle, wild dogs. Kangaroos and wallabies we saw in hundreds; quail, pheasants, wild ducks, geese, pigeons, bustards, white ibis, cranes, cockatoos, owls, egrets, parrots, and snipe haunted the watercourses, hid in the grasses, or beat the air with thousands of whirring wings. Every swamp, every clump of pandanus, every patch of jungle had its furred and feathered companies. The waters, as we were destined to learn, swarmed with fish, and, sometimes, alligators.

The soil on the Adelaide is for the most part deep black loam. With appropriate treatment one feels sure that it can be made highly productive. The flats are flooded, or partly flooded, in the rainy season of summer. They are dry during the winter months and covered with heavy cane grass, through which buffaloes move heavily. Here, as on the Daly, drainage and irrigation will be necessary to convert the best areas into farm lands. Then they will grow, I believe, every profitable crop that can be raised in a tropical climate. The present cane grass, three to six feet high, will be superseded by more succulent fodder plants, and for maize, sugar, tobacco, cotton, rice, pig-

South Wales will place on her Murrumbidgee Irrigation area. Looked at with the experienced eyes of Asia, or the scientific perspective of America, the Adelaide would make an ideal irrigation scheme. As population is attracted to the Territory, this will probably be its ultimate destiny.

As is done in other places, the waters of the river can be controlled and applied when required. Meanwhile portions of the land can be devoted to certain useful purposes—without irrigation.

After we had staked our mosquito nets and got our bunks ready that afternoon, we went over to "yarn" with the solitary veteran who has occupied this outpost, with considerable personal



A Camp

raising, and the raising of stock adapted to the tropics, there will probably be nothing better in Australia, which is equivalent to saying that there is nothing better in the world. There will be plantations and mills there before many years, unless the colonizing instincts of Australians receive some unexpected setback. At the present time cotton is growing and podding freely along the Adelaide and its tributaries. Coffee and rubber have been tried, as we have seen in a previous chapter, with entire success as far as their adaptability to local conditions is concerned.

Boats of 500 tons burthen can safely navigate the river for at least 60 miles.

This vast champaign, over which we drove and rode during four following days, laid out as an irrigation proposition in ten, twenty and fifty-acre blocks, ought to support as many people as New

success, for many years. He proved to be a silver-haired, active old man of 65, hale and strong; with a blue, penetrating eye, the eye of one not unaccustomed to facing difficulty or danger.

He rode in at nightfall with a little troop of colored stockmen—including two lubras in male attire. We sat amicably together to an evening meal of curried buffalo and rice, prepared by Ah Choy, his Chinese cook.

The old man talked of the places and things he knew; of North and Western Queensland, where he had spent his earlier days, and whence in the sixties he had trekked into the Territory; of Japan, Manila, and Singapore, where his business and pleasure have taken him. He has made much money shipping horses and cattle to Manila. He held, under Pastoral Permit, 1,703



Black and White

square miles of the Territory; under Pastoral Lease, 4,801 square miles; Annual Lease, 400 square miles; Right of Purchase Lease, 160 acres; Agricultural Lease, 640 acres.

To control a principality covering 6,905 square miles would cause some people pride. Neither ostentation nor luxury seems to be Mr. Lawrie's weakness. He lives a very simple bachelor life, surrounded by his faithful aboriginals and Chinese, and employs a white overseer for his out-stations. To see him riding out on his run, with one of his native stockwomen at his saddle bow, clad in men's dungaree trousers, spurs, print shirt, old straw hat, and clay pipe, one would hardly judge him to be the overlord of such a vast domain.

Between Lawrie's homestead and the head of navigation on the Adelaide, there is no road, but, setting off early in the morning from the big banyan tree, we essayed to drive this distance. If we got there, we would have the distinction of being the first adventurers to reach that point with a wheeled vehicle.

It proved a rough but highly interesting cross-country drive. We had borrowed a Martini at Lawrie's in the event of striking a buffalo bull with evil intentions. The old bulls are driven

away from the herds by younger rivals; and, as is the way with enforced exiles, they become very resentful.

In the long grass one might very easily drive right on to buffalo without seeing them. Over these fertile plains, through which the Adelaide, fringed by bamboo and paper-bark, winds towards its mouth in Adam Bay, we made a circuitous passage; heading swamps and lagoons, and dodging, as far as possible, the rougher ground. Still there were dry buffalo wallows which had to be bumped over, and hillocky patches where wild pigs had been rooting.

The day was cloudless and reasonably cool. Green ornamental trees fringed the lagoons, where water-lilies gleamed in purple and gold; pink water-lilies glorified the swamps; green pastures were spangled with gorgeous flowers.

One might readily imagine that we were driving every now and then over stretches of park lands; or through a vast botanical garden. It would be even more beautiful at the end of the rainy season.

I could never bring myself to destroy game for which I could not find use; but temptations to shoot were continual. Wallabies and kangaroos constantly hopped away from either side of us, and sat up within range. We must have disturbed some thousands of marsupials as we drove along. Every swamp was covered with wildfowl.

We found ourselves that night with a mixed bag, comprising a brace of black ducks, a bustard, six squatter pigeons, and a couple of geese. The pigeons were grilled on the coals of our camp fire for tea, the bustard and ducks I converted into a stew for breakfast; the geese were donated to Tommy, who cooked them on the fire as they came to him, feathers and all, and carried them on as a standby next day. Mac. said the nigger enjoyed them more than the stew. He suggested that I should also get a few flying foxes, out of a noisome camp of these creatures in the bamboos by the river.

After that bustard stew, Tommy pronounced our bully beef "no more good," which gave me an excuse to shoot birds for him during the rest of the trip.

Our camp that night was located near the crossing. The grass had been burned off, and there were nice patches of green feed for the horses.

After a clean-up, a full meal, a smoke, and a yarn, we retired under our mosquito nets and fell asleep amid the calling of morepokes, the wail of dingoes, and the noise of wild geese, swans and whistling duck flying overhead.

When I looked out from under the cheese-cloth I saw the full moon setting silver and white.

A little later the sun came up in rose and gold. The bush again responded to the call of day. The North wakened to its wonted life and color. Wild geese swayed in the tops of the tea-tree; their half-webbed feet affording them no clutch, and, stretching out their wings, flew to new feeding grounds. Flocks of white cranes with indrawn necks moved from swamp to swamp. Native Companions danced their minuets in the sunrise. Great black buffaloes rubbed their muddy flanks against a convenient trunk or anthill; and wild

jolted out no doubt in the terrific bumping over rough ground the previous day. It was a pretty anxious situation. Our Martini was out of action for the moment; the chances of stopping an old buffalo bull on the charge with a .38 Winchester or a shotgun were so remote that they could not be taken into account.

Mac. got hurriedly to work on the Martini with his jack knife, in the hope of effecting repairs before things happened, while I held the reins with one hand and slid cartridges and fond hopes into the magazine of the Winchester. Tommy fumbled in the ammunition bag for more. No-



Buffalo Hunting

Timor ponies galloped, with long tails and manes floating.

We started back along the Adelaide next day, keeping as near the banks as we could.

We found the same fecund rich soil, the same luxuriance of vegetation, the same plentitude of bird and animal life.

Once we came upon an old-man buffalo. He rose facing us through the high grass, shaking his ponderous head and lashing his tail. Mac. pulled up the horses. Tommy, who sat on the luggage behind, passed the Martini forward. As I hurriedly attempted to slip in a cartridge I discovered that the breech-block had come loose—

body laughed or sang. We were a busy crowd, and all the time, as we worked noiselessly, we kept our eyes on the old bull in front of us.

He had a magnificent pair of spreading horns, and his sides were glossy with mud. I recollected that the assistant lighthouse-keeper at Point Charles, a one-time hunter of buffaloes, a fortnight previously had drawn a diagram for me, showing the vulnerable points of these animals. As nearly as I remembered they were two, the spine and the flank. He explained that the buffalo's hide is about two and a half inches thick. An ordinary Winchester bullet would not penetrate it, also that it was next to impossible to shoot a

buffalo coming towards you, inasmuch as the skull and horns made an effectual armor-plate for the small brain located at the back of the head. Further, I remembered that Lawrie, in *his* exploits after buffalo, had had every bone in his body broken except his neck.

A little experience Freer from the Alligator River had related, flashed through my mind. In the off-season you will generally find Freer at the Hotel Metropole in Sydney. You would scarcely believe that he spends some months of the year, with a plant of 35 natives and 65 horses, out on the Alligator, shooting buffalo for their hides. It was a graphic story of a charge by a wounded buffalo. His horse fell, his rifle went off under him, and when he recovered his senses he found a dead horse and a dead buffalo beside him, and, as he expressed it, "the toes of one of his feet where the heel ought to be."

So Freer lay a fortnight in camp at the Alligator with a broken ankle and dented ribs, trying to retain control of his natives and his senses—until he had to give in at last and get the niggers to carry him aboard his lugger. The story of how he sailed the lugger to Darwin with a broken foot and ribs was the most dramatic part of it; but it went out of my head because, just then, Mac. handed back the Martini with the announcement that it would shoot now. Simultaneously the bull seemed to alter his mind. Turning round, he made towards the distant hills with the sun flashing along that glossy, two-and-a-half-inch-thick hide.

Tommy was a Palmerston native, and unused to buffalo. He had turned a sort of sickly gray color. This was his second big fright on the trip. He had been sent to the river for water the evening before, and nearly trod on an alligator. The game in that district was almost too plentiful.

We got back to Lawrie's safely at the close of the day, and made another camp. . . .

On Sunday we decided on having a sort of picnic down the river at Alligator Creek. The previous day Mac. had spent with the Chinese carpenter effecting repairs to the waggonette. The buffalo wallows had proved too much for the drawbars and some of the ironwork. Our mosquito nets were tied to the wheels of the buggy, and the harness was hung in a stunted tree. Opposite stood Lawrie's bachelor quarters, a three-roomed house built of galvanised iron, with wrought-iron posts and ties—an indication that white ants were bad on the Adelaide. The floors were made of wood blocks bedded in cement. The Chinese cook slept in the harness room, and there were back rooms for the household.

In front of the house was a stack of rice straw, some banana and orange trees.

The stars were yet showing. A clank of wild geese came from invisible birds overhead. There was a light in the house and a fire in the kitchen. A clatter of gins began. It commences at day-break, lasts all day and well into the night. Presently a tall lubra, dressed in a one-piece print frock edged with red braid, comes out to let the goats—there are some hundreds of them—out of the enclosure in which they have been penned during the night.

Breakfast over, "Topsy," a cheerful-looking half-caste girl, goes down to the stockyard with a couple of bridles over her arm to bring up the saddle horses.

Topsy and Jimmy and the Boss ride off together. We are to meet them at Alligator Creek for lunch.

The old man makes a rather picturesque figure with his sunlit grey beard, his open shirt front, old felt hat tilted back, brown dungaree pants, elastic-sided boots, and spurs.

With his bodyguard riding slightly in the rear, he goes from point to point, looking at his cattle.

It is a warm Oriental Sunday. They are getting a waggon away loaded with buffalo hides. The Chinaman, who is blacksmith, carpenter and cook, and a devoted servant, is in charge. He leaves a very fat colored lady to act as cook in his absence.

A tall native woman goes down to the stockyard for his saddle horse. She takes a great stride and swings her arms after the manner of all native women as they walk.

The team horses are brought up. The women go among them fixing nose-bags and talking shrilly to the animals.

There is much going to and fro, and much chatter in native dialect and broken English. The team is harnessed at last. With an aboriginal sitting on top of the smellful hides, and the weather-beaten Chinaman riding slowly behind, it takes its way through the scattered timber, swaying heavily, leaving a dense cloud of dust in its wake.

We got our own horses harnessed to the empty buggy, and with "tucker" and water-bag, gun, rifle, and ammunition, picked our way through the pandanus, across the level high grass plains towards our rendezvous at Alligator Creek. The water of this creek was fresh in certain places, but backed up by the tide. When the tide falls, the barramundi are left in shallow water, and may be speared or shot. Accompanied by Jimmy, I went along the creek and began the day's sport by getting two splendid fish, about 20lbs. weight, with the Winchester.

Jimmy found the fish. If I would pray for any gift, I think it would be that I might have sight as keen as that of an Australian black-fellow!

To put a .38 Winchester bullet into the back of a barramundi's head by shooting into the water at a certain angle, is easy enough when you have learned the trick; but to first find the fish planted alongside a log in the waterhole or hidden in waterweeds, requires eyesight which very few bushmen possess.

mob which I calculated contained at least two thousand, alighted about two hundred yards from where I was stretched out in the half-baked mud. I pulled out my automatic Colt and emptied it among them. This shook the whole swamp up. Mobs of black duck flew high into the air, and, after circling, dived down again with a threatening noise like that of distant thunder. A flock of jack snipe flew past me. I cut out a couple with two barrels of No. 2 shot intended for ducks. Parras, whistlers, teal, ibis and cranes came along



A Creek in Central Australia

We lunched on "bully" beef, biscuit and black tea, brewed by the lady in dungarees.

Jimmy undertook to show me a place where "plenty bird sit down." On the road I shot a fine boar, and a brace of Torres Straits pigeons. Presently we came to the edge of a long narrow swamp, which was literally alive with game. I laid down flat in a buffalo wallow near the edge, and instructed the boy to go up one side and come down the other. It was after midday, the sun was hot on my back, and I attracted plenty of mosquitoes. But I forgot these discomforts, watching the movements of more edible game than I have ever seen together in one place. As the nigger, attired only in his shirt and hat, scouted along the edge of the watercourse, the birds began to come down in companies, battalions, brigades. Geese seemed to be most numerous. A

at different heights and ranges; in a word, the shooting on that swamp was all that a good sportsman might imagine in his rosiest day-dreams.

The acting-cook prepared our barramundi for high supper that Sunday evening. We three white men mealed heartily off the finny section of the day's bag. The balance went to the blacks. I noticed that Topsy dressed for dinner—that is to say, she changed her dungaree trousers to a print skirt. We kept up some style out on the frontiers of the world that memorable Sabbath night.

About midnight I was awakened by a douche of cold water on my face. It was raining. After the calico top of my mosquito net had gathered all it could hold, I must have turned—and emptied the contents over myself. I could hear the rain

beating heavily on to the warm earth. Mac. was swearing at the blackfellow for something he had neglected to do. So I scuttled out with my rug and spent the rest of the night in an old cane lounge on Lawrie's verandah. The anopheles stood on their heads and punctured me as I slept.

It was evident that the rainy season had commenced, although the morning came blue and clear. The sun soon dried our nets and blankets. We decided to get on towards Darwin and make a safe and early camp.

So we turned our backs on the Adelaide, rich and fertile, destined some day, no doubt, to be a site of settlement and industry. Its productiveness is beyond question. This river valley is large enough to support a great population. Under proper treatment it should be as profitable as any agricultural area in Australia.

A long pull through the forest brought us again to the creek where we had rested for lunch. We spelled and watered our horses, boiled tea, gnawed some tough Torres Straits pigeons, grilled by Lucy the cook at the homestead that morning, opened a tin of beef and another of canned peas, smoked, yarned, re-harnessed, and make a short afternoon stage to Howard Creek, where we found Ah Choy and Binghi returning with Lawrie's team. It was an amusing company.

The Chinaman was lean and wrinkled, the blackfellow fat and round. He had mutton-chop whiskers, and his round face wore a chronic grin.

We stretched a tent-fly over our nets to avoid a repetition of the previous night's experience, hung up our water-bag, arranged our saddles and harness neatly, and covered the provisions, ammunition, and photographic stuff with oilcloth.

After he had belled the horses and let them go for the night, the fat blackfellow amused himself trying to spear fish in the creek.

I presented our Tommy with a swamp pheasant which I had just shot. He put it on the coals of the camp fire to roast for his dinner. It came off very black, but Tommy seemed to enjoy it.

We were out of bread, so Ah Choy obligingly made us some "Johnny cakes." One learns not to be too particular in the Territory. After the usual preparation he spread the coals carefully and laid the round discs of dough—mixed and kneaded on a bag—on top. We scraped the charcoal and ashes from them ourselves when they were cooked.

That was my last camp in the Territory. I felt as we sat round the fire, an incongruous company, that such pictures of reality as we made, though common enough in the Bush to-day, will soon fade from the screen on which so much typi-

cal of pioneer life has been cast by the cinematograph of Time. Our camp reproduced in some measure the early days of Southern Australia, slightly modified by modern conditions. It represented the actual life of the North in 1912. Through the darkness that had crept over this untenanted land, red fires, such as ours, were twinkling—with lonesome distances between them. Companies such as ours were squatted on the ground before these solitary fires: little companies made up of a white man, or maybe two, and aboriginals or chance Asiatics. They smoked pipes and talked, or watched the coals reflectively.

Behind them were the shadowy outlines of trees—eucalypts, and palms, or a background of salt-bush, or the naked plain.

From every point of the compass came the whispers of northern Night; but there was no distant echo of crowds, no hum of cities, no pale reflections from the lights of towns. Eastward stretched Arnhem Land, as innocent of white men as in those quiet days—seventeenth-century days—when lumbering hulls of Holland cautiously felt their way along its coasts. Thousands of square miles out there had never yet been trodden by a white man's foot.

Southward spread other unknown lands, which no white man has entered.

Everywhere, like an expectant hostess with banquet spread, the Territory awaited the coming of her guests. Looking into that last camp fire, while the Chinaman and the blackfellows talked quietly together, while the owls hooted and wild dogs howled, I heard in fancy a hymn of the Future, rising from low vibrant nature notes to chords reverberant with human endeavor. I heard the whistle of the Trans-continental Express and saw her headlights boring dark gaps in the MacDonnell Ranges. I heard the rumble of freight trains laden with fat sheep and wool going down from Barkly Tablelands towards the MacArthur. I heard the Victoria Downs through passenger train, the Roper River Mail, the mixed train from the Mary, the Arnhem Land Express.

I heard the screws of fast coastal steamers churning the waters of Gulfs Van Diemen and Carpentaria, and the explosions of auxiliary engines of lesser craft, exploiting the little rivers on a shallow draught.

I heard the chug-chug of rollers in mammoth sugar mills, the buzzing of cotton jinnys, the thudding of presses in tobacco factories, the clinking of harvesters in ripened rice fields, the buzzing of shears in machine sheds, the hissing of refrigerators, the thousand homely sounds of human progress.



Repairing the Waggonette at Lawrie's

I saw, in imagination, the young cities of Darwin, Daly, Victoria, Adelaide, Roper, Arnhem, MacArthur, Katherine, Anthony, Barkly, Arltunga, MacDonnell—beautified by leafy avenues, fountains, and glorious gardens, electric lit and alive with enterprise—these and a hundred more covering sites yet unnamed. I saw, in fine, a splendid young State come to her own; another star added to the flag of the Commonwealth. I heard the voices of her representatives in the Federal Houses at Canberra; I saw steel muzzles of cannon in her forts pointing seaward; I heard the wireless keeping watch by night and day along her summer seas; I heard scouting aeroplanes coming home to their military hangars; I heard the tramp of young Australian feet at drill. And, as the light of the camp fire slowly died, I lifted my eyes to the tropic stars, glittering like bayonet points above me, and prayed the God of Nations and of Battles that my vision might be true; that this Northern State-to-be might put her young feet upon the paths of Destiny, as her Southern Sisters had providentially done—in peace. . . .

The Pine Creek to Darwin train was due at the 20-Mile about two o'clock. Despite a broken swingle-bar we got there before noon. Mac. and I had our last "billy" of black tea together. He left me and drove off through the forest towards Darwin. I sat in the little galvanized-iron shed, which was all the railway station, and did some hard thinking over Territory matters.

Characters on the galvanized iron indicated that the shed had been erected by Chinese carpenters. At one time there were 10,000 Chinamen in the Territory. The continuation of the line will be by white labor. Already it is on the road to the Katherine.

One hopes that fibrous cement, which is only a shade dearer than galvanized iron, will be used in the station buildings. The heat under that shed, although it was still early in October, was far from comfortable. There was a sign down the railway track, "Look out for Trains." With two trains a week to look out for, the infrequent population are fairly free from accidents.

I had the railway line and the three wires of the Overland Telegraph for company. It had rained again in the night, and the air was heavy and drowsy. There was a billy of tea beside me, some biscuits and cheese, an oil-cloth swag, a canvas swag, cartridge bag, camera, rifle, and a bundle of spears; so if anything happened to the train I could last out.

There was a truck of buffalo hides waiting on the side track, so I guessed it hadn't gone through ahead of time. One heard so many curious stories about the Pine Creek railway. The Bush around me was utterly barren of human presence; but it was civilization compared to the Bush that lay beyond.

Down there only 20 miles was Darwin, with 500 people; and over there, another 20 or 30 miles, was Lawrie's homestead on the Adelaide.

My thoughts went back to the Adelaide, to that white-headed old man of 65 and his primitive *entourage*. One would travel eastward from that three-roomed galvanized outpost of European civilization right across the Territory to Cape Arnhem—four hundred miles as the crow flies—and not meet another house. Lawrie himself represented a pioneering type which was common enough in the southern parts of Australia in our grandfathers' times. His life was made up of

elemental things; he had no need for white tablecloths to cover the wooden table whereon his native servitors set out his meal of curried buffalo and home-baked bread or damper, tea with goats' milk and brown sugar for sweetening. Like many another successful Australian, he had gone out on to the very edge of things and taken the risks. He knew the ways of natives. His black boys held him in considerable fear, if not respect. He had seen rubber and coffee fail from causes with which the Territory and its climate had nothing to do; but he had made cattle pay, because he was hard of limb, sound of head, and knew how to take advantage of chances a good country gave him. For these reasons he deserved respect. At 65 years of age, after spending over 40 years in the Northern Territory, he was a robust, active, healthy old man. He rose before the stars had left the sky, hurled himself like an athlete under his terrific shower bath, and dressed to a loud accompaniment of orders shouted to his staff. His patriarchal day began amid a rattle of horses, goats, cats, dogs, and natives generally, and included a wild ride after cattle, or a still wilder chase after buffalo, with cutting out, yarding, branding, shooting and skinning as accompanying episodes of either pursuit.

In sooth, the saddles and pack saddles on their racks under his verandah were never left there for ornament; nor were the Martini carbines, the belts of cartridges, skinning outfit of knives and steel in a leather roll, hung upon the walls of the adjoining room, kept for mere effect. The hides, pegged out on the ground at the back, the buffalo meat in the cask, and the pile of horns, disproved that.

If the buffaloes spoiled the water for his stock in dry seasons by wallowing in the waterholes—nothing will drink after them—at least they contributed hides to his revenue, worth a pound each, and meat to the larder of his retinue.

If on his out-stations wild blacks had sometimes speared his cattle, the more civilized tribesmen had entered his service.

So in what moments of rest he permitted himself, this remarkable old Territorian, overlord of nearly 7,000 square miles of Australia, might lie on his cane lounge and justly congratulate himself on his achievement.

He was an actual proof that white men can live and may prevail in the farthest North; that men who have the pluck to get out on the Edge of Things must win out.

What men like "Old Bill" Lawrie can do in Northern Australia, young men who have strength in their limbs and courage in their hearts can do under the constantly-improving conditions that obtain in the Northern Territory to-day.

Let the man who reads this remember that

eastward from Lawrie's to the coast, four hundred miles, there is not another homestead yet. All that unoccupied demesne—including the whole plateau of Arnhem Land, 1,000 feet and less in height—is well watered, traversed by good rivers, and undoubtedly holds virgin riches to be won. Much of it remains to be explored; all of it is waiting to be conquered. This much is known, that there are splendid agricultural lands on the South Alligator, the East Alligator, and the Goyder; that mineralized areas exist toward the heads of the Liverpool and Blythe Rivers—whose courses are not yet completely mapped.

Here is an open chance for the adventurous spirits of Europe, America, Australia. The maps of the world are every day being filled; the map of the Territory, from Lawrie's to the Gulf of Carpentaria, is still largely open spaces and dotted lines.

Even the coast, from the Queensland border to Melville Island, is yet imperfectly known and marked. Van Alphen River, Abel Tasman River, who knows anything of these? Or of the coast from Sandy Head to Port MacArthur, where it is proposed to establish freezing works some day.

The MacArthur is good pastoral country. Between Borroloola, the MacArthur, and the Limmen River one hears that there is an excellent belt of alluvial soils, for a distance of over a hundred miles. The Limmen, and its tributary the Wickham, with their affluents, are said to water good, well-grassed pastoral lands, where cattle have done splendidly.

The MacArthur Country begins with mangrove flats, five or ten miles wide, along the coast. These are followed by an alluvial belt, particularly pronounced along the rivers. Then, at an average of 25 miles, a sandstone tableland occurs, which gives place to a geological dip into limestone and surface plains which rise gradually towards Barkly Tableland.

The MacArthur itself is navigable for vessels, of light draught only, for 40 or 50 miles, but an excellent harbor could be established at its mouth, which would be an outlet for a productive inland region, spreading as far back as the overland telegraph line.

The coastal belt is suitable for tropical agriculture. The tablelands, well-grassed, well-watered, which begin about 60 miles inland from Borroloola, are stated to be admirably adapted for sheep.

Off Port MacArthur lie the Sir Edward Pellew Group of islands; blessed by constant rainfall and greened with much vegetation. On Vanderlin Island, the most easterly of the group, there are good landing and deep water. Coconuts are growing there, and Centre Island, in the heart of the group, is covered with tamarind trees, grow-



“Like the Patriarchs of Old”

ing from seeds dropped by Malay trepang fishers for hundreds of years. Vanderlin Island is 20 miles in length, and is 100 square miles in area. Groote Eylandt, eighty miles or so to the northward, occupies about 950 square miles. It has a light sandy soil, full of decayed vegetable matter, and is sparsely timbered. Groote Eylandt is well watered, and has a copious rainfall. It is described as an ideal place for cotton-growing.

Between the Limmen and the Roper—40 miles—is a strip of saline plain, said to be of no particular value.

The Roper is a splendid stream, navigable for 90 miles for vessels of light draught. It rises in a country of undulating downs, covered with black soil, and, like the Daly and Adelaide, will be one of the Territory's richest assets. The Hodgson, Elsey, and Wilton Rivers are important feeders. Approaching the Roper Bar, travelling east, is that weird range described by Dr. Woolnough:—

“From Mt. McMinn to Hell's Gate, a distance of about 13 miles, the track runs across alluvial flats all the way. Hell's Gate is a most extraordinary feature. There is a sharply defined escarpment consisting of red sandstones and shales like those of Mt. McMinn. They are, however, weathered most remarkably into forms exactly like those shown in pictures of the 'Bad Lands' of Nebraska. The pass through the range is a narrow gorge, within which rise on every hand turrets and spires of blood-red sandstone, quite precipitous in character and so closely set that a vehicle is

forced to wind hither and thither to find a way through. These towers vary in height from 20 feet up to 150 feet, and the horizontal stratification of the rocks composing them adds to the quaintness of their outlines. The whole gorge, with its contents of fantastic shapes, is enclosed by battlements of similar red sandstone rising to a height of at least 150 feet, and giving the whole place a most sinister appearance, which well justifies the Dantesque name applied to it by the pioneers. The pass opens out on to the summit of a small plateau, but this is soon passed over, and the descent of its eastern edge is begun.”

The Roper originates as a perennial stream at Bitter Springs. It is fed by many springs, which, hot and cold, are numerous in the Territory. Deep and wide, its banks covered by a dense growth of pandanus, it can, at a comparatively little engineering expense, be converted into a great inland waterway for vessels of draught. Some of its deepwater reaches are forty miles in length. To the Roper River lands the advantage of a hundred miles of water carriage through the heart of their tropical richness cannot be estimated. The gardens of the few white people who represent European settlement on the Roper are a living testimony to the productivity of the soils. It is believed that Irrigation can be installed on the Roper at comparatively moderate costs.

The Elsey holds large areas of alluvial. From Port Roper to Blue Mud Bay there are rivers and supposed rivers, with patches of cypress pine and alluvial, but of this stretch very little is known.

Off Cape Barrow, among the nest of islands which are scattered along these coastal seas, there are trepang and pearling grounds, of which the Japanese and Malays have the best knowledge.

In the northern bight of Blue Mud Bay there is reported to be good anchorage, although these waters have not been properly surveyed. Trepang and turtle are plentiful in Caledon Bay, and in Melville, Arnhem, and Buckingham Bays also. Between Caledon Bay and Cape Arnhem there is an unnamed bay with good anchorage in three to four fathoms. The Caledon Bay Prospecting Company, who examined this country in 1911, reported:—

“We would particularly mention as suitable for cultivation the lands to the north of the Walker River, and probably along the Koolatong River, while the areas of swamp country through which the party travelled after leaving the Wyonga River to Caledon Bay should make excellent farming country. These lands are mostly covered by a deep black loam, and are abundantly watered, fresh water extending right to the shores of Caledon Bay, which is quite easy of access from the back country; much of the lands from Caledon Bay back West to the Goyder River could be farmed, i.e., lands South of the Divide, but their position would for the present leave them useless for all practical purposes. Along the swampy valley of the Goyder River the whole of the lands comprised in an area of about 900 square miles is splendid plantation and agricultural country, probably no better existing in Australia.

“In the matter of pastoral country, after leaving the Wilton River and going East, with the exception of a narrow strip of diorite country extending from Diorite Creek to the Rose River, we practically did not again touch upon what could be termed good pastoral lands until we were within twenty miles of the head of the Goyder River. We passed through much land that might be classed as inferior, but certainly not good, from the head of the Goyder and back West for some forty miles. Taking in the Wilton and the site of the old Bulman Station, and continuing down the Wilton River to its junction with the Roper River, the country is undoubtedly deserving of much attention in pastoral interests.”

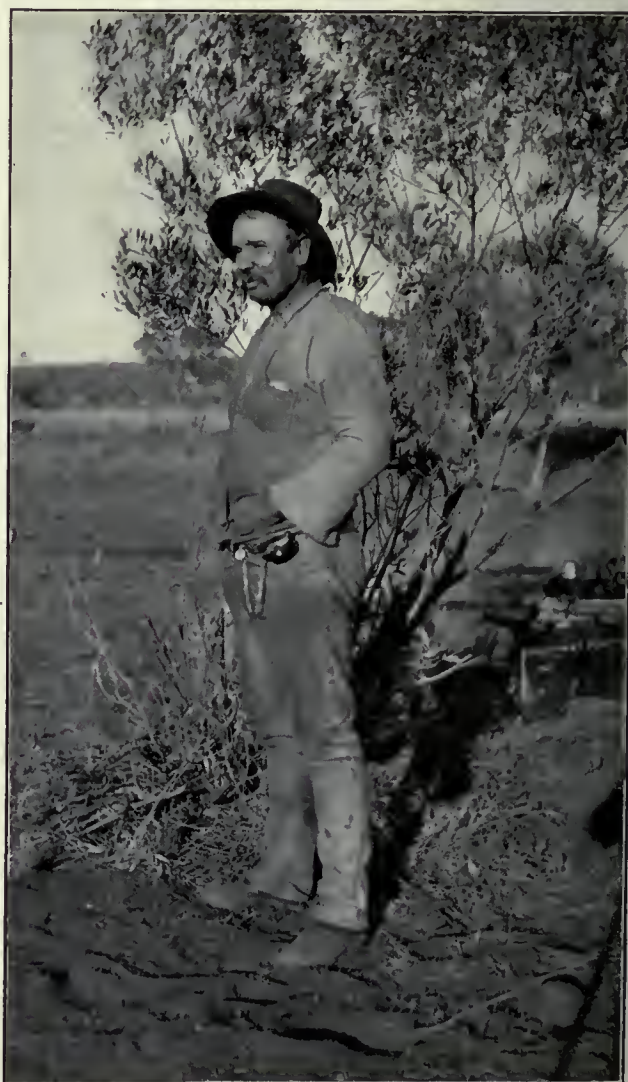
The Government has established a sheep station at Mataranka at the head-waters of the Roper River. The land which is being utilised for this purpose was formerly held under lease by Messrs. Lawrie and Co., who agreed to surrender the lease for the purpose of establishing the station where tests could be carried out regarding the

possibilities for successful sheep raising. The area is well watered by the Roper River, the Elsey Creek and various billabongs more or less permanent.

Two thousand ewes and forty-five rams were purchased on the Queensland border, and after an overland journey which occupied 8 months, arrived at the station with about 10 per cent. of loss.

Beyond two small home paddocks no general fencing was undertaken until it was ascertained that there was no herbage on the station deleterious to the sheep. A dingo-proof fence was then erected enclosing an area of about 10,000 acres.

Pending the completion of the fencing the flock had to be shepherded by day and penned by night. Naturally under these conditions neither the animals or the wool benefited. Since the fencing was completed, and the sheep have had their liberty, a great improvement has been noticed both in the animals and the fleeces.



A Northern Territory Bushman



Spring near MacArthur River

Wessels Islands are described as poor and sandy, but the English Company Islands—so called by Flinders—are said to be good. They have a height of about 300 feet, with deep water around them; although between 11 deg. and 12 deg. North, they possess an equable climate, being constantly swept by sea breezes. The coastline between here and Goulburn Islands is incompletely charted, and rarely visited by Europeans. The Goulburn Islands are well-watered and fertile.

On South Goulburn—30 square miles in area—there is a beautiful lake, covered with water-lilies and fringed with corkscrew palms. About 4 or 5 thousand acres have been declared suitable by the late Mr. Nicholas Holtze (who visited the Group in 1911) for indiarubber, sisal hemp, cocoanuts, or cotton. Sea Island cotton of good quality he discovered growing wild.

Good pearling grounds probably exist off this island. North Goulburn, 14 square miles, holds "nice loamy soil, well adapted for Para rubber, cocoanuts, or upland rice." Both these islands also contain grass lands suitable for stock. On Grant Island there are 3 to 4 thousand acres suitable for cocoanuts and sisal hemp. Croker Island, area 126 miles, is further to the westward. It lies just off Coburg Peninsula—where the remains of the English settlement of Port

Essington are still to be seen—and contains a large area of land very suitable for agricultural purposes. Mr. Holtze estimated that there was an area of at least 10,000 acres of first-class land in one part of Croker Island, "without a stick or a stone on it, which, with partial drainage, would be admirably suited for Para rubber, sugar cane, maize, or upland rice."

On Coburg Peninsula are herds of wild Timor ponies, wild pigs, wild cattle, and buffaloes.

Melville Island, facing the mouth of the Adelaide, has an area of 2,400 square miles. It subsists large herds of buffalo, and may therefore be accepted as pasture land of good quality. It is composed of alternate forest, swamp, plain, and jungle. The soil of the latter is a light sandy loam, in which tobacco, cocoanuts, rice, and cotton would thrive. Melville and Bathurst Islands adjoining it are both well watered, and have a high rainfall.

Dr. Jensen, who has recently examined portions of the coast and coastal islands between Darwin and the MacArthur, summarizes his conclusions as follows:—

"Many parts of this great uninhabited area are ideal for coconut plantations and cotton, while tropical fruits would thrive. The cheap productions of Asiatic countries will, of course,

not succeed here until either the natives can be taught plantation work, or the place of labour can be taken by machinery. The sandy coastal soils are not really poor, for dead coral and shell material exists in them in some abundance. During most of the year (at least seven or eight months) the ground water is deep, hence either deeply-rooting crops or drought-resisting crops must be grown. The capillarity of the soil is, however, excellent, and no dense clay sub-soil comes in to interfere with capillarity and drainage in these coastal areas of recent elevation.

The following crops should be capable of thriving in these regions:—

- (1) Perennial, without irrigation, everywhere.—Cocanut, cotton, pineapple, guava.
- (2) In damp places along rivers and billabongs (flooded country).—Passion fruit, bananas, guavas, limes, oranges, lemons, pommelos.
- (3) Irrigated in dry season.—Rice, lucerne (in places), wheat (in places), melons, sweet potatoes, yams, pumpkins, and other vegetables.
- (4) In wet season, same as above (3).
- (5) Dry farming for dry season growth, wheats.

The character of the permo-carboniferous country is not such as to enable one to build up hopes of its successful utilization in agriculture or grazing. A few gorges or river beds through these areas afford sufficient space for farming operations to be carried on, but, generally speaking, the best use that these areas can be put to is their utilization as aboriginal reserves, since game is fairly plentiful in all the numerous gullies that intersect them.

Much of the flat country covered by the Palæozoic behind the north-west coast would be good grazing country. The English Company's Island and Cape Wilberforce are quite useless for agricultural purposes; Groote Eylandt has the appearance of containing much valuable farming and grazing land.

It should also be remarked that the coastal stretch from Mount Saunders to Port Bradshaw has the appearance of containing a considerable stretch of rich agricultural and pastoral country."

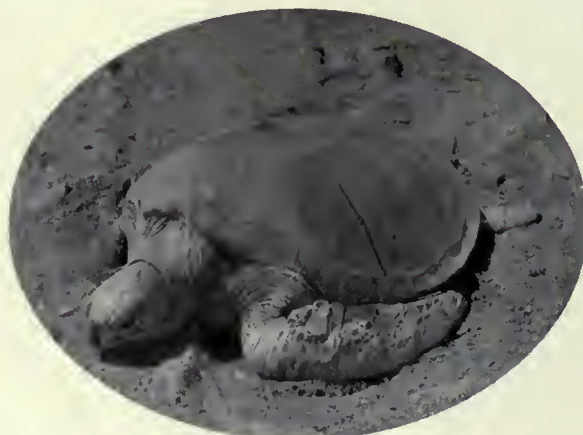
This pronouncement is included in a Geological Report, issued as Bulletin No. 10, by the Department of Home and Territories.

The Rev. Tenison Woods, who in his lifetime made very few mispronouncements, has left this as a heritage of hope:—

"I can confidently assert that the Northern Territory is exceptionally rich in minerals, only a small portion of which has been made known to the public. I do not believe that the same quantity of minerals, veins of gold, silver, tin, copper, and lead will be found in any equal area in Australia. *In fact, I doubt if many provinces will be found in any country so singularly and exceptionally favored as Arnhem Land in respect to mineral riches. The peninsula of Arnhem Land will eventually become one of the greatest mining centres of Australia.*"

If the prophecy of this renowned and reliable scientist is fulfilled, then, the 400-mile stretch of mostly-unmapped territory, which constitutes William Lawrie's backyard, must ultimately come into its own.

With consolations like these to comfort my mind, I filled in that long wait for the Darwin train.



Edible Turtle



A Hundred Miles up the Roper River

INLAND DISTRICTS.

LEAVING the coastal belts, one enters a drier and healthier climate. Our present maps of the Northern Territory show that pastoral occupation inland, so far, is concentrated on three great belts—one in the north-west, known as the Victoria River Country; one to the east, described generally as the Barkly Tableland; the third, centrally located in the south, and extending through the MacDonnell Ranges, down to the South Australian border.

These, with a few large leases and permits along the Overland Telegraph Line, make pretty well all the marks of occupation on our maps in the year 1917. Nor can the term occupation applied to these, be accepted in the sense in which it is used in regard to other parts of the world; or even in respect to the more settled districts of the Commonwealth.

The building of the Overland Railway from Oodnadatta to Pine Creek must bring a large part of Australia into the realms of practical value. Although I have not personally been further south than the Katherine, or further north than Hergott Springs, on this route, I am bound

to deduce from reliable evidence at hand that there is an enormous amount of good and useful country along this 1,063 miles, which will be crossed by the proposed line, or may be made accessible from it.

When, at Pine Creek, I saw the horses of the Geodetic Survey Party turned out after crossing the Continent north and south. They were in better condition than my own horses have sometimes been at the conclusion of a comparatively short coast journey in the south.

Mr. Kidson, the chief of this party, was a fellow passenger later on, from Darwin to Brisbane. I spread a map of the Territory, on which I had been making some notes, before him in the saloon of the *Taiyuan*, one afternoon, and marked down his descriptions and opinions of country he had crossed over.

This map is before me now. I judge that the opinion of Mr. Kidson—who has been entrusted by the Carnegie Institute with the Geodetic Survey of Australia—is quite as reliable as that of some chance traveller; especially as it is

supported by evidence collected from all sources worthy of any attention.

I will take the notes from the map just as they come, and the reader will understand that therein he has the condensed description of 1,063 miles across this Continent.

We begin at Charlotte Waters near the South Australian border. Mr. Kidson's scientific eye discovered this to be stony tableland, falling into lands covered with succulent, good Mitchell grass—pastoral country.

ling through already established pastoral districts, which are taking us into the once-alleged "Dead Heart of Australia." These stations send the finest fat cattle to Adelaide markets.

At Alice Springs (2,500 feet) it is "all good Mitchell grass, silver grass, and rich herbage."

We are now in the MacDonnell Ranges, said to be the ideal climate of all Australia. An elevation of 3,000 to 4,000 feet ensures cool nights. In winter ice and frosts are frequent. The late



Oodnadatta Railway

It must be kept in mind that the lowest rainfall is in the extreme south, and that it is a gradually increasing quantity as we go northward. The Dalhousie thermal springs indicate that artesian waters will be obtainable all along here.

Following up the Finke River for thirty miles or so, we enter mulga and mallee scrub, covering rich plains subject to floods—where water can be procured at shallow depths through dry seasons. Beyond this is marked "good country," until we arrive in the neighborhood of the 25th parallel; where, for a time, it becomes poor. Hereabouts the prevailing vegetation is desert oak and spinifex. Half a degree further north we are again in good country, covered with saltbush and cotton bush.

The stations of Hayes Bros. formerly held by the Willowrie Land and Pastoral Association Limited run along the 24th parallel. Here we find very good plains, and patches of green grasses, even in dry time.

Bear in mind that we are all this time travel-

James Tyson, the most successful stockowner of the last generation, pronounced the MacDonnell the best in Australia for horse-breeding.

From Alice Springs men report having traveled east and north-east for 150 miles through the most succulent herbage up to their horses's knees.

All the MacDonnell is suitable for sheep, cattle, and particularly horses.

In fact, the whole distance from Oodnadatta to the Katherine has been defined by competent authority as good for cattle and horses.

The southern wall of the MacDonnell Ranges rises from the plains like a rampart 1,000 feet high. At intervals of a few miles there are fissures through this wall, from which a water-course emerges. The Hale River flows through the largest of these fissures, which is only 10 or 15 yards wide in places, with walls rising 500 feet or more. This narrow moat in the mountains has a length of five miles. It sometimes opens out to a width of two chains, is absolutely



Horses in the Northern Territory

impassable for camels, and contains permanent waters on which the sun rarely shines.

The Ranges, which run east and west for 400 miles, are about sixty miles wide. They extend across the Territory in one direction almost to the West Australian border. The highest points average 3,000 to 4,000 feet above sea level. Mount Heughlin is 4,756 feet high. They are largely auriferous, and include the Arltunga Goldfields—about 45 miles from the Overland Telegraph. Coal has been discovered in the valley of the Hale River.

After crossing these ranges the traveller enters the great Inland Plateau, on which he remains in his travels northward until he reaches the

coast ranges, over 800 miles away. The annual rainfall at Alice Springs is 11 inches, which, as we have said, increases all the way north. They have had 4,000 sheep at Alice Springs for the use of telegraph officers, and they are reported to do well. Peaches and apricots thrive there. After the monsoonal rains, seeding grasses cover the earth. At these telegraph stations fresh vegetables are grown, and record pumpkins and tomatoes have been raised. There is no question about the fertility of the inland soil.

Resuming our journey, we pass on towards Anthony's Well. The Mueller and Sandover Rivers take their rise here, to flow some hundreds of miles into the interior and disappear.



Cattle in the Northern Territory

At the 23rd parallel we are in splendid country. From there to Barrow's Creek Telegraph Station, elevation 1,724 feet, it is all good—buck bush and salt bush, which the bushman avows is a sign of rich soil anywhere.

Murray Downs Station, parallel 21, is very good, but there is some poor country a few miles wide between Barrow's Creek and this point.

good pastoral country is shown within a few miles of the Western Australian Border midway between parallels 20 and 21. This splendidly grassed section occupies about 500 square miles. All that lies between the explorer's out and in trails is marked "Terra Incognita."

The Davidson Expedition endured some dry and lonely times; but the worst accident that be-



A "Heart of Australia" Station Homestead

We have now crossed three hundred miles of the Territory, with only two small patches marked "poor."

North of Murray Downs we enter the Davenport and the Murchison Ranges, described as "patchy." The map plotted by C. Warnecke from Mr. Allan Davidson's explorations, 1898 to 1901, includes the Davenport, Musgrave, and MacDouall Ranges. It covers a wide district, extending from the Overland Telegraph Line some miles to the West Australian borderline. Gardner's Ranges, along this borderland, and the lands below Tanami to the 21st parallel, are well marked. The course of the journey out lay due west along the 20th parallel from Kelly's Well on the Telegraph Line, for over 120 miles. It then takes north-west to the 19th parallel, and runs that down to the border.

The journey back was from Tanami, south and east, to Barrow Creek Telegraph Station. Very

fell it was the washing out of a camp and destruction of stores by *heavy rains*, in February '98! Following this terrific downpour, all Central Australia seemed filled with the croaking of millions of frogs, the waterholes became stocked with fish, and game was plentiful.

At Elkedra Creek the party camped at what had been a large waterhole, but then contained only a foot or two of water and many fish. *The weather was intensely cold, frost being frequent.* This seemed to paralyze the fish, which would be found floating around helpless in the mornings. The larger ones, weighing up to three-quarters of a pound, were picked out as required and fried for breakfast. When the sun rose and the water warmed, the remaining fish revived.

Mr. Davidson describes much of the country he traversed as indirectly proved to be desert, or of no value from a *mineral* point of view. The greater part of it will doubtless become use-



LUBRAS BATAING IN LILY POND NORTHERN TERRITORY



A LILY POND NORTHERN TERRITORY

ful for pastoral purposes. The establishment of permanent water supplies will be essential. Judging by Mr. Davidson's own observations in the Murchison, there is a great probability that the artesian formation of Western Queensland enters into this part of Central Australia. We will have to revise our impressions of the heart of Australia. Heavy rains and frosts are not features of deserts.

The Frew River has its beginning at Murray Downs. Before reaching the Frew, Mr. D. J. Gordon—a journalist in whose judgment one can place confidence—found, 1,300 miles from Adelaide and in the very heart of the Australian Continent, a valley along the Spence Creek which he "had seen nothing to equal."

Mr. Gordon, representing the South Australian *Register*, entered the Frew region in 1891 from Barrow Creek—the limit of his journey northward.

His description of the lands he traversed is sufficient to show what pessimistic delusions have haunted the people's minds concerning Central Australia.

"On either bank of the Spence," says Mr. Gordon, "grow large trees, confusing in their very variety, luxuriant grasses, wild flowers, and delicate ferns. Large snow-white lilies grow to the water's edge, while the screeching cockatoos and beautifully plumaged birds that fly overhead all tell us we have come into a new country. On our right, about a quarter of a mile away, running parallel with the creek, is a high range of hills rising abruptly and overlooking the valley, with white lime-trees and vegetation growing to the very tops, and flowering creepers overspreading the rocks. The sky, sun, air, and eloquent waters, inspiring mountain-tops, the murmuring and glossy woods, are all evidence that here is this valley Nature deals with a bountiful hand. . . . Here the Frew commences, the water trickling down the side of a high rocky hill, and starting off in a little stream until, assisted by some tributaries, it broadens out, and within a few miles of its rise flows with some force. We camp in a narrow gorge, through which the river runs, and where there is a huge rockhole of great depth. We rode for 35 miles along the Frew, which at the time of our visit was running. Altogether, the country is the best watered and the finest we have yet seen. At places the Frew is almost wide enough and deep enough to be navigable. Where the Frew Head Station is situated the river widens out, and there are several splendid sheets of water. It is evident, from the vegetation, that the Frew country has a good rainfall, and as the

river contains a variety of fish, some of them being several pounds in weight, it is pretty good evidence that protracted droughts are unknown. Some of the station hands have caught sufficient fish in the waterhole—Tootoowa, as the natives call it—close by the station, in two hours, to last all hands, for a week. Birds are very numerous on the Frew. Twenty-five miles below the station we saw a sight to delight in—a moonlit lake some two miles long; on either bank the typical Australian gumtrees towering above the water in majestic splendour, making with their evening shadows a picture full of the sublime and beautiful. The natives have christened the place with a pretty name—Arralooloola. Nature's gifts are plentiful here, and we saw wild ducks, pigeons, emus, and kangaroos, and no doubt in the water are fish in abundance. The valley of the Frew below the station opens out, the ranges leaving the river at one place almost at right angles, only to return again, however, later on. The grass and foliage, rich and luxuriant, are made green with the running of rivers and gracious with temperate air. We journeyed west and north-west over several unnamed ranges towards Tennant Creek, passing a large freshwater swamp, alive with wood-duck, until we struck a creek called The Whistle Duck, owing to it being a rendezvous for the whistling duck. When out here we came across several good patches of healthy saltbush, the finding of which set at rest any doubts as to whether the country is suitable for pastoral purposes. There are some very fine waterholes on the Elkedra, providing a plentiful supply of water, and the valley is almost as rich in herbage as that of the Frew. In our various journeyings over the Frew country we noticed the following trees:—Gum, bean, corkwood, paper-tree, tea-tree, gidyea, bloodwood, beefwood, iron-bark, lancewood, and emu and apple tea-tree. There were several others that we were unable to class. Then as to grasses and herbage, we saw Mitchell grass, silver grass, kangaroo grass, blue grass, mulga grass, and harpoon grass that grows downward in the shape of a harpoon. Then there is saltbush, bluebush (much the same as the Queensland bluebush), Queensland barley grass, herbage, and various kinds of creepers and runners. There was one fine specimen of grass, very much like an oat stalk, that our horses took a great fancy to. Then we noticed also various native fruit trees, such as the currant-bush, native orange and pear trees, plum, yam, and quinine bushes. Birds are numerous. There is, of course, the crow and magpie; where can you go in Australia and not find them? Among the cocka-



Chambers' Pillar, Central Australia

toos there are the Major Mitchell, galah, black, pink, and white. Among others, there are the magpie, lark, bowerbird, parrots of a dozen varieties, ringnecks, bluebonnets, and galahs, kingfishers, doves, pheasants (small birds with lovely fantails), hawks, (eagle, brown, and kite hawks), rock pigeons, with pretty little topnots and very tame, slate-coloured pigeons, bronzewing, and flock pigeon, robin redbreasts, skylarks, mutton birds, the minah, Derwent jackass, morepoke, bellbird, lyrebird, blackbird, and curlews. The woods are full of these and other kinds of birds. The sportsman would be able to find plenty of game in this country to the east of Barrow Creek. There is, of course, the kangaroo and emu, the latter being unusually large in these parts, wild turkeys, ducks (the whistle, black, teal, diver, and woodduck), wallabies, wild dogs, euros, paddy melons, kangaroo rats, wideawakes, and mountain devils."

Over three hundred miles eastward in a beeline from this place—where wild honey is plentiful and the woods are full of doves—lies Cloncurry, in Queensland. The Barkly Tableland rolls between. Leaving this interesting proposition for the moment, we will proceed Northward.

After crossing the Murchison—which is one of the Central Australian mineral possibilities—we get down to Tennant's Creek through spini-

fex and scrub; thence to Powell's Creek, through alternate rich agricultural and pastoral lands.

Powell's Creek Telegraph Station is on the edge of the Barkly. Tracks go east from here, from Renner's Springs Station (30 miles South of Powell's) to Era Downs Station and Anthony Lagoon. The annual rainfall at Powell's Creek is 15 inches. Renner's Springs are located in exceedingly rich, well-grassed country. They belong to the peculiar type of mound springs common in Central Australia, and form a permanent supply. Through all this little-known region, and right across the Barkly to the head of the MacArthur River, water is obtainable at shallow depths, and there is evidence to show that it can be supplied from sub-artesian sources. From Powell's Creek to Newcastle Waters all this country is marked "good." A little to the northward the best forest on this thousand-mile line exists. From Newcastle Waters a trail runs north-west to Victoria Downs Station. The Waters are described as an inland lake 100 miles in circumference. From Newcastle Waters to Daly Waters the way is across a level plateau dotted with fairly tall scrub, in which lancewood and ironwood prevail. After Daly Waters, and beyond the 16th parallel, all the land is rolling downs, with a thirty-inch rainfall, increasing to 40 inches at the Katherine River; where one enters the outer edge of those coastal conditions and climates that obtain for



Pine Creek Railway

the remaining 200 miles to Darwin, and which we have already examined.

From Powell's Creek to the Katherine, for three hundred miles, all authorities agree that some of the very best lands in the Territory are to be found. All this wide region—which we have reason to suppose stretches from the West Australian border to the Gulf of Carpentaria—appears to be adapted for pastoral and, partially at least, for agricultural purposes.

That section of it contained in the Barkly Tableland is undoubtedly among the best in Australia. There are over 80 million acres between these two points on the Overland Route, which are composed of high, well-drained land, immune from drought, enjoying a healthy climate, resembling that of Western Queensland, with proved capacities for the profitable raising of sheep and cattle, and possibly capable of growing specially hybridized wheats.

The reader has now travelled the unbridged gap between Oodnadatta and Pine Creek, and finds none of it classed as desert. One or two strips in the South are marked "poor." The rest is valuable, and should all be turned to profit within a reasonable period. Within that silent storehouse is locked a pastoral and mineral wealth of inestimable values. The Heart of Australia is no longer "dead." On the contrary, it pulsates with red life. From its arteries it will yet pour out vigor and strength through the whole body of the Continent. Let us be done forever with this foolish talk of the "Central Australian Desert." Where the rivers supply fish several pounds in weight; where the fresh-water swamps are alive with game; where Mitchell grass and wild oats grow profusely; where bronzewings and bellbirds call, is no desert, but a sweet and wholesome land, awaiting only transport and settlement to make it as productive as other regions in the South and East and West of Australia. These, condemned as "deserts" by early ignorance, are now proved to be among

the richest in the world. Enterprise, Faith, Good Management—these are the magic words whereby the doors of this Treasure House will be opened. Australia need have no fear of calling the young blood and the strong blood of the world to share the largesse of her boundless acres; there will be enough for all. The "Red Heart of Australia" will carry millions of people. The whole Continent is good from its inmost core to its outmost rind. The Northern Territory of Australia can no longer be looked upon, even by the most prejudiced critics, as the Bad Spot. It is as sound and healthy as all the rest.

In thirty years after the linking-up by trans-American railways, the United States increased its population from 38 to nearly 80 millions. In thirty years from the opening of the Trans-Australian Railways, if the people of Australia act wisely, this Commonwealth should be the theatre of a still greater advancement. The foundation of Australia's exceptional wealth is her pastoral industry. Only a relatively small portion of the Territory has yet come into pastoral occupation. Climate and soil are such as lead to profitable results in other parts of the Commonwealth. All that is required will be the establishment, in certain districts, of permanent supplies of water; which are undoubtedly available as they have proved to be in western New South Wales, Queensland, Western and South Australia.

During the driest time that Southern Australia has known, Sidney Kidman, a man wise in his generation, was sending out of the Territory, week after week, mobs of prime fat cattle to markets rendered unusually profitable by that very dry time.

From the days when John McDouall Stuart first saw and named Chambers Pillar—that remarkable natural monument which may be accepted as the Centre of the Continent—to the year 1914, many fallacies regarding Inland Australia have been exploded. Some of these early misconceptions have clung to the Northern Territory and helped to retard its development. But the settler or the investor of to-day will have all the experience of those intervening years to guide him in his consideration of the Territory as a field for his energies or his capital. He will discard over-prejudiced or unreliable opinion, and form his conclusions from facts.

Stuart himself, although he was the first white man to cross Central Australia, over fifty years ago, does not anywhere describe the country which we have just run over on the map as desert or unfit for occupation. On the contrary, he records frequent watercourses, and fertile lands splendidly grassed. Sturt Plains, the Frew, Daly Waters, the Strangways, he speaks of in glowing



A River of the Farthest North

terms. Of the Roper he says simply: "This is the finest country I have seen in Australia." It reminds one of the laconic entry Governor Phillip made in his logbook, on entering Port Jackson: "I have this day discovered the finest harbor in the world." Phillip and Stuart each possessed the seeing eye.

Stuart gave the Chambers, the Katherine, the Waterhouse, the Adelaide unstinted praise. Summing it all up at Thring Creek (N.T.), on July 24th, 1862, a most memorable day in the history of Australia, he wrote devoutly, cheerfully, and with the direct simplicity of a great mind:—

"I can hear the wash of the sea. Stopped the horses to clear a way whilst I advanced a few yards on to the beach, and was delighted to behold the water of the Indian Ocean in Van Diemen's Gulf. Thus have I, through the instrumentality of Divine Providence, been led to accomplish the great object of the expedition, *and take the whole party safely through one of the finest countries man could wish to behold*; good to the coast and with a stream of running water within half a mile

of the sea. From Newcastle Water to the sea beach, the main body of the horses have been only one night without water, and then got it within the next day. *If this country is settled it will be one of the finest colonies under the Crown, suitable for the growth of any and everything.*"

This was written seven years before I was born. The name of John MacDouall Stuart was one of the first that, as an Australian, I learned to revere. The judgments of middle age—ripened by an experience of this Continent which, in all modesty, I might claim to be exceptional—have strengthened my respect and admiration for this great and brave man. The country which he praised so highly is not yet adequately settled; but there is no reason to doubt that Stuart's perspective was aligned to facts. His viewpoint is strengthened and supported by the opinions of other reliable authorities. . . . Bachelors of Science, who sit down at Emanuel College in the University of Cambridge and form transcendental deductions as to the future of settlement in our Island Continent, are likely to prove false

prophets. But the experienced bushman or explorer, native-born and raised on the frontiers—where physiographic and economic theory so often proves worthless—rarely commits an error of judgment in determining the value of new country.

J. A. Giles—who crossed and examined Central Australia in 1872-4—sprinkles his descriptions with enthusiastic phrases. He speaks of rich chocolate loam, magnificently grassed and lightly timbered, towards the Katherine. The land on either side of this river he describes as “magnificent, consisting of rich, black, loam, chocolate, and brown clay, with lighter soils, all splendidly grassed and timbered.” He confirms Stuart’s good opinions, although his trip was undertaken in a comparatively dry season, and finds valuable lands, with grass and water, all along the overland route from the Katherine to Charlotte Waters. There are a few dry stages; but the great bulk of the Territory north to south is rich and useful. Of the MacDonnell, from the James Range to Barrow Creek, 250 miles, he writes: “It is, as far as climate, water, grasses, and herbage are concerned, admirably adapted for sheep, cattle, and horses. The climate is much milder than in the Northern runs of South Australia, and the country is infinitely better grassed.”

The late Ernest Favenc, speaking ten years later of the Barkly Downs, which he crossed between parallels 17 and 19, classed it, outside of certain poor patches, which are to be expected in any area so vast, as “equal to anything in Australia.”

Favenc was among the first to point out the natural richness of spinifex country; a value which is now practically recognized in North-western Australia, where spinifex chaff is regarded as among the best fodders for stock. Certain varieties of this once-derided plant—which has always been associated in the Australian mind with desert—are now proved to be among the best of our native fodder plants. Mr. A. S. Cotton, one of Queensland’s most successful stock-owners, and part-owner of Brunette Downs Station, in the Barkly Tableland, says:—

“My experience is that spinifex is the best insurance you can have against drought. There is the porcupine spinifex, which is not so good as the other, but it occurs only in patches, and if a drought is on the stock will eat it. I had a run in Queensland, near Hughenden (in the 1900 drought) which was practically all spinifex ridges, and while my neighbours all round me in the black soil country were losing thousands of stock, I came through without any loss at all.”

Favenc believed the spinifex itself was valueless, but he found in his various trips across the Territory, that “even in what is known as the worst spinifex desert, there are vines and grasses that horses and cattle are always eager for and do well on.” Favenc told me more than once that he regarded the Northern Territory as the best part of Australia.

* * * *

A. S. Cotton recently testified before the Railway Commission that, in his mind, the Barkly Tableland was the finest horse and cattle country he had ever seen, and absolutely free from stock diseases. The station mentioned was carrying 35,000 head of stock. He hoped that it would one day carry 100,000 after they had developed their water resources. They had put down six sub-artesian bores to a depth of 200 feet, and had not failed to get water in each case. The supply was worth 2,000 gallons an hour per bore. It rises to within 170 feet of the surface. Geological report shows that bores properly distributed over this tableland, and along the main routes, will ensure safe travelling for men and stock and convert the whole district into settlement country. There are already about 65 private bores on the Tableland, supplying the large pastoral properties. These bores give from 20,000 gallons to 70,000 gallons a day. The supply appears to be inexhaustible. Pumping tests extended over 74 hours to the full capacity of the pumps made no difference in the water level in the bore. It is expected that under this again a true artesian supply exists. Sub-artesian being obtainable everywhere on the Barkly Tableland at an average depth of 300 feet, artesian is considered fairly certain at 2,000 feet or over. The Tableland extends from the Queensland border, near Camooweal, in a north-westerly direction, to within 40 miles of the Overland Telegraph Line at Powell’s Creek—a distance of 300 miles, with an average width of 100 miles. Its elevation is 600 to 1,000 feet above sea level; Professor Spencer says 2,000 feet. Its 20 million acres are generally accepted as the most valuable pastoral and probably agricultural land in the Territory.

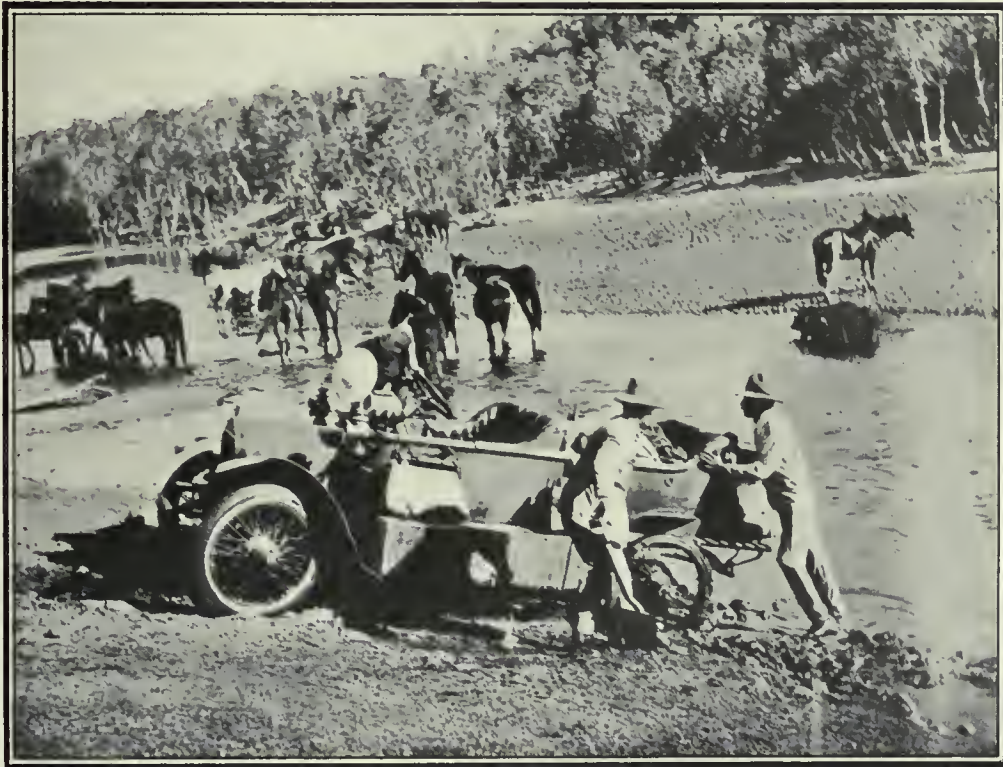
It is proposed as part of Federal development to connect this tableland by railway with a port at the Pellew Islands.

The problems of its settlement do not appear difficult. Economic power for the pumping of sub-artesian water to the surface will have to be established. Shade and timber belts may require to be planted; cheap and quick transport installed. After that, the development of the Barkly as a stock proposition (sheep, horses, and cattle) should be rapid and general.

Alfred Giles, who in 1880 had been six times across the Continent from Adelaide to Port Darwin, with deviations from the telegraph line east and west, has recorded glowing opinions of the Red Heart of Australia. Five of those six journeys he travelled with stock—sheep, horses, and cattle.

“Rolling downs, grassy plains, rich pastoral and agricultural lands, richly grassed slopes; open plains of blue-black soil, capable of producing all kinds of tropical vegetation, permanent

watered by permanent rivers and springs; and our annual tropical rainfall renders the word ‘drought’ as having no meaning here. We have at times a scarcity of feed toward September and December, but, to counteract this, enormous stacks of splendid bush hay could be stored in March or April, and chaffed-up; and who knows what agriculturists may not, ere then, tempt the soil to produce—maize, sweet potatoes, oats, and the Indian grain, that would fodder the shipments of horses on their brief



Crossing the Katherine River

water, abundant water, water easily obtainable at shallow depths by sinking, springs, never-failing streams, lands all that the most exacting settler could require; good timbers, limestone in unlimited quantities, good building stone, rich black-soil flats and valleys; open black-soil plains, with abundance of permanent water in billabong creeks”: these are the features Explorer Alfred Giles had discovered in his journeys across the Territory. Twenty years after, in 1902, he wrote from Borook, his station at Pine Creek:—

“My 25 or 30 years’ experience in this Territory enables me to point to vast areas of such suitable country (for the breeding of horses),

voyage to the East? The country is capable of doing all this, as you know—indeed, it has been waiting the opportunity. Northern Australia will take her place amongst the great producing countries of the world in tropical and semi-tropical productions, besides her immense mineral resources.”

As late as 1914, full of belief, he gave similar evidence before the Federal Royal Commission on Territory Railways. On this occasion he tells us, among other things, that the Roper is suited for mixed farming. Of his own experience, he says that cattle bred on the coast country will do just as well as on the downs country, and that he

has never had the slightest trouble with horses up there.

This man, whose faith has stood the test of 30 years' experience, knows that there is no "dead heart" in Australia. He knows that the core of the Continent, which extends from Charlotte Waters to the Katherine, is sound and good.

Out of this mighty heart what treasures of meat and wool are destined to be poured! By its maternal beats what millions will yet be fed and clothed! As Australians realize their heritage, the industrial pulsations of that Red Heart, feeble now, will grow to constant rhythmic throbs which will send through the great transcontinental aorta floods of national life into the veins and arteries of the whole Commonwealth.

Chas. Winnecke — explorer and surveyor, whose name has also been written upon the maps of Central Australia—says of the Barkly Tableland:—

"I was able to trace the exact south-western boundary of these magnificently-grassed downs and plains from latitude 18 deg. 30 min. S., longitude 134 deg. 30 min. E., to latitude 22 deg. S., longitude 137 deg. E. and 138 deg. E. —a distance in a north-west and south-east



Northern Territory Forest

direction of nearly 400 miles. To the north-east of this line the country which I examined to some distance beyond the Queensland boundary (longitude 138 deg. E.) consists of open, magnificently-grassed Mitchell grass downs and plains, intersected by numerous large and small watercourses, some of which, from the volume of water that sometimes flows down their channels, have been termed rivers. Two of these were discovered and named by me, viz., the Playford and Buchanan Creek. These—like the Rankine, James, and Herbert Rivers, and Creswell, Brunette, Corella, Lorne, Happy, and other creeks—have clay channels, containing numberless large and small waterholes, some of which have been known to last stock several years without being replenished. Excellent facilities for large dams exist almost everywhere in these rivers and creeks.

"The bluebush, of a few feet in height, and the polygonum, which sometimes attains a height of 20 feet and more, are most excellent feed for stock. My horses, of which I had a very large number, thrived amazingly on these two plants. Almost without exception, the whole of these tablelands consist of this variety of country. The famed Mitchell grass predominates everywhere, but several other allied grasses are found interspersed with it. This is most noticeable near the belts of timbered country.

"During my connection with the development of this country near the Queensland border, I ascertained that abundance of water can be obtained at a depth of about 200 feet below the surface. At this depth, apparently, there is a strong and unlimited underground flow of water northward, on which exhaustive pumping could make no diminishing impression.

"I was employed in surveying and sketching or mapping this country for nearly 18 months, during two summers and a wet season, and found the climate equal to that of the temperate zones further south. The temperature ranges from 26 deg. F. in June to 120 deg. in January. During this latter period, however, the prevailing south-east breezes neutralise the general effect of such a high temperature.

"Fever is an unknown ailment here; no single instance then and since has come to my knowledge. The elevation of this country above sea-level on the western parts is about 800 feet, and on the eastern portions near the Queensland border, latitude 22 deg., about 450 feet. This, I think, may account for the equable climate.

"In my opinion—which I expressed then against the general conviction, and which has



Horses from the MacDonnell Ranges

since been verified by actual proof—this country is eminently suitable for sheep that have thrived in higher latitudes immediately to the westward, and on greatly inferior country, without showing any deterioration either in the wool or carcase after a number of years.

“The average rainfall is about 20 inches, though this has been greatly exceeded of late years.

“My experience of the Northern Territory extends over 35 years. *I have been astounded at the frequent mention of desert country. My experience is that some of the finest pastoral country in the world is found in Central Australia.* Water, principally artesian, is more abundant than supposed. Gold is scattered all through this vast area, one quartz range showing gold for fully 36 miles. The Orabarra Reef, in the Jervois and Tarlton Ranges, has never been visited by any white man but myself. Professor Tate and experts Watt and Achimiovitch (members of the Horn Expedition, of which I was commander) all stated that the best indications of diamonds exist to the west of Charlotte Waters. Coal of good quality is found in the MacDonnell and more northern areas. It speaks for itself that more than a fourth of the Territory is settled with stations, mines, etc. *I have no hesitation in declaring that it will be the finest and most remunerative country in Australia.*”

David Lindsay and W. H. Tietkins, both men whose names are inscribed on the honor roll of Australian exploration, have published optimistic conclusions regarding the Territory. Mr. Lindsay is the author of an enthusiastic book, entitled

“Territoria,” which, as well as Mr. Simpson Newlands’ valuable collation on the North-South Transcontinental Railway, I have found most interesting and useful.

Travelling westward from the MacDonnell Ranges, Mr. Tietkins finds “beautiful streams of water, luxuriant pasture, grassy mulga flats covered with luxuriant herbage; flat, well-grassed country; delightful weather, charming surroundings, the evening air laden with the delicate perfume of many wild flowers; flowing springs, really open country, rich in every variety of pasture; very splendid and well-grassed country; more bright flowers in blossom all round, their varied hues and delicate tints presenting a brilliant and ever-varying panorama of splendor, eclipsing all the vetch which grows here in patches of an acre or two; the color of its flowers, a bright carmine, forming quite a feature of the landscape.”

Judging by this it will be vain to look for that mythical “Australian Desert” in this direction.

Descanting on Lake Amadeus and the adjacent country, Mr. Tietkins says:—

“Within view of this Lake Amadeus are two of the most remarkable features in Australia. I refer to Mount Olga and Ayers Rock; but it is a subject that baffles any power of description. This granite wall, with its several indents or bays, is half a mile long, I dare say, and right at the foot, or foundations as it were, and in the indents, deep pools of beautifully clear cold water will be found, upon which the sun never shines, the granite walls rising quite perpendicularly on either side for over 1,000 feet. Mount Olga is a few hundred feet higher than Ayers Rock and covers a much larger

area, and, I think, quite inaccessible. The wall on its northern side is quite as perpendicular as that of a room, and towards the top it hangs over: but from the foundations of this monster there issues a stream of beautiful water that is as permanent as the hill itself. It runs for a few chains over a pavement of coarse pudding-stone or conglomerate, and is then lost in the sand."

Professor Sir Baldwin Spencer describes Ayers Rock as "a huge dome-shaped monolith, brilliant Venetian red in color, a mile in length and five miles in circumference: its sides rising precipitously to a height of 2,500 feet, it stands out in lonely grandeur against the clear sky." . . .



An Ant-Hill

The MacDonnell Ranges and the Barkly Tableland have been proved, and are only awaiting railway communication to increase their present productiveness, perhaps a hundredfold. With the establishment of transport and water supply, it would seem that the white spaces on the map, which stand between them, will also be filled. Our knowledge of these spaces is not yet complete; but, as far as it carries us, we have every reason to believe that they will have their uses and values like the rest. With the conservation of water in certain places, they will at least have grazing values equal to other parts of Australia which are being profitably worked.

Those regions which spread across from the overland telegraph to the West Australian border, north of the 19th parallel, have been, for the most part, already determined. They include the famous Victoria River and the huge cattle stations of the Bovril Australian Estates Limited, Connor, Doherty and Durack, Joseph Bradshaw, Copley and Patterson, W. T. Buchanan, and others.

These holdings comprise a solid block of leases 45,000 square miles or more in area, extending from the mouth of the Victoria, nearly as far as Tanami goldfields in the south. Much of this country should ultimately come in for closer settlement. There is a large extent of volcanic soil on the Victoria Downs, which has been described as similar to that of Mt. Gambier—easily one of the most fertile districts in Australia.

Southward from the head waters of the Victoria, fine sheep country also exists.

Mr. L. A. Wells, who in 1907 completed a trigonometrical survey of 32,000 square miles between Pine Creek and the Western Australian border (one-half of which he declared arable) acquired during his two years and two months' work much valuable information concerning this section. His report on the "Character of Country Adjacent to the Victoria River" appertains to an area of 10,000 square miles of what he describes as "splendid pastoral country, generally thinly wooded and luxuriantly grassed with a species of Mitchell grass, Flinders, and other rooted and annual varieties. This area," he says, "includes about two and a half million acres of plains, elevated flats and downs, consisting of black, brown, and red soil, a large portion of which is very rich, being fertilized by the decomposing basaltic rocks. The whole of the country is fairly well timbered. About 130,000 head of cattle were then depasturing within the 10,000 square miles in question. Owing to so many advantages—the numerous and abundant natural waters, prolific grasses, and assured rainfall—it is an ideal breeding country for stock, and I doubt if there is a better cattle country in Australia. In my opinion, about one-half of the 32,000 square miles, equal to 10,240,000 acres, is good arable land, whilst the whole area has collectively a herd of 200,000 head of great stock depasturing thereon. A large portion of the best country is but lightly stocked on account of the absence of natural waters, whilst the whole of the herd mentioned are dependent on natural supplies. With increased facilities and by keeping the stock out from the permanent supplies as long as possible, this area would depasture 400,000 head of cattle. A considerable portion of this area, comprising the lower end of the Victoria River Downs run, Wave Hill run, and south-east thereof, Invermay, Gordon Downs, and portions of the Ord River run, is suitable for sheep-raising on extensive lines. The Flora, Daly, and Katherine rivers are running streams all the year round, whilst the Victoria and Wickham rivers have beautiful reaches, several miles in length, of deep and wide permanent waters. There are also many other permanent supplies off the rivers."

Wm. F. Buchanan has testified regarding the thousand or so square miles held by him on the

Victoria that "it is some of the best in the Territory, and the increase and health of cattle raised there are good." As regards the expenses of carrying on the industry, Mr. Buchanan held that "increased population and a greater amount of energy thrown into pastoral matters will reduce them. The Territory is as good as Queensland for pastoral pursuits."

is no inconsiderable stream. Its course runs east to west. Deep water prevails at the mouth of the Fitzmaurice; but there is a whirlpool tide. The Fitzmaurice waters the northern section of the Bradshaw pastoral limit.

Fifteen miles south of Victoria River Station, it is stated, the good sheep country begins, and extends in that direction for 200 miles, and



Palms, Krichauff Ranges

Cattle-raising began out here in the early 80's. It has had ample time to prove itself. The herds have ranged from 2,000 to 40,000 head on these stations. There are still immense tracts to come into occupation, and the carrying capacity of those taken up can doubtless be greatly increased.

Victoria Downs Station has an area of between eleven and twelve thousand square miles. It is mostly Flinders grass country, well watered. At the end of 1912 this station was carrying 107,000 head of cattle and 900 head of horses, which was not within 30,000 of its estimated capacity. The rainfall here is between 23 and 24 inches, well distributed.

The Fitzmaurice River, which enters the sea some 20 to 30 miles northward of the Victoria,

10,000 square miles in the neighborhood of Longreach and Wave Hill are suitable for dairy farming.

Wave Hill Station—classed by Americans as superior to any cattle lands in the United States—has an area of 10,725 square miles, and was recently carrying 75,000 head of cattle and 1,500 horses. With the establishment of a sub-artesian water supply, the manager estimates that it will support 40 or 50 thousand more. He regards sixty-five per cent. of Wave Hill as being suitable for sheep. The average rainfall here is about 20 inches, distributed from September to March.

Stock from this station have been driven, year after year, across to Newcastle Waters, over to Corella and Lake Nash, and down the Georgina

to Glengyle in Queensland. This route crosses the Northern Territory from north-west to south-east, and takes over the border into Central Western Queensland. Cattle must have grass and water, as any tyro knows. It will be superfluous, therefore, to seek for the supposed "Central Desert" on this route.

Although there is little yet known of the unmapped spaces to the southward—which extend from the Western Australian border-line right across the Territory to Queensland, crossed only by the Telegraph line—it is believed that a good south-eastern stock route can be established from the Victoria River districts to the overland telegraph line.

Mr. Davidson in 1900, on his mineral exploration, made several journeys to and from the Telegraph line. Mr. Alec Ross crossed with camels from Tanami after the rains. His trip, from Tanami to Alice Springs, was safely completed in 29 days.

On his return he took a more southerly trail, and reported traversing some very good country en route.

It has been recommended that the Victoria River should be connected with the proposed main trunk line by a branch line from Katherine River. Looked at with other eyes than those of the cattlemen, who have proved the good land for their own particular industry, such a railway should be a sound national investment.

The Western Coast has a rainfall of 50 inches, which gradually diminishes to 20 inches at Wave Hill, between 200 and 300 miles inland. Fruit and vegetables will grow freely over this well-watered belt of 50 or 60 million acres; rice and sugar-cane mayhap on the alluvial plains of the lower Victoria; sheep and horses on the uplands—this vast corner of the Territory is undoubtedly rich in productive possibilities.

The Victoria has the longest watershed—approximately 100,000 miles—and is the most important river in the Territory. At its mouth it is 26 miles wide, and is navigable on high tides for 25-foot vessels as far as Blunder Bay, where there is good anchorage in 6 to 7 fathoms of water. Altogether it has 110 miles of navigable waters.

Between the two proposed points of connection lies Willeroo—another undeveloped, fertile district—and the head of the Daly, of which we have already read the most favorable reports.

The Flora River Falls are along this route, 55 miles from the Katherine. The Flora is a tributary of the Daly. It is described as being slightly different to all the other rivers in the Territory, and carries one of the largest volumes of water. According to Mr. T. H. Pearce, of Willeroo Station, an experienced pastoralist:—

"It is estimated that 90,000,000 gallons per hour pass over the Kathleen Falls. From the Kathleen Falls to the junction with the Katherine, a distance of 15 miles, is one large water-hole. The depth of the water just below the falls is 70 feet or more. Above the falls the water extends for 8 miles, and on the loamy banks a considerable area of land suitable for agriculture is to be had."

On the southern edges of the Victoria leases, lies (Mucka) Clare Innes Station. Crossing the 18th parallel East of here one enters a land of which little is known. In the opinion of Mr. Pearce—who has crossed this hinterland—with railway communication and a proper conservation of water, it will carry 20 to 30 millions of sheep easily, and a great number of big stock as well.

He describes it as level throughout, with edible spinifex, grassed patches, and a little stock bush. Water is obtainable at shallow depths.

The reports of the Davidson Central Australian Mineral Exploration Expedition, 1898 to 1900, greatly confirm this view. Mr. Davidson (who first located Tanami), although his mission was purely geological, found at least one 500-mile square of "splendidly grassed pastoral country."

The southern trail from Mucka to Tanami takes the occasional traveller through alternate poor and good land. In 1911, Mr. Lionel C. E. Gee, then Magistrate and warden in the Territory, went down to Tanami from Mucka, 170 miles, and was agreeably surprised to find that the term "desert" applied to this region was a misnomer. Mr. Gee reported that—

"Large areas of good and fair pastoral country exist throughout, so far as the vast extent of waste lands has been examined; and I have come to the conclusion that, apart from the mineral probabilities of Tanami—which I trust will be systematically and thoroughly tested later on—the pastoral possibilities are great, and that altogether the effect of the Tanami discovery is to add a new and valuable province to the Northern Territory.

During the hot and dry time, when there seemed little for the animals to eat except spinifex, the horses and camels kept in splendid hard condition and, to use a bush expression, 'you could ride all day without wetting the saddle-cloth.' Many practical stockmen have expressed to me their convictions that Tanami district will prove an ideal place for horse-breeding.

The country may be classed as rolling downs of considerable general elevation, determined

by the Government Geologist's barometrical observation as about 1,400 feet above sea level, sandy rises, red loam flats, stony rises, stony and sandy table country; these alternations extending for vast distances in every direction. Low trees, bushes, and spinifex, are seen everywhere. Spinifex is generally regarded as an abomination; but there are three varieties here, two of which contain very nutritive qualities, and are good fodder plants for stock as a standby. When in seed after the rains patches look like waving oatfields. There are, of course, extensive areas of useless desert spinifex. The long red loam flats which are frequently crossed are well clothed with many sorts of bunchy grass, bushes and patches of mulga and supplejack—the two latter being excellent camel feed. . . .

The conclusion is forced upon one that, apart from the considerable auriferous probabilities of the district, there are pastoral possibilities which will, sooner or later, be intelligently developed and utilized; probably in the first instance in the direction of horse-breeding, for which the country seems particularly suitable."

The recorded rainfall at Tanami for 10 months was 15½ inches, three times greater than that of Oodnadatta and surrounding districts (800 miles south), wherein the pastoral industry has long been successfully established. The heat of midsummer Mr. Gee found to be—

"dry, burning, clear, and not unhealthy; and every day there is a breeze of more or less strength from the south-east. The nights are perfect throughout, nearly always still and cloudless, and, owing to the elevation of the country, a coolness in them which makes sleep natural and refreshing."

The months of July and August were cold, the lowest register being 50 deg. Bright, sunny days and cold, clear nights—the typical winter of Inland Australia.

Hall's Creek (W.A.) lies 220 miles north-westward of Tanami by a well-watered track.

Mr. Worgan, now of Darwin—who acted as warden at Tanami for 12 months while this field was being actively worked by small parties of miners a few years ago—thinks well not only of the mineral, but the pastoral prospects of the district. He regards it as good "dry" country quite suitable for occupation under ordinary Australian conditions. He advises a thorough artesian survey of all the southern portion of the Territory. On his return journey to Darwin Mr. Worgan walked 600 miles (from Tanami to Pine Creek) beside his camel.

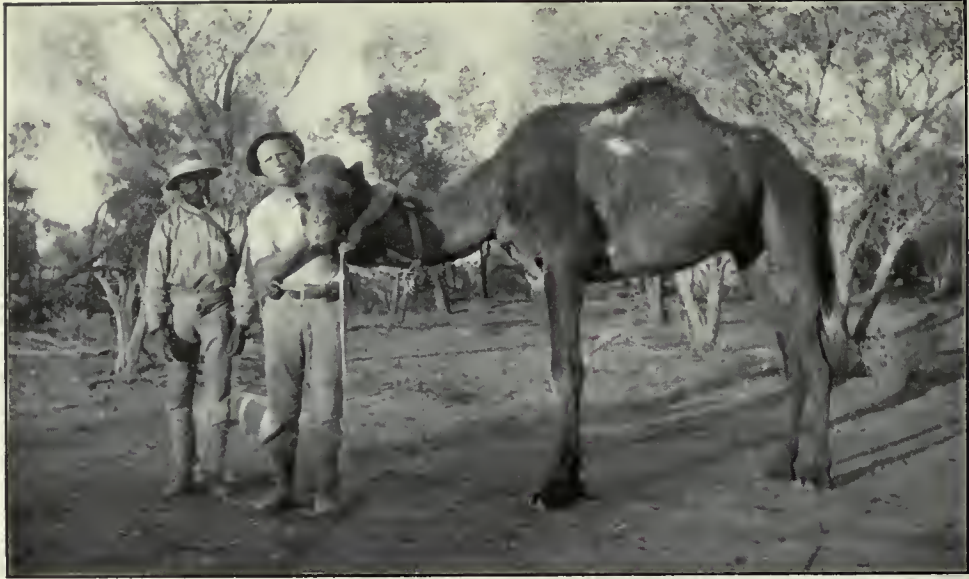
I value Mr. Worgan's judgment quite as highly as that of any disappointed prospector who failed to locate a great Boulder or a Mount Morgan in these remote regions.

Evidence adduced before the recent Federal Railway Commission leads us to believe that even the remote south-western corner is capable of profitable occupation. Sub-artesian water is supposed to exist, and 50 per cent. of the land at least carries good edible bushes and grasses.

The south-western corner is similarly possible. With the establishment of these final facts, I must unreluctantly announce to those chronic pessimists who have clung for three generations to a belief in an ever-receding "Australian Desert," that this bogey is now definitely relegated for all time to the Limbo of Ancient Lies. It will have for mendacious company in these shadowy realms, to which we now consign it, many a hoary fable gathered from the classical geographies of an unreliable past.



A Garden at Alice Springs



The Prospector's Camel

MINERAL RESOURCES.

OUT of a mass of contradictory opinion, emanating from both practical and theoretical sources, we will now endeavor to form a reasonable estimation of the mineral resources of the Northern Territory, as far as they have been examined.

The history of operative mining in these yet imperfectly known expanses of Australia, which lie between the 26th parallel and the Indian Ocean, is condensed into a comparatively small volume. It is advisable to turn the leaves very carefully, and to let the "bulls" on one page engage the "bears" on the other as best they may.

Gold was first discovered, in 1869, by Government survey parties on the Blackmore and Charlotte Rivers. There is a fixed belief among a majority of those who have had any experience in the Territory that misdirected enterprise, bad management, and unreliable labor alone have prevented their country from equalling or eclipsing the adjoining States of Queensland and Western Australia as a producer of useful and valuable minerals.

This belief has some foundation in fact. At the same time we must consider that first South Australian and then Federal Governments, would hail with delight the discovery, in this unoccupied possession, of a field such as Kalgoorlie or Charters Towers. Taking the scientific aspect first, we find the Rev. J. E. Tenison Woods, as far back as the year 1886, predicting that the penin-

sula of Arnhem Land will become one of the great mining centres of Australia.

The whole of the geology of the Northern Territory, Tenison Woods describes as being "of a simple kind. The formations are few in number. There are no fossils, and the exposed sections are numerous and clear."

"The most conspicuous, as well as the most common, is mica slate. It is not crystalline, and therefore I do not call it metamorphic. At Talc Head, Darwin, the brilliant show of mica which there occurs marks the occurrence of five or six mineral lodes; also at Snadden Creek, McKinlay Mine, and Mount Shoo-bridge. The whole of this formation is paleozoic, and probably, from its mineral character, of the same age as the auriferous slates and schists of Victoria, New South Wales, etc. In those colonies it is called 'lower silurian,' but, in justice to Professor Sedgwick, should be named 'upper Cambrian,' or (as proposed as a compromise) 'Ordovician.' There are no fresh fossils to verify this identification. Plant impressions are certainly found in the slates at Pine Creek, but they cannot be identified as yet; but the whole character of the formation is such as to leave little doubt on the mind of the geologist as to the identity in age with the auriferous deposits elsewhere.

Dykes.—In every part of these deposits there are dykes, mineral lodes, and faults.

Near Port Darwin there has been a considerable overflow of ancient lava, which now consists of a few hills of diorite, a volcanic rock of deep blackish-green color and waxy lustre. It consists of crystals and hornblende, mixed with felspar, triclinic in small quantities. Until more carefully examined, the rock at Port Darwin camp may be called 'diorite.' There are also diorite dykes in many places, especially where the gold has been abundant, such as at Margaret Creek and other places. In addition, the country is interlaced in abundance with dykes or veins of a greyish-blue flaggy rock of volcanic character and extraordinary hardness. The term generally used by the miners for the outcrops of the heads of a vein is a 'blow,' and the idea of their origin is connected with the action of fire. Whatever may be the origin of veins, it is certain that the burnt red and black appearance is the result of exposure to the action of air and water, which has rusted the iron ores and decomposed the other minerals. For a long time past the miners have had a prejudice against what are called 'ironstone blows,' or caps of lodes in which there was a great development of peroxides of iron. They have often been tried and found poor in gold, or destitute of it, so that even prospecting them has been generally abandoned. There are a good many throughout the district, and the majority have been untouched. They are the heads of true mineral lodes, the mineral character of which will not be determined until the water-level is reached. Silver, copper, and lead are the principal minerals to be expected in them, with, probably, a little gold. I think they are rich ore, but not suited for ordinary methods of treatment, or the battery appliances in use here. New and patent methods for the separation of the ores will have to be adopted.

Granite.—All round the mining area is a belt of granite. I infer that it is a complete ring, though I have not traced it in every part. Thus, granite is found on the west side all along the telegraph line, and on the east side all along the valley of the Mary, on the north side from the Fergusson to within four miles of Pine Creek, and on the south about the neighborhood of the Finnis River. On the north-west and south sides of this belt the granite is pink in color, coarse grained, with large crystals of orthoclase felspar often two inches and more in length. Usually this coarse kind of granite is termed granite porphyry. On the west side it is partly of this kind, but on the east its place is almost entirely taken up by blue, close-grained granite—a valuable stone. On all sides this granite crops up into hills of

100 feet and more in height, but never quite so high as the metalliferous slates.

The existence of this belt of granite round the mineral deposits is of the greatest importance. It is a state of things which all experience has taught to be the most favorable for mineral deposits. Usually the greatest richness is found at the edges of these formations, or rather at the junction of the slates with the eruptive granite; and from what I have seen, this locality seems to be no exception. All along the east side of the ranges, or the valley of the Mary River, there is a continuous outcrop of mineral veins almost upon such junction.

It would seem as if silver, lead, copper, and tin were the metals developed on the edges of this junction, while gold exists generally throughout the slates. But the district is hardly sufficiently prospected to form safe conclusions. The width of this ring of granite varies as far as it is known. On the south of Pine Creek it is at least 15 miles wide, and in some parts of the valley of the Mary it must be nearly as much, as well as on the north. On



Primitive Windlass

the west it is overlaid by sandstone and magnesite rocks. An accurate geological survey of this line of junction would lead to the discovery of many mineral lodes.

When the belt of granite is traversed we find that the metalliferous formation again crops out on the north and south—thus the whole country between Southport and Port Darwin consists of that formation capped here and there with a little magnesite. There are many quartz lodes, and I am of opinion that the outcrop of ironstone in ridges of black nodular limonite marks the locality of mineral lodes. There is every reason to suppose that the junction between the granite and slates on the outside of the granitic ring should be as rich in mineral lodes as the inside line of junction. Mineral lodes, which become barren in passing from one country to another, become metalliferous in returning to the country from which they took their origin. Thus, then, the edge of the granite country on the outside of the belt to the westward of the telegraph line, to the south of the Fergusson and north of the Finnis should be prospected, and may prove to be rich in minerals."

Such was the opinion of one of the foremost Australian geologists twenty-eight years ago, regarding the more northern portion of the Territory.

Between the years 1873 and 1891, 261,801 *recorded* ounces of gold, won principally by Chinese, were exported from the country. As mining has been very largely in the hands of Chinamen down to the present day, such results as are obtainable must be accepted as mere approximations, and will be much under the actual values.

By that time, it had been pretty conclusively proven that the country was rich at least in gold and tin.

Between first discoveries in the coastal districts and the present time, several fields have come into passing prominence: Arltunga (in the MacDonnell Ranges), Tanami, the Katherine, and others more or less known to investors.

Mr. H. Y. L. Brown, for many years Government Geologist for South Australia, examined many metalliferous districts throughout the Territory, and contributed much useful and interesting information to our still imperfect knowledge of its mineral resources.

The rocks forming the Musgrave Ranges, he declared were most favorable for the occurrence of metallic minerals. Of these remote regions he gave a scientific judgment: "It is reasonable to expect that in a country composed as this is of highly metamorphic granite rocks, upheaved

and intersected by igneous dykes, metallic minerals exist and will be found when the country has undergone thorough exploration."

Mr. Allan Davidson's party located and proved low-grade reefs in the Murchison Ranges between Barrow's and Tennant's Creeks, which were too remote from railway transport then to be payable, but should prove profitable when the Transcontinental Railway reaches this district.

It must be remembered that, geologically, Central Australia remains to be mapped. The Great Paleozoic Plateau takes in the Musgrave and MacDonnell Ranges. The astoundingly rich gold deposits discovered in West Australia occur in these rocks. The Paleozoic Plateau, with its auriferous possibilities, occupies the greater area of the Northern Territory. It rolls in metamorphic folds across from the known gold-bearing regions of Western Australia, to the known gold-bearing regions of Queensland, holding within its silent, time-worn heart, heaven knows how many Great Fingals, and Great Boulders, as recurring birthday gifts for young Australia.

Pilbarra, Ashburton, Murchison (W.A.), Southern Cross, Coolgardie have been some of the plums in this old metamorphic pudding. It is reasonable to suppose, with the geologists, that the Territory has received its share of the argenteriferous ingredients with which that ancient housewife, Time, enriched the dish.

Mica, tourmaline, beryl, and garnets are all plentiful in the MacDonnell Ranges. Low-grade gold has been located by prospectors at many places, which later on will pay to work.

The principal mica localities are on the northern watershed of Hart Range, in the vicinity of Mount Palmer; where the gem stones mentioned also occur. The number of mica-bearing dykes is considerable. They extend over a large area. A little mining has been attempted in this district. This industry requires capital, and depends upon the price obtainable for the product. When the railway enters the MacDonnell, like other mineral propositions there, it will no doubt pay.

Mr. Brown, in 1904, pronounced Arltunga to be a very promising field, with large bodies of fairly rich gold-bearing stone. On Hatch Creek and Coodinga, which are both in this southern division, he inspected two small quartz reefs, then returning prospects of about 20z. of gold per ton. The White Range, Arltunga, he reported as remarkable for the extraordinary number of auriferous outcrops spread about within a short distance of one another. He believed at the time that with good management, economic mining and treatment of the ore, large and payable returns of gold would continue for many years to come.

Gold was discovered in the matrix at Arltunga in 1897, at which time the gullies and ravines thereabout were being worked for alluvial. This goldfield is in the MacDonnell, 70 miles north-east of Alice Springs Telegraph Station. From the White Range Block, in 1902, 209 tons of stone yielded 472 ounces, approximate.

Arltunga field—which is pretty well watered—has yielded a fair amount of gold to date. Profitable mining is likely to go on there for years.

Transcontinental Railway, it is exceedingly likely that many payable propositions will be opened in this proved gold-bearing region.

In the more northern fields, mining has been carried on with vicissitudes for more than 30 years. Gold, tin, copper, wolfram, silver-lead have been won in payable quantities, and continue to be won, but there have been no sensational developments such as the high geological opinion



Chinese Bagging Dried Concentrates

Mr. Brown held that the Territory was an extensive and valuable field for mining operations; that it required to be opened by deep-sinking on those parts already located, and that a large proportion of likely country remained to be prospected.

Mr. A. Davidson's extended mining exploration of eleven thousand square miles east of the transcontinental telegraph line, during three years 1898 to 1901, did not result in the discovery of a field which under the conditions could be regarded as payable. Mr. Davidson located several gold-bearing reefs, including Tanami, which has since yielded a fair amount of gold. He discovered copper and opals, and, in several localities, alluvial gold.

The elevation of the MacDonnell country examined is 2,000 feet. With the opening of the

of Rev. Tenison Woods, for example, would have led us to expect.

Seven years ago, 1907, the gold bullion produced and recorded for the year (exclusive of the MacDonnell Ranges) was 8,023½ oz., valued at £23,504. For the same year the northern fields gave 436 tons of tin, worth £41,365. The chief tin-producing districts then were Horseshoe Creek, Mt. Todd, Mt. Wells, West Arm, and Snadden's Creek. Shows were being worked also at Mt. Shoobridge, Mt. Tolmer, The Finnis, and the Daly River. Horseshoe Creek and Mt. Todd stood first in point of production.

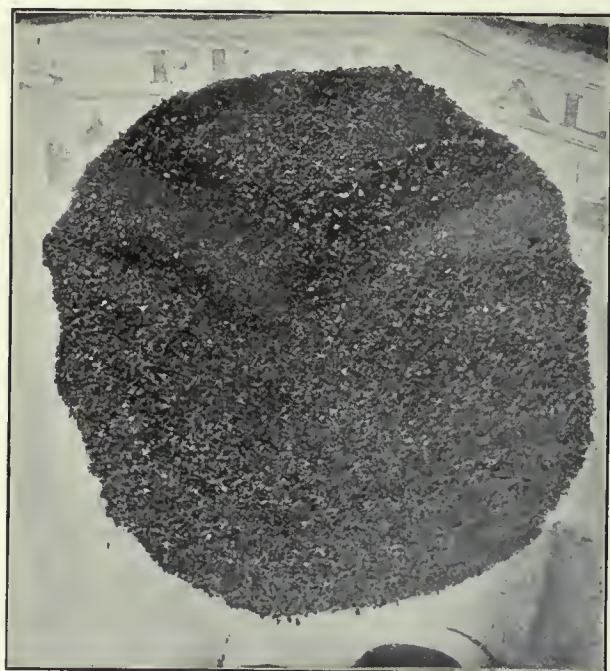
About twenty thousand pounds sterling worth of copper was the total for that year, which, with four thousand pounds worth of silver-lead, and eleven thousand pounds worth of wolfram, made up the whole mineral production of the country,

from the MacDonnell northward. Chinese miners were then receiving six to eight shillings a day, and European miners three pounds ten to four pounds a week.

Chinese carpenters and engine-drivers received eight to nine shillings a day, as against £4 and £6 a week to Europeans.

In the following year the output of gold was slightly less, but its value slightly more. Tin showed a slight decrease owing to a fall in price. Copper and wolfram fell. Altogether, the total decrease of Territory production in minerals for that year was £37,490.

In April, 1909, gold was first discovered at Tanami in payable quantities. In the same year



Tin Concentrates

alluvial tin was found at Umbrawarra, near Pine Creek. That year the Territory returns (northern section) showed a slight increase.

Its best five consecutive years had been a total yearly average of £108,000. Its average during the five years preceding 1909 was £90,456.

During 1910 some silver-lead and zinc propositions in the Boolman locality were brought prominently before the public by a Melbourne syndicate, £10 shares reaching £180 in a couple of months, a few being purchased locally at the latter figure. This rash speculation, coupled with incorrect statements and erroneous published reports of the marvellous richness of the formations, caused a rush to that locality. A large area under mineral lease applications was taken up by speculators, who formed

syndicates, but on the receipt of a report by Mr. Wilson, a mining expert, condemning the field, all the holdings were abandoned.

The Umbrawarra tin show was worked out and Tanami abandoned the year before the Territory passed over to Commonwealth control. It was not a bright one as far as mining was concerned. From 1894 to 1911 the total *recorded* value of minerals won was £1,500,000 (approximately).

During 1911 the mining industry showed no genuine improvement, and little development work of a progressive nature was carried out.

In 1912 the Federal Government appointed Dr. H. I. Jensen, D.Sc., Director of Mines and Chief Government Geologist for the Northern Territory.

Like the Rev. Tenison Woods, Dr. Jensen seems to have formed a high opinion of the mineral resources of the Territory. He is a scientist of great energy and considerable reputation, and appears to have determined upon an exhaustive personal examination of the land in which he occupies such an onerous and important post.

Already Dr. Jensen has supplied us with geological reports on the Darwin mining district, the MacArthur River district, the Barkly Tableland, and a progress report on the geological survey of the Pine Creek district, all of which have been now issued as official bulletins by the Department of External Affairs.

Dr. Jensen has come to the conclusion that certain reefs at Pine Creek are "saddle reefs," resembling in mineralogical formation the famous saddle reefs of Bendigo.

Mr. H. Y. L. Brown, years previously, examined the field, and was inclined to that belief. Since Dr. Jensen's period the field has been visited by Mr. E. J. Dunn, until recently Government Geologist of Victoria. Mr. Dunn has pronounced the Pine Creek field to possess a close structural resemblance to Bendigo. He says: "*I am satisfied that the gold-bearing quartz will be repeated in saddle after saddle as one sinks upon it. I am satisfied from the work already done on the surface that the stone is rich enough to warrant a large expenditure of money.*"

Since then Mr. Oliver, now Director of Mines, has very carefully plotted the reefs of the fields, and shown them to be nearly all saddles and legs of saddles.

These conclusions are highly important. If correct (and there is a strong weight of expert evidence) they set aside the contention of mining critics that the gold of this, the most important and productive field yet located in the Territory, does not live to a depth. It is a curious thing, that in the earlier years of Broken Hill this theory

was also current. "The saddle nature of the reefs," says Dr. Jensen, "accounts for the prevailing idea that the reefs are purely superficial. In no case has a shaft been sunk deep enough to catch the next saddle below. So consistent is the southerly pitch that one may safely predict numerous saddles—at least six or eight super-imposed at the south end of the field. In no instance has any but the topmost saddle been worked. That the gold is as good in the lower, unexposed saddles as it has been on the surface, is not only certain from geological deductions, but the table of assays shows that rich stone has been obtained from considerable depths by diamond drilling. Altogether six bores have been put down at Pine Creek and two at the Union, seven miles north of Pine Creek. In two of the Pine Creek bores no lodes were met with, though small quartz leaders carrying gold were frequent. (Nos. 2 and 4.) In two others only low-grade quartz reefs, but in Nos. 1 and 6 good values were obtained."

Of the assays mentioned, No. 1 (date 29/4/13), Pine Creek, at a depth of 486 feet, on bore angle of 45 deg., vertical depth 343.61 feet, gave 2oz 4dwt. 1gr. of gold, and 100z. 1dwt., on average of 1ft. of stone.

At about 360 feet vertical depth No. 6 gave 4oz. 11dwt. 11gr. gold.

"It is therefore certain," concludes Dr. Jensen, "that by sinking shafts on the south end of the field saddle after saddle of rich quartz will be met with." Further investigations with the diamond drill are being made.

Pine Creek field is over forty years old. Up to date it has yielded about one million pounds' worth of gold, mostly won by Chinamen working as miners for Europeans, who hold the mineral leases.

The Eleanor claim gave one man 9,000 ounces of gold in five years. In the Christmas Mine, 35 tons of stone gave 480 ounces, and as high as 40 ounces per ton have been reported from another mine. In November, 1894, the New Thunderer Mine reported crushing 150 tons for 872 ounces of gold, at a depth of 70 feet. In 1891, a crushing from the Republic gave 255 ounces of gold from 9 tons of stone.

If returns such as these are to be repeated at lower depths, then the last has not been heard of Pine Creek as a gold-producer, providing always that labor and costs are not going to so reduce the profits that the legitimate investor will hesitate before embarking his capital here.

The field, as the writer saw it in the latter part of 1912, presents a discouraging spectacle, owing to the rooting and burrowing of Chinese, which has been going on for so many years. Still, on the claim next to where the diamond drill was ex-

ploring at that time, it was reported to me that six hundred tons of stone, raised within the previous six weeks, had gone six ounces of gold to the ton.

Despite antiquated Asiatic methods, a general air of squalor and untidiness, and ubiquitous evidence that the Chinaman had followed his inevitable "white-ant" policy, I came away from the mineral region around Pine Creek and Brock's Creek with a haunting belief that it was like a strong child which had met with an illness. I felt that proper treatment only was needed to effect a cure; that its temporary disability would not prevent the child in question from entering later upon a vigorous youth. . . .

Dr. Jensen has examined the metalliferous area on the MacArthur River. Giving evidence before the Railway Commission, he condensed his information as follows:—

"Around the MacArthur head station, about 40 miles from Borroloola, there is a large metalliferous limestone area, in which I think several permanent lodes will eventually be discovered. So far, only the small leases of the nature of aggregations have been worked. The ores found in this limestone country are chiefly



A Territorian



Turtles

complex silver-lead zinc ores, which do not pay to work in such a remote region. I believe that when railway communication is established between the MacArthur River and a port in the Pellew Islands, this metalliferous area will support a great many miners, and it might then become possible to open the large ore bodies and erect smelting works in the district. The development of this field would certainly not pay under existing conditions. Further back at Yah Yah, still in the MacArthur River district, there are other copper lodes, out of which a few tons of excellent copper ore have been taken. But, of course, mining did not pay, for the reasons already given. The Yah Yah country is very similar to the district between Carlton Hill and Argilla in the Cloncurry district.

"Encircling the Barkly Tableland is a rim of metamorphic rock which is highly mineralized, but none of the mineral veins hitherto discovered has been large enough to warrant extensive operations. With the establishment of transport many of these smaller shows could be opened up and profitably mined, and larger ore bodies would be sought for and probably found."

In 1911, a prospecting party, under agreement with the Acting-Administrator, left Pine Creek for the Roper River and Caledon Bay, which lies some thirty or forty miles southward of Cape Arnhem.

They found several new rivers and added greatly to existing knowledge of the physiography of that region. This party was absent from May to September. It examined a circuit 704 miles in length. With the exception of what they believed to be antimony—found in small quantity in the Ranges between Caledon Bay and the Goyder River—no mineral of consequence was discovered.

Much of the lands traversed, however, they reported suitable for cultivation, as we have already seen.

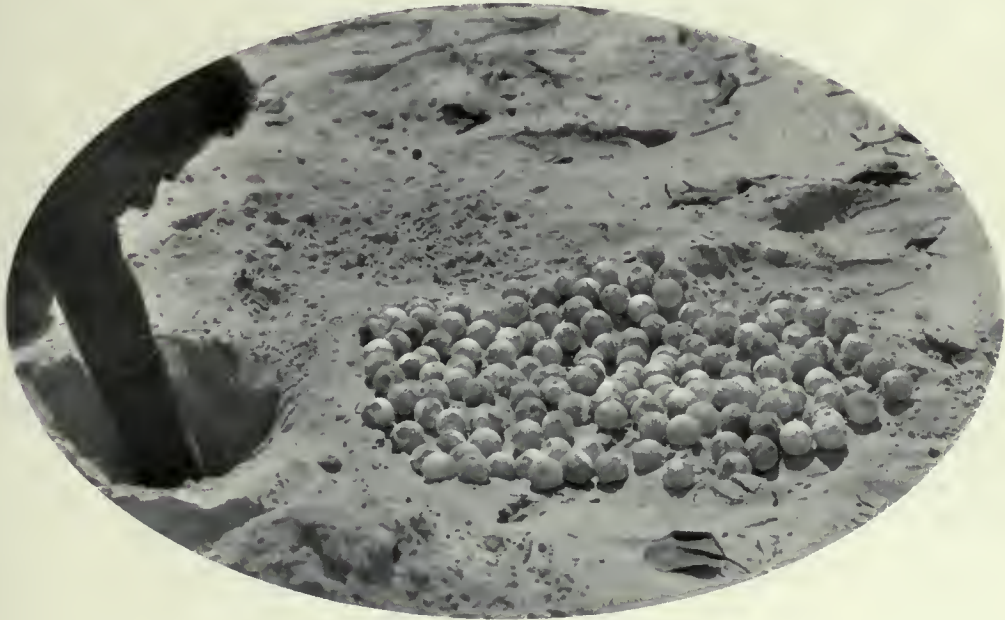
Professor W. G. Woolnough made a geological examination of certain mineral areas in the Territory about the same time. His report from a mining viewpoint is extremely non-committal.

"Mt. Diamond," he says, "is another of those depressing places so frequent in the Territory, where thousands of pounds worth of mining machinery is standing idle, although report states that, at the time of cessation of work, the ore values in the mines were most promising."

The Rev. Tenison Woods many years previously said of Territory mining generally:—"Not one of the mines hitherto worked or abandoned has been exhausted of gold, not 25 per cent. of the auriferous reefs of the country have been fairly tested. A slight examination convinces me that many of the reefs in the Territory contain rich metal, even though the prospector has turned away from them."

In regard to Wolfram Camp—Territorially described as the richest wolfram mine in the world—Professor Woolnough remarks:—"The main wolfram lode is situated in the slates at their immediate junction with the granite, a position which seems most favorable to the development of the mineral on a large scale." The tin claims hereabouts he describes as of small dimensions

Approaching Horseshoe Creek, the scene changes from the auriferous belt to one of tin. Much attention has recently been directed to the tin-bearing region, of which this is a part. From the Horseshoe—which lies between Pine Creek and the Katherine, about 40 miles from the former place—the field extends in a north-easterly direction to Hidden Valley. This stretch of tin-



Robbing a Turtle's Nest

and not much value. But, beyond the limits of the granite, in a southerly direction in Hidden Valley, very promising tin shows were being worked among the slates. He says:—"It is not poverty of mineral which renders the granite workings unprofitable, but its dissemination over such a wide area. The tin particularly is distributed through the granite in considerable quantities, but nowhere in sufficient abundance to render extraction on a large scale possible. Only by working on the scale on which Nature does is concentration possible. By the weathering of the granite and the sorting of the weathered materials by running water, the tinstone has been concentrated as alluvial tin, under the alluvials which form the extensive plains of the district. Whether it can be recovered from these economically is a question which can be answered only by trial. By means of well-equipped dredges it might be possible to save the tin, as has been done in other places. The association of tin and wolfram introduces an awkward problem, as these two minerals have so nearly the same specific gravity that it is very difficult to separate them by mechanical means."

bearing country resembles the Irvinebank field in Northern Queensland.

The metalliferous area at Horseshoe is about 5 by 2½ miles; Hidden Valley about the same. The country is traversed by fissures running N.N.W.-S.S.E. The fissure lodes in the chlorite schists are themselves rich in tin, and the chlorite schists on either wall of the lode impregnated with tin also. It is considered that if a battery capable of treating formation about 1½ per cent., at a profit, were established there would be a great future for this area. Existing batteries cannot treat ore going less than 5 per cent. tin profitably. Great local faith exists in the future of this field, which seems to be shared by the geologists.

Mt. Todd tin mines are located a little to the southward of Horseshoe Creek.

Below Katherine Telegraph Station are the Maude Creek gold mines, now abandoned. This area appears to be patchy. The belt eastward to Urupunga on the Roper has, so far, not displayed any special claim to mineralogical attention.



Copper Mine, Coronet Hill

From Pine Creek to Sturt's Creek, on the western side of the Overland Telegraph, a geological map made by H. Y. L. Brown, on L. A. Well's topographical survey, does not show any metaliferous rocks of mineral value beyond the Pine Creek and Katherine regions. This survey took in Willeroo, the head of the Flora, and the Victoria, as far as Gordon Downs Station—between the 18th and 19th parallels. Between this point and Tanami some gold-bearing areas were located.

Tanami, although it added a short picturesque chapter to the history of Territorial mining, did not prove another Coolgardie. Its remoteness, while adding to the romance of the field, greatly handicaps any chances it may still have. The nearest store and hotel are at Hall's Creek, in Western Australia, 235 miles. The nearest place of afternoon call to the northward is Victoria River Depot, 410 miles.

Mr. Worgan, who was at Tanami for twelve months, assured me that the country for 100 miles around is worth prospecting. But when the Afghan carriers charge £40 a ton carriage on supplies from Victoria Depot, and £27 a ton from Hall's Creek, neither of which are exactly centres of civilization—it will be realized that

the ordinary prospector, who, after all, is the surliest gold finder, anywhere, is somewhat handicapped.

The difficulties of getting to and from Tanami have also to be considered. Davidson located the field in 1900. In 1904 Davidson, Lawrie, and Campbell got on to payable gold there. Half a dozen daring spirits had visited the spot in the interval. Lawrie's party were unable to remain, as the water in Tanami rock holes, their only visible supply, gave out. In 1906-7-8 Lawrie, with different mates, went back and worked while the water held. Lawrie, Lambert, and Brown worked together in 1908. In 1909 Brown perished while travelling from Gordon Downs to Tanami.

In 1909, Government Geologist Brown went down and examined the place. On his return to Pine Creek he telegraphed to the Minister for the Northern Territory in Adelaide, that the field was an important one, and that the rich stone found near the surface would live to a depth. The lode formation of the district he described as "typical auriferous country."

Just after he left, Lawrie's party found 21 lbs. of stone carrying 180 ounces of gold. More alluvial was discovered about the same time. With this a limited rush to Tanami began, which ended badly for some of those who joined it.

In 1910 Government well-sinkers established a water supply, after the little isolated population had undergone a most anxious time.

The discovery of good water at 163 feet was followed late in February by rain. In three days eleven and a half inches had fallen. The whole face of the country changed as if by magic. Rock holes, swamps, lagoons, were overflowing, and green herbage carpeted the face of the land.

Experienced miners on the field were full of confidence in its future, and hung on bravely. A mining expert from Adelaide, despatched at the instance of syndicates in that city, however, sent in an unfavorable report, which apparently discouraged the investment of large capital. The prospecting parties were composed of men of limited resources, and Tanami, although it had yielded about £10,000 of high-grade gold, gradually sank into a state of suspended animation.

Prospectors working from Tanami as a base have located gold at various points within a radius of 52 miles. Gold-bearing reefs have also been reported between the MacDonnell Ranges and the Barkly Tableland. The values of these are believed to be high enough to make their working payable if some means of communication were established. Mr. Davidson—who was undoubtedly a most careful and thorough mining expert—has placed on record the following conclusions, which we must regard as having a very

CENTRAL AUSTRALIAN ABORIGINALS



Native Rock Drawings





Men who are Needed for the Territory

important bearing on the future development of this part of Australia:—

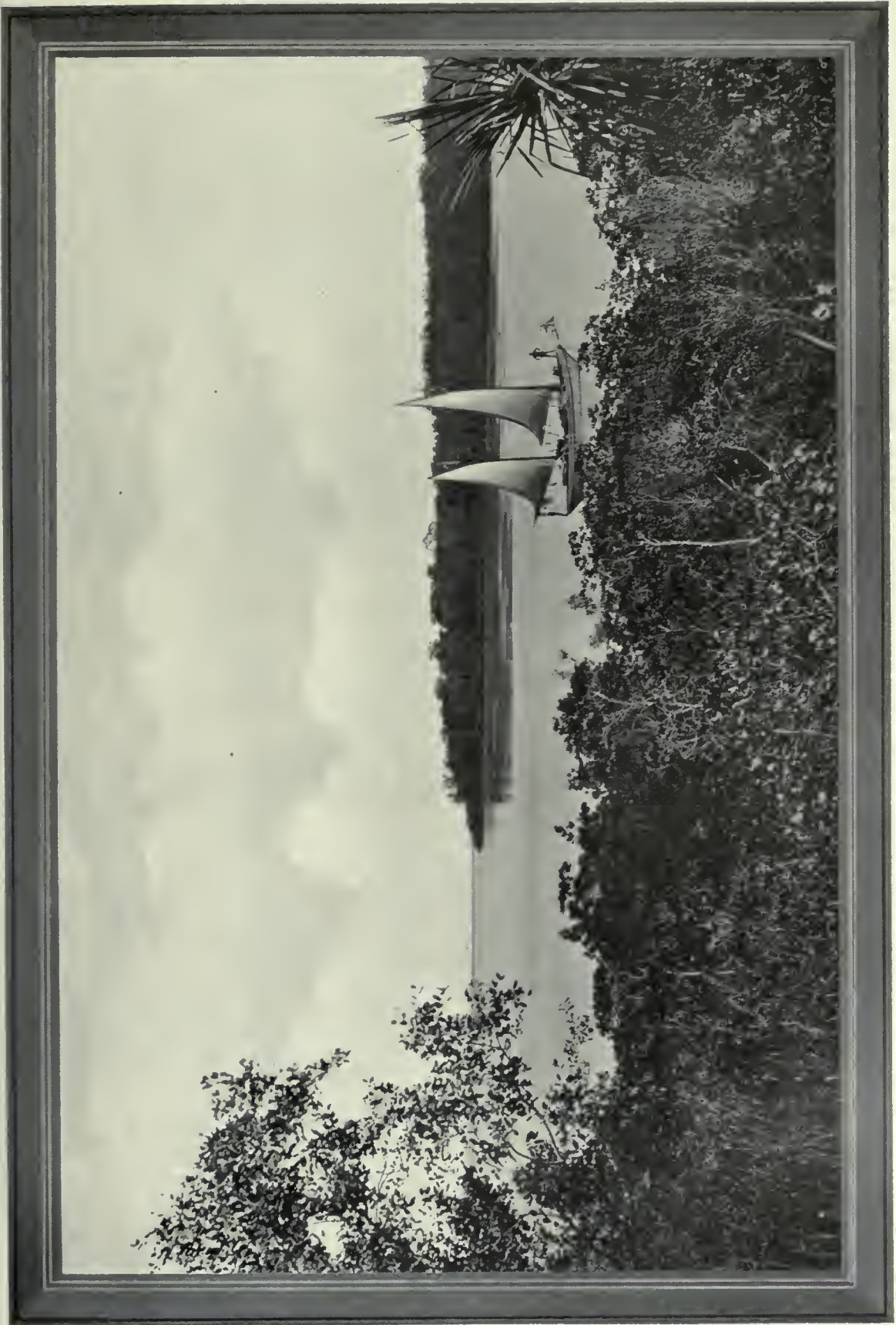
“Taken together, all these belts represent a very extensive area of metalliferous country, and of such a promising character that the results obtained appear contradictory to all ordinary indications. The fact that in most instances the returns were low-grade is a marked feature of the reefs throughout these regions. At the same time I am convinced that many—under more favorable conditions—will pay to work; also, to all those connected with prospecting, it is only too well known that a large element of luck enters into this work, and it is but rarely that the pioneers of a country strike the good things it may contain. This occurs, despite the most careful working; and, although in this instance it was the rule to test everything in the nature of a lode or reef, I am only too well aware that, notwithstanding the fact that I was well supported in the desire to miss nothing, the best may still remain to be unearthed by successors. *The country is there and the gold is there, and it remains for others to improve on the prospects obtained.*

Throughout the lower Northern Territory there is an enormous area of metalliferous rocks, extending throughout the MacDonnell Burt, Treuer, and the ranges south of the western end of the MacDonnell, and also in the vicinity of and to the north and north-

east of Anna Reservoir country and the Buxton Range. In addition to the known gold-bearing areas, much of the country included in these ranges will, no doubt, be proved to carry gold; but nothing but a series of rich discoveries would advance the country under present conditions.

The one essential feature necessary for the development of the interior and the opening of payable goldfields is cheaper communication. This can only be accomplished by continuing the Transcontinental Railway across the continent. An extension from Oodnadatta to the MacDonnell Range and the Arltunga goldfield would very materially assist in opening the interior, and make other portions more accessible. The possibilities this country contains certainly warrant a great endeavor (even at a sacrifice for a time) being made to create a central mining population. As in any other country far removed from the manufacturing centres, a very heavy initial outlay will be required to develop the mining industry of the interior; and, in view of the advantages to be derived from this source, no effort or expenditure should deter those in authority from constructing a line which would induce strong mining companies to operate in Central Australia.”

This statement was taken from Mr. Davidson's notes on country explored east of the tele-



King's Cove, Fort Dundas, Melville Island



White and Black

graph line, printed after three years' close scientific prospecting, in which he located Tanami and added greatly to our general knowledge of the hinterland lying to the east and central west of the Overland Telegraph line. The indications are favorable to the existence of alluvial gold.

Of the possibilities contained in the Tanami country he held a highly favorable opinion: "When once payable lines of reefs are discovered in narrow belts of exposed country they will be traced into the areas now covered with sand and alluvium; thus opening up enormous possibilities."

Dr. Jensen estimates that there are 100,000 tons of two-ounce stone to be worked in the claims that have been pegged on the Tanami field

Dr. Jensen visited the field, where he saw 13,700 tons of ore exposed, which he estimated to be worth 14,000 oz of gold. This alone would keep a 10-head battery, dealing with 24 tons a day, occupied for two years. Dr. Jensen further said that the claims in the neighborhood should have 100,000 tons of stone to work on, containing, on the average, 1 oz. of coarse gold and 1 oz. of fine gold, or 2 oz. a ton. Within a mile of the Tanami well, there were 60,000 tons of quartz available for treatment.

East of Tanami some fine pastoral country was discovered.

From Darwin to Tanami is 696 miles.

The indefatigable H. Y. L. Brown, Government Geologist for South Australia, conducted extensive surveys and examinations over the north-west, north and eastern parts of the Territory from 1905 to 1907.

He reported to some extent hopefully on the auriferous prospects of the mines then working in the neighborhood of Brock's Creek, and found the indications favorable to payable deposits of copper, and of lode and alluvial tin, in the Daly River district, where much mining has been done. Mr. Brown declared that there was a large opening for dredging and hydraulic sluicing in the Territory.

"The following," he says, "are the principal alluvial diggings eligible for inspection by those interested in hydraulic sluicing by up-to-date methods:—For gold—Bridge Creek, Howley, Pine Creek, Union, Brock's Creek, Fountain Head, Woolngie, Wandi, Yam Creek, Shackle, Houschildt's Diggings, The Driffield, Maude Creek and Mount Gates, Margaret; for gold and tin—Sandy Creek, Horseshoe Gully (west of Spring Hill).

Water would have either to be conserved in dams or obtained by pumping, and operations would probably have to be suspended during the dry season in most cases.

For bucket dredging the following river and creek flats and low-lying country are likely propositions:—For gold—Mary River (upper branches), Watt's Creek and McKeddie's diggings, Little Phillips River, Adelaide River (heads of), Darwin River, Mount Ringwood diggings, Blackmore Creek, Tumbling Waters; for gold and tin—McKinley River and branches, Edith River, Ferguson River, Cullen River, Margaret River, Finnis River and branches, creeks and flats below Mount Wells; for tin—Mount Tolmer (creeks and flats), Bynoe Harbor district.

In these a good supply of water, in most cases running, is available. At Mount Ringwood water could be obtained from a large lagoon."

So far, mining enterprise has not responded to what seems an exceedingly likely proposition.

Mr. Brown estimated about 7,400 square miles in the north-western section as metalliferous—gold, tin, and copper being the principal metals. Much of this still remains to be scientifically prospected. He found that in spite of vast sums of money having been put up by English capitalists,



A Surveyor's Camp

with the avowed intention of developing well-known lines of reef at a depth, a shaft which, away back in 1886, had been put down 300 feet at Spring Hill, remained the record depth!

Among the mines which had been practically abandoned, so far as mining development is concerned, but which he held should be systematically re-opened, the following may be mentioned as examples:—Eureka and Maybell, gold, silver, and lead; Evelyn, silver, lead, and zinc; Extended Union, gold; Daly River Mine, copper; Mount Wells, tin; several mines on the Pine Creek and Union lines of reefs.

As a result of his examination of the north and north-east coast, the South Australian Geologist recommended to be prospected for gold and other metallic minerals the areas around Melville and Caledon Bay, the tributaries of the Roper northward, westward, and southward of Leichhardt's bar; the MacArthur country, and particularly the Alligator Rivers and the country to the southward drained by their tributaries.

A Government Exploring and Prospecting Expedition to the south-western portion of the Territory in 1905-6 added another bright little story to the history of Australian exploration; but proved practically resultless from a mining point of view. The party was under the command of Mr. F. R. George, who died at Alice Springs on his return from the wilderness, leaving the note-

books of the expedition—written up to date—to be posthumously published by his Department. Australia is fortunate in the possession of public officers like F. R. George, late of the South Australian Mines Department. If any reader of *Australia Unlimited* should ever reach Alice Springs, I would ask him to stand at this man's graveside—if he were buried there, as I presume—and tender the military salute. It will be a little act of recognition to the memory of a good soldier of the Frontier.

His Journal, which has a pathetic interest, is before me as I write this. The party left Todmorden Station near Oodnadatta, S.A., on September 28th, 1905.

Their route was laid to the southward of Ayer's Rock and Mt. Olga, below Lake Amadeus. It ran down the Petermann Ranges to the West Australian border, between the 24th and 25th parallels.

The entry in the Journal opposite October 15th reads:—

"Travelled on, bearing 240 deg., until our outgoing pad of last trip and followed this to about two miles S. 60 deg. E. from Mitchell's Nob. Recent native tracks. Passed several small clay-pans containing water. My birthday, and am now 32 years of age. Camp No. 14."

The expedition had a hard time. Two men were treacherously speared by natives, but recovered. Some of the camels died, and, it being mid-summer, the heat was trying to men isolated and depending, as they were, on what water supplies they might find in the new lands they were traversing, under the additional handicap of two temporarily disabled comrades. The party returned to Alice Springs on 31st March, 1906, where sudden change of water and diet affected the leader, who had been weakened by the strain of the preceding months. After a brief illness he died on April 4th.

The Journal records the discovery of good pastoral patches; but no payable mineral was located.

The work of this expedition was continued by Mr. W. R. Murray, to the east and west of the Overland Telegraph Line, and through parts of the Davenport Ranges. Most of the time was spent in seeking for an alluvial field, as low-grade reefs would not pay owing to remoteness.

As with the earlier trip under the leadership of F. R. George, this examination disclosed no more than the presence of gold in reefs here and there. Colors were got by dry blowing.

The climate was described as splendidly healthy, and travelling in the cool months extremely pleasant.

Since the writing of this book began, favorable reports have been published regarding a fresh

discovery of tin at Maranboy, some 50 miles from the Katherine River Telegraph Station. The field is remote. Dr. Jensen, after an examination, has determined it to be two to four miles in width, and covering an actual area of about 20 square miles. Twelve tons of ore bagged yielded nearly 50 per cent. of concentrates.

So far Mt. Wells has been the best tin mine in the Territory. It has yielded about one-third of the total output. Unusually rich tin ores have been worked to profit at Bynoe Harbor, and on the Venture Syndicates' claims at Horseshoe Creek. Distance, cost of production, and cost of transport have all to be considered.

Like most other industries in the Far North and Centre, developmental mining will need first the aid of good roads and railways, and, unless the discovery of exceptionally rich fields—such as Broken Hill, Kalgoorlie, or Ballarat—brings inevitable activity and investment, progress will be slow. As the case stands, there are a limited number of openings for judicious investment, and a large field for speculative exploration.

A vast region which has been proved to contain copper, lead, iron, tin, gold, tantalite, mica, and gems is worthy of thorough scientific exploration. The most modern machinery, labor-saving appliances, adequate water supplies, transport, and the best of management, will be necessary even after payable fields are opened.



Camels Drinking at a Creek

SOUTH AUSTRALIA



North Terrace, Adelaide



ADELAIDE AND THE HILLS.

SOUTH AUSTRALIA was proclaimed a Province under the British Crown in 1836. It was granted self-government in 1857, and entered the Federation as an Australian State in 1901.

Its present area is 380,070 square miles, with a population of less than half a million.

I noted these facts in a guide-book as the Melbourne to Adelaide express roared up the incline from Bacchus Marsh on Thursday, April 11th, 1912.

Brown autumn lands of Victoria—some in fallow and some newly turned by the plough—were fading into dusk. I was going West to travel through all the winter months, but I would not see a flake of snow!

On the platform at Ballarat I foregathered with a spectacled stranger, who told me that blacks were still dangerous between Wyndham and Pine Creek, but if I interviewed one Durack in Perth he would be able to give me more specific information concerning a trail into the Territory which I wanted to take later on.

From the casual way in which that stranger spoke, Durack might have been just across the platform, so I guessed my fellow-traveller was an Australian.

We breakfasted at Murray Bridge, where they specialize in fried fish.

Between the Bridge and Mount Lofty I discussed agricultural machinery with the son of an American manufacturer, who was touring Australia for pleasure—plus business. He said the firm already had 9,000 ploughs at work in the

Commonwealth. Wheat-growing lands of South Australia were evidently being turned by American ploughshares.

The plough-maker thought Australia a wonderful country, but greatly undeveloped.

At Mount Lofty one saw orchards laden with ripened fruit, beautiful homes tucked into corners of the hillsides, almond groves and gardens ablaze with color.

Then came distant views of Adelaide from the train windows—Adelaide, which vies with Hobart for beauty and charm. The surrounding country was brown and dry, as the end of summer usually finds it, but the capital city displayed no depression or anxiety; dryness is a passing condition well understood by South Australia.

I went uptown to see some old friends, and heard for the first time of the West Coast, where they were opening new wheat lands. The people had discovered that there were some ten million acres of new bread-producing land over there, but were not excited about it. Canada, at the period, would have been announcing the fact from all the railway hoardings and lecture platforms in the United Kingdom. Over all that valuable area (I again remembered) settlers during a lifetime would never experience a fall of snow!

The City of Adelaide one always finds bright, breezy, busy, and sunny. Speedy electric-car services run down its wide streets. Automobiles and motor-bikes rubber along; solid stores and warehouses proclaim the permanence and importance of its commerce. But whiskered, tanned faces, sprinkled through the city throng, bring to mind

broad sunlit spaces behind this prosperous centre of South Australian population. Out there old colonizing features, old identities, old characters, and slow, bush ways still prevail. Out there pack-horses and camel-trains are more frequent than motor-lorries, and occasional white horses of the Mounted Police are the only outward and visible signs of government and law.

Casual visitors who behold at the Adelaide Tourist Bureau, fruit in jars, mineral specimens in cases, paintings of wild flowers and photographs of selected scenery, cannot realize the long, long distances that lie beyond the easy garden tracks of touristdom. Away north and west, the red heart of a continent pulsates with vigorous life.

In his pleasant villa at Rose Park, my old friend, Fred Johns—whose "Notable Australians" and up-to-date "Annual" are standard works of reference in every newspaper office library—talked of South Australia with life-long enthusiasm.

Some years ago he bought a piece of land in an eastern suburb of Adelaide, where he could enjoy a view of the hills and sleep quietly in the mornings. Now he cannot see the hills for houses, and he cannot sleep late after long nights at his office because of hammering and sawing from the building of new houses and more new houses. His only consolation is that he can sell his home at a considerable profit and get farther back to escape the rush of on-coming Adelaide. He uses these facts to illustrate the progress and prosperity of the city. Its cleanliness, order, and good government were too apparent to need illustration.

The beauties of North Terrace make Adelaide's chief attraction. Here or hereabouts are concentrated most of the public institutions, the Museum, Botanical and Geological Gardens, Public Art Gallery, Technical Colleges, and so on.

Buildings of great architectural charm face a square of beautiful gardens, wherein green palms, glorious flowers, and fountains afford patriotic citizens constant satisfaction.

Under arches of roses the lovers of this southern capital may walk on Sundays. The people seem peculiarly gentle, neither so active nor so assertive as the folks of Sydney, nor so commercially alert as the folks of Melbourne. Mayhap the great empty spaces beyond the city have imbued them with a spirit of quietude and rest.

Adelaide is located upon a plain which begins to slope upward into hills towards the south and east.

To the South Australian capital these hills are an eternal boon. In fertile valleys much garden produce is raised. Orchards enrich their slopes, out-of-town residences and sanatoria nestle

upon their summits. They ripen juicy strawberries and exceptional peaches for the city markets. Their vineyards, olive groves, and almond trees yield valuable harvests.

Visitors, taking a tram to the foothills, can walk from the terminus of one suburban system to another—along a series of dipping and winding roads bordered by hedges of grey olives. Fronting these rural roads are many delightful little mansions and villas surrounded by vines and foliage. The city sleeps in sunlight below, blue waters of St. Vincent's Gulf beyond it making a panorama of tilth and beauty which is probably without equal in the world.

South Australia, "Our Lady of the Sun," was enjoying her beneficent winter when I came to her with note-book and kodak in 1912. The green gardens, bright flower beds, and rustling cotton palms of Adelaide gave me pleasant welcome.

I stood in King William Street at 5.30 p.m. of a soft April afternoon to watch the crowd. The sunlight, clarified and golden, with a tinge of red in it, illuminated the tops of tall buildings; the air was fresh, it carried a faint odor of ripened fruit and new-mown hay—the autumn flavor of a good season drawing to a close.

A well-dressed, comfortable crowd of pedestrians filled the pavements. Along a wide street, roofed by blue sky, waggonettes with two horses—universally well groomed and well fed—were making a leisurely pace. White-capped tramguards and motor-men with khaki coats propelled their swifter conveyances skilfully through the traffic.

In sunset light the Town Hall spire seemed like a shaft of gold. At Government House gates stood a guard house, without sentries. Wildfowl played and splashed on the artificial lake beyond. Every street running east and north gave a distant view of the hills. On green lawns of Parliament House grounds hydrants were showering and sparkling sprays of water.

No pale, ragged operatives wended a weary way homeward. Active young men on bicycles, smart girls in trams, having completed their eight-hours' day in shop, office, or factory, rode cheerfully away to suburban cottages, where gardens and pianos were the rule. Adelaide has no slums, no congested quarters, none of the poverty and depravity of Old World cities. It is gloriously clean, prosperous, and Australian!

From the pointsman in his cage aloft, who directs the street cars in the way they ought to go, to the last apprentice in the street, from the automobile proprietor to the gentleman driving the municipal dust-cart, they all had their privileges and their chances.

Who visits Adelaide for the first time will certainly give an early day to the Hills. White winding roads climb into these by gradual ascents at different points. One usually goes up by one route and returns by another.

As the ascent is made, one turns at elbows of the road to look back upon Adelaide, with its spires and gardens, its broad avenues and squares of green.

Up in the ranges there are many picturesque villages. I have seen them in the springtime, all

see the rural side of South Australia. He may turn from Clarendon towards Mount Lofty, where dainty villas and more pretentious mansions of the rich make cool retreats in summer. Coming through thinly-timbered hills to Piccadilly, he will pass many vineyards.

On Piccadilly flats most of the vegetables consumed in Adelaide are grown. Market gardeners here are a prosperous class. They have good substantial homes, and some possess motor-lorries to cart their produce to market. The Chinaman is conspicuous by his absence.



Orchards in Mount Lofty Ranges

blossom and fragrance. That year I rolled through them in autumn, when their poplars were turning golden. The orchard trees were disrobing themselves of tinted leaves, preparing for winter sleep—a habit acquired from older lands, which they have not yet learned to discard. Briars hung red berries over our track. Old inns invited rest. Old stone houses slept amid their shade of laurel, hawthorn, and pine.

Through lovely Coromandel Valley and back through the delightful village of Clarendon will be a pleasant run for the motorist who wishes to

Through valleys, filled with perfume of ripened apples and quinces, the motorist comes to Norton's Summit, where the finest panoramic views of Adelaide are expanded for the enlightenment of visitors.

A great deal of this interesting and picturesque hill country is yet open for new settlers, who can do well with orchards, vineyards, and gardens. The climate is benign, living cheap, and markets within an hour's journey. As the city expands the area under settlement through the hills will extend also.



Piccadilly, from Mount Lofty Ranges



Ostriches on a Port Augusta Farm

PORT AUGUSTA, HERGOTT AND THE GREAT INLAND.

SOME of my most interesting travel days were spent in Broken Hill. An account of that astounding city of the "Wilderness" will be found elsewhere. It was on a Sunday night that I left it. Pleasant acquaintances I had met gave me final farewells at the railway station, as if they were really sorry to see me go. Broken Hill may not be a beautiful place, but it is exceedingly hospitable.

The sleeping-car was stuffed with mining magnates, including a Hill millionaire—somewhat stout and wheezy from good living.

I climbed awkwardly into a top berth in the narrow car and slept, more or less, until I felt the conductor quietly shaking me at 4.20 a.m. I had arranged to pull off at Petersburg, which seemed a remarkably quiet and starlit place when I slipped off the express a few minutes later.

At the railway station bar two travellers were quietly drinking; a tired-looking woman and a child sat in the waiting-room. Roosters were crowing somewhere in the darkness.

A hotel-runner with a rich Irish brogue seized my gripsack and piloted me to the "commercial" room of his hostel, where I amused myself until daybreak writing in my note-book impressions of Broken Hill.

That morning I spent enquiring into the prospects and products of Petersburg and its surroundings. I found that this important railway junction was 1,800 feet above sea-level, that it had become the centre of a wheat-growing district

constantly increasing in area, and that the average rainfall for 31 years had been 13.03 inches. On this rainfall, with fallowing and the use of phosphates, local soils produced up to 20 bushels of wheat per acre.

Water was procurable everywhere by sinking to depths of from 80 to 200 feet. The local supply was entirely from such wells or dams.

Minerals, including radium, were present through the adjacent country.

In the afternoon I entrained for the North. Blue, cloudless skies and a new light of special actinic quality made glorious a Central Australian day. Through wheat lands, ploughed and fallow—chocolate or red in color—the railway ran for many miles.

The country was bare of trees, except for occasional clumps of mallee. Distant hills glowed in orange and purple lights, sharp of outline, Australian, and very loveable to Australian eyes. Their slopes must be beautiful beyond expression when spring rains call the land, and from end to end it emeralds in reply.

Farther north, as night falls, naked hills take on the most delicate tints of violet, orange, and blue—the clarity of the atmosphere brings their outlines out like a contour map.

In dry, gravelly creeks, beautiful eucalypts spread a grateful shade. Little groves of cypress pines appear at intervals, the rest is physiography and intense color.

Port Augusta is destined to become one of the most important places in the Commonwealth. Located at the head of Spencer's Gulf, it will be the terminal port for two transcontinental railway systems, which are destined to open up the north, centre, and west of a continent. With 27 feet of water at its wharves, it is capable of berthing vessels of highest tonnage.

By the time this book has gone forth the East-West Transcontinental will probably be open for traffic. The line between Katherine River in the

rose color in early light of morning—these features impress themselves on the traveller's memory.

There is no running water to be seen at this time of year. There are chocolate fields ploughed ready for wheat, but no green growths in a hundred miles. These come later with seasonal rains. Out of its unleached soils this land will give highest agricultural returns. Its possibilities are yet imperfectly realized. It has been damned as "desert," but it is no more desert than countries



Flinders Range

Northern Territory and Oodnadatta may be some years in construction, but it is part of our Federal policy, and must be accomplished.

Australians do not yet realize what the construction of these two great inland highways will mean to the Commonwealth. Even Port Augusta, when I visited it in 1912, had not thoroughly awakened to its good fortune.

En route to Hergott Springs I left that interesting little town dreaming by the shores of its gulf. Sunrise spread over the hills above it—such a sunrise as one gets out in this clear, dry atmosphere—an inundation of softest shades in orange and purple, gradually revivifying and glorifying the earth.

Coarse red sand, saltbush, dry creek-beds bordered by spreading gum trees, pointed peaks,

which carry close populations under correct treatment.

Loaded at little solitary railway stations, without platforms or much convenience, wheat in increasing quantity already goes down each year along cheap narrow-gauge South Australian lines, from places once regarded as utterly unsuited for farming.

At Quorn one buys meat pasties and sandwiches for the long train journey to Hergott and Oodnadatta. Quorn is a place of green trees, gardens, and good hotels—the best in the North. Teapots and hampers are part of travellers' outfits.

Once a fortnight the train goes right through to Oodnadatta. Water for the locomotive is carried along on trucks fitted with specially-constructed tanks. This section of railway crosses

into a part of Australia with lowest recorded rain-falls.

A man with a corrugated neck and a dried portmanteau occupies the seat opposite. We engage in conversation. Out here strangers become friends at once. Everybody seems friendly, patient, good tempered.

The man with the dried portmanteau is managing a sheep station covering 15,000 square miles. He knows the Cooper and Lake Eyre as well as I know Collins Street, Melbourne.

Our route takes us over Flinders Range, a remarkable mountain system of great geological age. Its sharp, pointed summits are treeless; its sides and slopes, generally speaking, destitute of vegetation.

Millenniums ago those bare roots of worn-down mountains were perhaps covered by tropical forests. Some day, when possible storages have been established and subterranean sources of water supply located, the lands below, now the home of sandstorm and mirage, will be permanently green again.

A sudden patch of perhaps forty acres nicely timbered and covered with waving grasses, as the result of a natural uprising of underground waters, shows what fertile properties these loose red sands contain. One good shower of rain will always cover this country for hundreds of square miles with waving grasses and nutritious

herbage. In ordinary times it is the home of the goat, the donkey, and the camel. In good seasons it will depasture sheep and cattle by the thousand.

All day the train rolls northward from Quorn. We pass through Beltana, which was a base for exploring expeditions in early days. Good saltbush grows here, and there are frequent shade and permanent water.

Between Beltana and Leigh Creek there is a series of flat pancake hills, with time-worn edges, all pointing southward. Then come masses of red ironstone and low hills covered with saltbush.

At Leigh Creek they have located good coal.

Over red, gravelly plains spreading to the horizon, over grey saltbush, over Lands Beyond the Plough, there rose full-orbed a clear, wonderful, Central-Australian moon!

So by a narrow-gauge track, unfenced—where the train sometimes runs over a strayed camel—the traveller comes at last to Hergott Springs.

Hergott is a base for the camel-carriage of Central Australia. From here trails go out to Cooper's Creek, to the Diamantina, to Birdsville, and the back of beyond.

Through days of brilliant sunshine and dewless nights, these gaunt, flat-footed beasts plod on, with turbaned Afghan drivers beside them, laden with boxes, bales, and barrels for distant stations in the Bush. Musha Khan, with his cerise turban



Camels in Central Australia



Afghans Loading a Camel

and a foot of shirt hanging out under his coat, is overlord of many swarthy servants, and master of a household presided over by a European wife.

Tired pack-camels of Musha Khan come down to drink at the overflow from the artesian bore at Hergott, when their long journey back is finished.

Fresh pack-camels of Musha Khan fill themselves from the same source before starting out to pad their 24 to 30 miles a day across the Great Inland.

In a backyard of the Afghan quarter I watched a group of Mahometans throwing a camel calf, to brand him. The yells of that young and lusty camel went out across Central Australia. A small Afghanistralian youngster hopped about excitedly while the colored section of his family busied themselves. When the agony was over and the siren of the ship of the desert had sunken to a protesting gurgle, that half-caste child executed a dance which he had probably learned from a corroboree in the native quarter.

In Hergott there are a European, an Afghan, and an aboriginal quarter—the last somewhat removed from the town.

Good dates are grown near Hergott, Musha Khan informed me, and Musha should be a judge of dates. Other good things will grow at Hergott and beyond it—right into the heart of the continent.

By and by the aborigine, the Baluchi, and the Hindoo will give place to pure Australian

types; internal-combustion engines will supplant camels, and civilization spread her polish over the surface of the land.

It was at Hergott that I met Woodhead, of the South Australian Mounted Police. His station was located on the Birdsville track, 200 miles out towards the border of the State. It covered three degrees of latitude in depth, and extended in length from about longitude 137 to 141.

Despite his responsibility for the preservation of law and order over so much of the map, Woodhead was brown, stalwart, and cheerful. He informed me that good oranges might be obtained at Birdsville or Alice Springs for 4/- a dozen, and fair potatoes for 1/6 a lb.—housekeeping in the remote interior has its problems, especially when the camel train is overdue.

I attended a race meeting at Hergott with my friend Woodhead. He introduced me to a constituent, who had come down from Birdsville to witness that function.

At Hergott races I met also Adam Khan, who promised that I should be stoned for attempting to photograph him and his half-caste family. He was a fierce, resentful character, Adam Khan, and lives in my memory with a Japanese lady of doubtful age and no apparent reputation, who promised me worse punishment for a similar offence at Broome.



A Horse Waggon at Hergott

Afghan and aboriginal preponderated at the races.

That night there was a theatrical performance and a dance at the boarding-house where I dwelled. The dining-room was cleared of its stools and tables after the play. Women in white silk dresses (bought, one guessed, from Indian hawkers), bushmen in short coats and "peg-top" trousers, footed it gaily over an uneven floor until daybreak.



Lady Visitors



Saddling the Favorite

constructed, minaret and all, of galvanized iron. A solitary Afghan squatted on his praying carpet within, facing the East. He went on with his adorations as if the small party of Unbelievers had no existence.

The open Koran was there, the towel, and the bathing pool. Ladies, who accompanied us, were allowed just inside the door with their boots on.

Woodhead had a prisoner to take to Port Augusta, so we went back together. With us on

Hergott is remote, but I failed to discover any "melancholy Australians" there.

I had a word on the overland telegraph line with Alice Springs and Charlotte Waters; neither station reported any of this mythical species in their locality. Charlotte Waters complained that pelicans and ducks were causing trouble to the wires—flying against them in mobs, I presumed—but otherwise our brief telegraphic conversations were quite cheerful.

Still Alice Springs is 994 miles from Adelaide and 1,105 and three-eighths miles from Port Darwin—they gave us the exact mileage themselves—and there is yet no Limited Express, with dining and sleeping cars attached, on *that* route.

At Hergott, under the guidance of Said Goolmeer, storekeeper, we visited the only Mahometan mosque, of my knowledge, in Australia. It was



Law and Order
At a Hergott Springs Race Meeting

the down journey was Constable White, of Oodnadatta, who had spent two years in a police camp in the Northern Territory, before that country was taken over by the Federal Government.

Thornton and Murphy, of the S.A. Mounted Force, we left behind at Hergott to police the Entire North for the time being. Murphy had stood for law and order ten years at Anthony Lagoon, in the Territory, and, newly wed, was enjoying a transfer to comparative civilization.

They were all good men. Quiet and competent, never flurried, never tired. Men of this fibre made military history at the Dardanelles.

We had a mixed company in our train going South. There was the gentleman with the old Panama hat, the variegated kerchief, and the quirt—a champion rider of the Bush. “Nothing foaled can shift him,” they told me. There were the prisoners, for whom one felt sorry—because freedom out there seems a more precious thing; there were Afghans, jockeys, and a small boy who was travelling 500 miles “to get his teeth fixed.”

Out of the clear lights and colors, the mirages and vast distances of Central Australia, we drew near to Quorn.

I went down through wheat lands to Gawler, where beautiful red soils, ploughed and seeded, lay waiting for the rains.

Teams with clouds of dust behind were ploughing up the wheat-fields everywhere, miles and miles of wheat-fields, proclaiming Australia to be the future granary of the world, and South Australia—the dry central State—not the least productive section thereof.

Five million acres under cultivation for wheat, oats, and lucerne in 1915 proved this fact. The State produced thirty-five million bushels of wheat in 1915, thirty millions of which were available for export. Add to this three and a half million gallons of wine, and a wool crop worth over two millions of money, and we get an idea of the prosperity enjoyed by the less-than-half-a-million people who constitute the present population.

Another indication of prosperity is the savings of the people. In 1916, 299,308 South Australian depositors had to their credit in the State and Commonwealth Savings Banks (including the penny banks) £10,035,036, an average per depositor of £33/10/7 and per inhabitant of £23/2/11.

South Australia claims the construction of the first State-owned railway in the British Empire, the invention and establishment of the Torrens system of land titles, and the introduction of the

first complete system of local civic government.

Like the other Australian States, it has its free, secular, and compulsory school system. There are at the present time more than 850 primary State schools in South Australia; 21 District High Schools, located in the more populous centres, and a School of Art in Adelaide. The chief Technical School is the South Australian School of Mines and Industries in Adelaide: there are also Technical Schools at Gawler, Kapunda, Moonta, Mount Gambier, and Port Pirie.

The Government offers annually 90 scholarships and bursaries for competition among the boys and girls of the State. These entitle the winners to a period of free tuition at one of the high schools, a private secondary school, or the University, together with a sum of money for maintenance. It is possible for a pupil of a small country school to gain an exhibition at the age of 12½, and attend the Adelaide High School, or a District High School for three years. During this time the Senior Public Examination of the University may be passed, and if the student does well he may be awarded a Senior Exhibition, and secure a further two years' free tuition at the Adelaide High School. He may then pass the Higher Public Examination and be awarded a bursary, covering a four years' course at the University in either arts, science, law, or medicine. If he take up either the arts or the science course it is possible to gain an evening studentship, and eventually secure the B.A. or B.Sc. degree.

Besides the scholarships offered by the Government, the University and the endowed secondary schools referred to above also award a large number. Thus a practically free course is open from the lowest class in a primary school to the attainment of a degree or a scholarship from the University.

The University of Adelaide was founded in 1874. It grants degrees in arts, science, law, medicine, and music, and diplomas in music, commerce, and in various branches of applied science. It was the first University in Australia to grant degrees to women.

People who migrate to South Australia can be sure of good laws and good wages, land on easy terms, and free education and opportunities for their families.

A population, less than that of many cities, who produce up to seventeen million pounds annual wealth, have prosperity and happiness to share with less fortunate immigrants from other lands anxious to establish homes in the central Australian State.

PRIMARY PRODUCTION.

YORK Peninsula resembles Italy on the map. It projects like a Wellington boot from the mainland of South Australia, with its western coastline on Spencer's Gulf and its eastern shores along the Gulf of St. Vincent. Its average rainfall is low, but with modern treatment it has been found that nearly all the Peninsula will grow wheat profitably. Its farmers to-day are prosperous citizens, who own motor-cars and fat banking accounts.

The celebrated copper mines of Wallaroo and Moonta have made it a centre of great industrial activity. Wallaroo, the port for Moonta, on Spencer's Gulf, is a substantial town. Wallaroo and Moonta have produced approximately fourteen million pounds worth of copper since their discovery. In the output of this metal South Australia leads the Commonwealth. The Kapunda mine, about 50 miles north of Adelaide, was dis-

covered in 1842. Burra Burra mine added some five millions to the total wealth production of the central State. Silver-lead and iron also exist in large quantities. At Iron Knob, 21 million tons of high-grade ore (66 per cent.) are estimated. Broken Hill Proprietary draw largely on this deposit for their reduction works at Port Pirie. Thirty-three miles of privately-owned railway connect this valuable mountain of iron with the seaboard of Spencer's Gulf.

The phosphate deposits of South Australia are particularly valuable and extensive. A thousand tons of phosphatic rock has given 64½ per cent. tricalcic phosphate, with only 2 per cent. of iron.

At Kadina, running eastward across Yorke Peninsula, one enters a series of plains, which have at one time been lightly timbered with mallee and pine. They are now cleared along the railway route, and given to the plough.



Smelting Works at Port Pirie



Crushing and Sorting Plant, Wallaroo Mines

This limestone country is growing the best of wheat. Its farmers have established water supplies for domestic purposes, phosphates are readily obtainable, and the areas are large enough to permit of profitable fallowing.

Fine chocolate plains lie around the head of St. Vincent Gulf. From Port Wakefield the line turns across to Balaclava over dark red wheat lands, spreading as far as the eye can see.

When I visited this territory early in May the drills and rollers were at work, filling the horizon with pillars and walls of dust which rose skyward all day long.

Blyth and Clare are the centres of this magnificent wheat belt; there crops of 35 and 40 bushels to the acre are gathered. Wheat is grown all the way north to Port Pirie and on to Port Augusta.

Wheat has been South Australia's staple. The dry farmers of that State are admitted to be among the best and most advanced agriculturists in the world. The grain produced is of the best quality, giving highest percentages of flour and a good color. It always commands the most profitable markets in Britain.

South Australian practice is to crop the land once in three years, the second year after harvest

being given to grass and stubble, the third to fallow.

Costs of production are exceptionally low, owing to the use on large areas of multiple-furrow ploughs; eight- and ten-horse cultivators; 11 ft. drills, strippers, and harvesters. With these appliances and the favourable conditions existing, an average yield like that of 1912-13 (10.34 bushels to the acre) pays the farmer well. One man can produce as much as 5,000 bushels a year. Very light dressings of superphosphates are sufficient.

The raising and fattening of sheep and lambs is generally combined with wheat-growing. Men with small capital, energy, and discrimination are bound to win out on the wheat lands of South Australia.

The Government Immigration authorities consider that £1,000 to £1,700 is a sufficient capital for cash-paying newcomers desiring to take up 1,000 to 1,500 acres freehold under Crown Lands terms. This sum will enable them to improve, stock up, and keep going until the first crop is harvested.

Experienced mallee farmers would be safe in selecting wheat lands on a capital of £500. The wide, level, dun-colored expanses of mallee, which

were once regarded as the poverty of the State, have now proved a mine of wealth. The gold flow from that inexhaustible mine increases year by year. The prosperity of Adelaide is a reflection of the prosperity which prevails throughout the rural districts. Millions of acres have

distillery in the Southern Hemisphere is already located in South Australia.

The vineyards are totally free from phylloxera, and all other serious diseases of the vine.

A pleasant parallel industry is the growing of currants and raisins, which has proved extremely



Traders on the Upper Murray

yet to come under the plough. There is room in South Australia for thousands of wheat-growers still.

* * * *

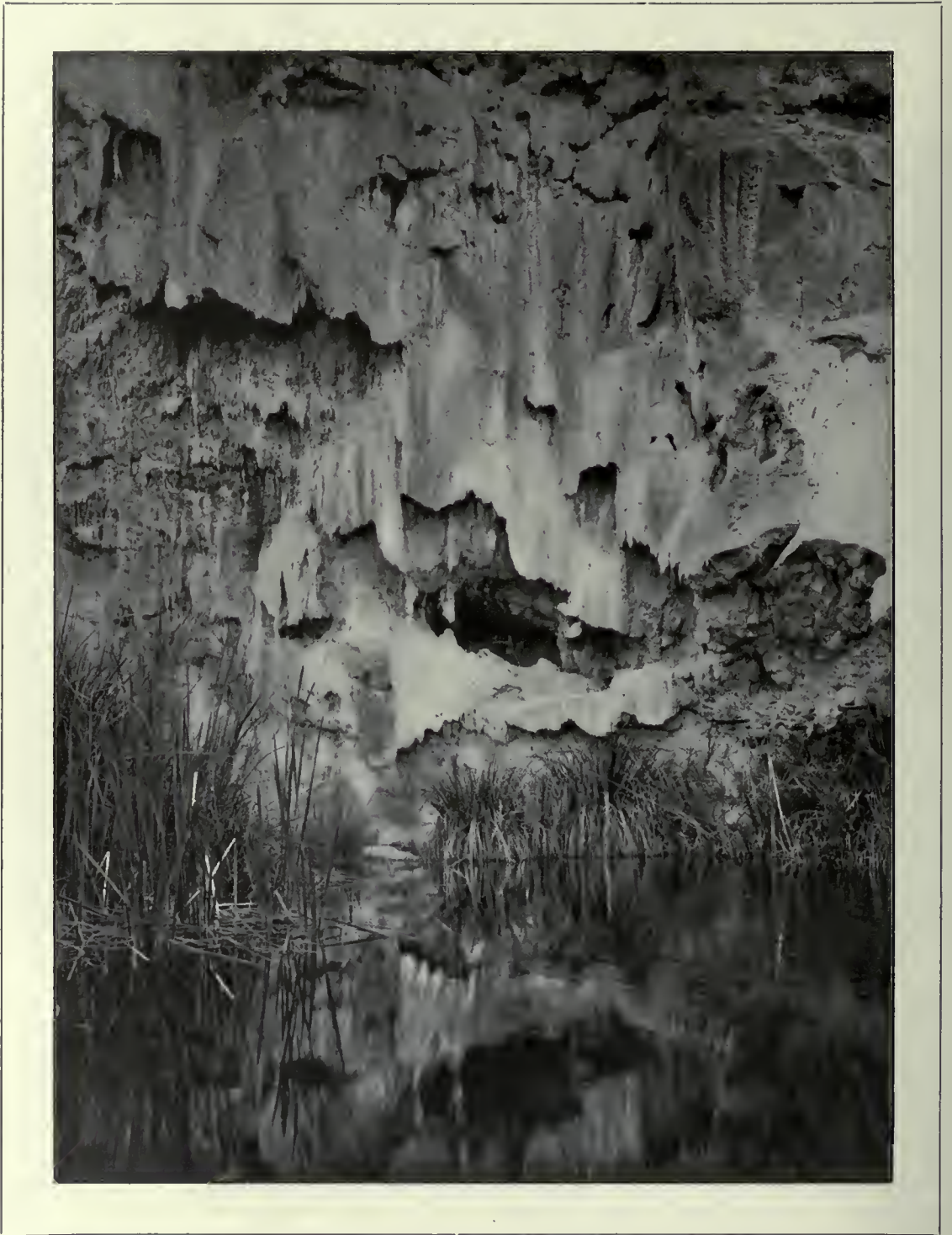
The wines of the central State are justly famed around the earth. Sun and soil combine to give local vignerons best results. French experts have been imported, but France has also learned from South Australia. Land in abundance suitable for vineyards is available. Comfort and competence await those who will take them up.

The quality of local wines is constantly improving, the quantity exported increases annually—this may be regarded as one of the greatest industries of the future. The largest winery and

profitable to the limited few who have undertaken it.

South Australia already produces 30,000 gallons of olive oil per annum, of the finest quality. Net returns from olives amount to about £15 per acre. The grower can become his own manufacturer, and waste or poor ground on many holdings may be profitably utilized for the cultivation of olives.

There are 500 lineal miles of South Australia suitable for the production of temperate and subtropical fruits. The finest peaches grown in Australia may be had in Adelaide in January, and I have seen the most beautiful strawberries selling in the streets of that city at tenpence a box.



Sandstone Cliff and Pool



A Big Melon and a Little Kangaroo

Local apple-growers estimate an average net return of £20 per acre.

The almond and the apricot flourish. The Murray Valley, with irrigation, grows citrus fruits to perfection.

Bee-farming and poultry-raising in certain districts will also yield good livings of themselves or increase the profits of fruit-growing and mixed farming.

The south-eastern districts are most suitable for the production of potatoes and root crops.

Naracoorte, famed for its caves, is reached through forest country closely resembling those Victorian districts which lie at the feet of the Grampians. Over level limestone roads, arched by spreading gum trees, the tourist may travel through cool and rainy regions to green Mount



Rock Formation

Gambier, there to behold the Blue Lake and many other interesting evidences of volcanic action, comparatively recent. The intervening lands are mainly occupied by sheep farmers.

Mount Gambier soils are exceptionally fertile, and the town itself is attractive and progressive. The funnel of an extinct crater happening to be within municipal radius affords an outlet for surplus rainwater and some civic rubbish. For this



Government Reclaimed Area, Murray Bridge



Angaston

and other reasons, Mount Gambier is clean and sanitary, a place of frequent showers, of foliage and flowers.

Its evergreen surroundings delight the eyes of inland-dwellers, who find it fresh and cool when Central Australian suns are pouring out their summer heat. Drought has never clutched it with fevered hand. It is always an oasis, a tourist resort, a rest place for the heat-browned sons and daughters of the North.

Good South Australians, when they die, go to Mount Gambier. The poet Gordon dwelled there, and gave the place celebrity. On the hillside above the Blue Lake, an obelisk marks the spot where that rhyming horseman achieved his hazardous jump, with a fair chance of rolling with his steed down the steep red sides of that old crater into the waters below.

Mount Gambier, with its exquisite greenness, its roses, its pine groves, black ploughed fields (worth £40 an acre to-day), volcanic lakes, and romantic surroundings, should have influenced Gordon's muse. One fails to understand how the poet retained his melancholy impressions of

Australia after living for years in one of its most fertile, fragrant, and prosperous places. Like others who have written about Australia—and who are even yet accepted as inspired exponents of this mighty continent—Adam Lindsay Gordon's eyes beheld the land through darkened glasses, in which a true perspective was deflected by the angularities of personal misfortune, into false and erratic curves.

South Australia has many other beautiful and pleasant places besides Mount Gambier, but it is doubtful if any of them would have brought cheerfulness to Gordon's melancholy soul.

The modern traveller will find in the vineyards and gardens of Angaston, in the orchard slopes and fields of Gawler, on the golden shores of Port Victor, by the joyous seaside at Glenelg, along the Coorong, and down the Murray, a thousand joys and beauties that the morbid poet missed.

He will find that South Australia, too, is a vast garden wherein will yet be grown a greater abundance of wheat and wine and wool; where all the fruits and flowers of the world may be profitably cultivated by a happy and prosperous people.

South Australia is only at her beginnings. She has in the Murray Valley an asset of incalculable value. With irrigation this will support many times the present population of the State.

She has, in the great MacDonnell Ranges, soon to be opened by a transcontinental railway, the best horse-breeding country in Australia.

She has Eyre's Peninsula, of which we have written elsewhere.

She has the Great North, the problem of which can be faced with equanimity in the light of established facts.

She has her hundreds of thousands of acres of wheat-growing mallee, her oil-fields, her copper deposits, her inexhaustible supplies of iron ore—better than that of Elba, marine riches of her coasts, agricultural resources of her ranges and plains—all that a rich and yet only partially explored country of vast area, benign climate, and stored opportunity, can give to those who are weary of countries less blessed by nature, less free, less attractive to the eyes of Youth and Adventure, less likely to yield the prize of personal success which all men covet.



The Beach at Glenelg



The "Dead Heart" of Australia

THE "DESERT" MYTH.

THE history of Inland Exploration has been sketched in somewhat tedious detail in order that readers of this book may be enabled to arrive at more accurate conclusions regarding modern Australia.

During the 125 years of nation building, misconceptions have arisen which can only be dispelled by persistent contradiction.

We have seen how, in old colonial days, the whole Continent was condemned as arid and inhospitable.

During the genesis of colonization, confident authorities asserted that only a limited section of the eastern littoral could ever be rendered habitable.

In the middle period of European occupation it was generally accepted that nature had irrevocably cursed Australia with desert areas of enormous extent.

Towards the end of the nineteenth century, these "deserts" had shrunk to a very small proportion of the whole Continent.

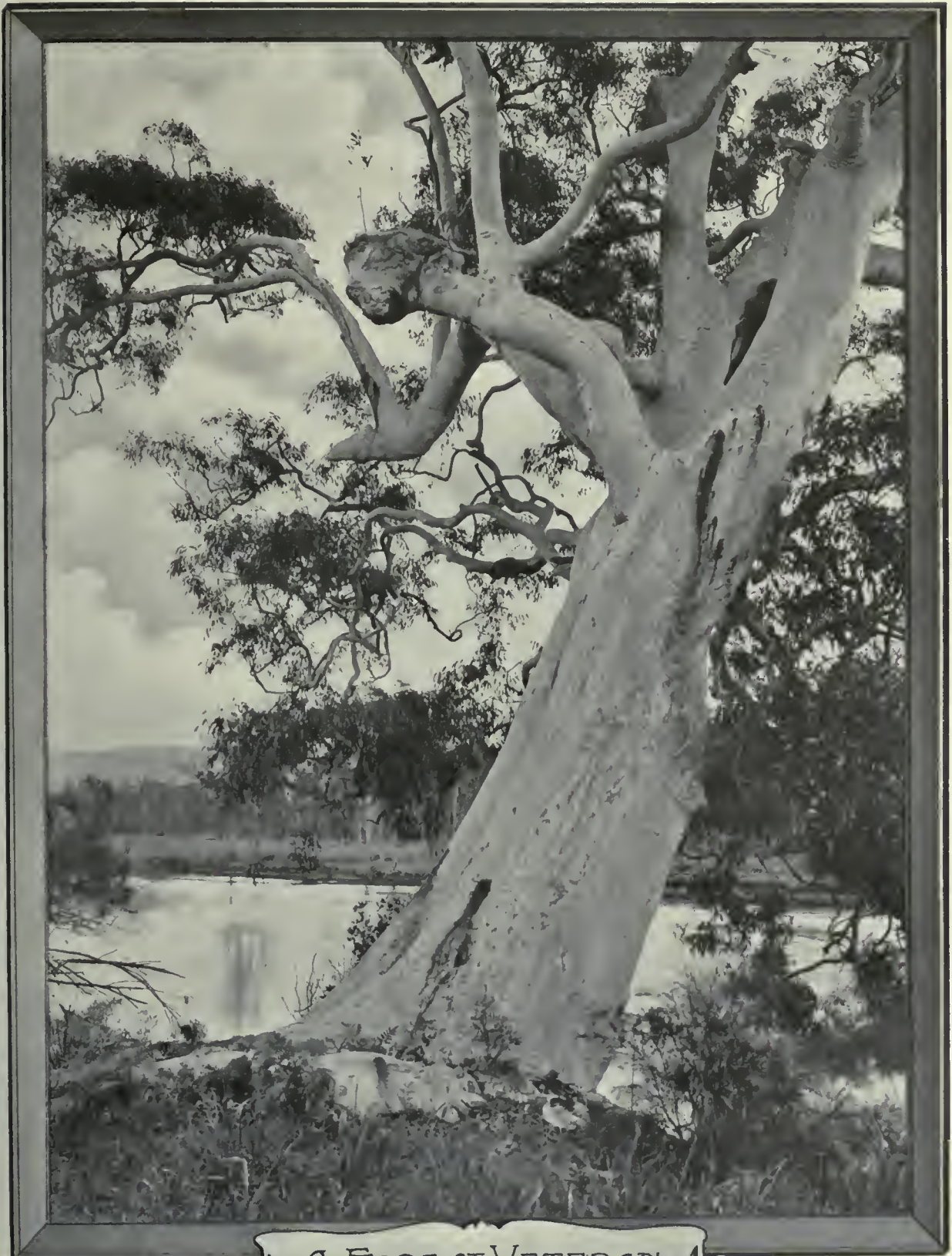
In the first decade of the twentieth century thoughtful people have come to doubt the existence of one actual desert within the wide borders of the Commonwealth.

The author, while journeying on his special mission over the Australian States, met L. A. Wells in Adelaide, and asked him for a pronouncement for this volume upon that still unoccupied hinterland between the 121st and 129th meridians and 19th and 31st parallels—of which, as one of the last explorers, he possesses a more intimate knowledge than any man living.

Into the grey-blue eyes of Explorer Wells (eyes that have looked over great distances) there came a light of faith. He said:—

"I believe the country that is apparently desert will be no desert for future generations!"

Judged by the lessons of the past, Wells is right. The country which *was* apparently desert for two



A FOREST VETERAN.



The Bread of the Wastes

preceding generations is no desert for the generation of to-day.

Contrast the optimistic prophecy of this Australian-bred explorer of 1891 and 1896 with an entry in Captain Sturt's journal sixty years earlier:—

"I have the melancholy satisfaction of discovering the worst country in the world!"

This entry was made at, or near, the present site of a city, where Pullman sleeping cars are nightly bearing travellers to and fro; where more than sixty millions of mineral wealth have been won from the hearts of the hills; where many a green garden stands in fragrant proof that the school of observers to which the brave and generous Sturt belonged—were utterly wrong!

Had Sturt but known it, the red sandy soil of the Barrier (the basic red soil of Australia) is everywhere proving, under correct treatment, the most fertile in the world.

Let us see how this Desert Myth originated.

It is easier to understand nowadays that the physical conditions prevailing over a great part of inland Australia misled early settlers and explorers as to the actual quality of the country they condemned.

The greater part of the Interior consists of a low, level plateau, covered, broadly speaking, with loose friable red soils, so fine in some districts that they appear to the casual eye as sand.

Instead of a "Dead Heart of Australia" there exists in reality a Red Heart, destined one day to pulsate with life.

Certain parts of this country suffer (or benefit, as the future may decide) from an occasional dry season. In other parts, towards Central Australia, the annual rainfall is admittedly low. But

it must be remembered that *no* part of Australia is absolutely rainless; that a dry season is, moreover, always local in character. In one or two districts, or over a section of a State, the annual rainfall may fall below the average, as is the nature of seasons everywhere, but never at any time has anything like a universal drought occurred. While the meteorological conditions of the Southern Hemisphere remain as they are, it never can. Add to this the fact that over thousands of square miles of Australia, over nearly all the well-watered coastal districts that extend from the Glenelg, on the borders of South Australia, around to King Sound, in the north-west of Western Australia, and again over the whole south-west of Western Australia, from Albany to Geraldton, a dry season is practically unknown.

Owing to the porous nature of their typical red soils, and to other physical features of the inland country, the rains, instead of being carried off to the sea, are retained. This, as a generalization, applies to the major (western) portion of the Continent.

It led people to believe that extensive areas of Australia, being without flowing rivers, were to be classed as waterless wastes.

In reality this absence of rivers is one of the providences of Nature.

Australian Nature, of her ancient wisdom, *has substituted permanent underground storage and flow for regular surface condensation and drainage.* Nowhere in the earth's physical history is there to be found a more wonderful compensation. Here is the first of those many paradoxes presented by the oldest of the Continents, old in time but new to the experiences of civilized man.

Traveller and settler alike have been baffled and discouraged by conditions which, later on, were found contributing to successful settlement.

The Explorer, being perforce a writer of some sort, gave his impressions to the world. The more literary faculty he possessed the more his pen-pictures of waterless wastes and sandy Saharas unrelieved by any oasis, left his readers with firm convictions that inland Australia was unfit for permanent occupation by white men.

Weird, indeed, have been the imaginings of those who have never seen the "back country."

To many of them it is still a weary desert, covered with stunted salt-bush and spiteful spinifex; where lost travellers, who have had the misfortune to enter its confines, for some heroic reason, gasp out their dying breath with empty waterbags beside them; while clouds of flies and crows afford the only shade between them and a pitiless sun.

Certain better-informed Australian writers, with a craving for the dramatic, have fostered these impressions. A country unknown to War, must, for the purposes of fiction, be invested with some thrilling features. Accidental happenings like dry seasons and bush fires have been made to appear the permanent conditions of the Continent.

This long-accepted desert has made a background for more than one typical Australian story.

Roughly, it runs north and south between the River Murray and the Melbourne to Adelaide railway line.

Thousands of travellers have crossed its southern edge in the firm belief that they were



Long Reach at Morgan on the Murray River

Foreign writers, not knowing any better, accepted the stereotyped descriptions of ignorant or prejudiced observers, and helped to create a "typical Australia," which is quite alien to the actual Continent.

Melancholy, for certain explainable reasons, has been a feature of local Australian writings. It seems strange that the most cheerful and prosperous population in the world should have been represented in the fields of expression by a brilliant band of writers and artists whose predominant note is gloom.

As a first example of misjudgment in matters Australian, we may take the "Ninety Mile Desert," so marked on Australian maps until quite recently, and still so branded on maps outside Australia.

passing through a real desert. Thousands of Australian school children of the last generation were taught to identify it as desert on the class map.

And to the eye of an outsider it would still, in its virgin state, appear to be a very barren and ugly country indeed. But, as the Pinnaroo District of South Australia, it is furnishing one of many proofs that we must never judge Australia by surface indications.

The story of the Pinnaroo has been an object lesson to those who would still doubt the future of our Commonwealth.

Let us go and see what happened to the "Desert," and why, as desert, it has been removed from the map of Australia after occupying an ignoble place thereon for 60 or 70 years.



Lake Bonney Landing, Murray River

On the 21st April, 1912—as it happened, a period of unusual dryness in South Australia—the writer boarded a train at Adelaide station bound for this “desert.” The other occupants of the carriage were the representative of a fire insurance company and a smart, clean-shaven young fellow, who looked rather like an English tourist.

The train climbed over Mount Lofty Ranges and rattled down to Murray Bridge, where a pleasing vista of green irrigation farms along the bank of a wide river hinted the future possibilities of this fertile Lower Murray Valley.

A motley crowd of rough but good-humored South Australians—lean, tall, tanned fellows for the most part—crowded into the refreshment room.

Failing to secure some fruit that he was seeking, the insurance man re-entered the carriage as the train was starting, and with strong Australian emphasis expressed his disappointment.

Whereat the smart, clean-shaven young man explained, waving his hands towards the hills which we had just descended:—“Too much fruit grown around here. It doesn’t pay to send it to the railway station to sell. I know one man who took 5,000 cases off his holding last year. Suppose he only got five shillings a case for it, that’s over a thousand pounds, isn’t it?” We agreed.

“Well, who is going to peddle apples on a railway platform when they can sit under their own verandah and make a thousand a year out of them?”

It was the class of question that conveys its own answer, and it applies not only to apple-growing, but to many other avocations in free and independent Australia.

The absence of fruit in retail quantities having opened up avenues of conversation, the smart young man with the tourist appearance and polite but friendly manner, turned out to be a wheat farmer from the Pinnaroo.

In comic journals a farmer is inseparable from long whiskers. He is generally alluded to as a “hayseed,” or “Dad Wayback.” Old figures, like old fictions, die hard. But it has to be confessed that much of the farming in this country is being done now by smart, clean-shaven young men, who play tennis with their farmer neighbours on Saturday afternoons. Quite frequently a glance at the gripsacks of these well-informed young men discloses old European luggage-labels.

At Tailem Bend our train split into two sections: one part departing for Serviceton and Mount Gambier, the other making a leisurely departure for the “desert.”

Tailem Bend may never be beautiful, but it is located in a limestone belt where, on 1,000-acre blocks, farmers are finding that they get good crops in good seasons.

The Tailem Bend to Pinnaroo railway is of very recent construction. It was opened in 1907. After much agitation the Bill authorizing its construction had been taken through the South Australian Parliament by a political ruse, its opponents loudly declaring to the last that the revenue would not pay for the axle grease. Much to the chagrin of these earnest pessimists, the line has not only paid its working expenses, but it bids fair to clear the cost of its construction as well.

This "desert" railway was cheaply built; its platforms are yet no more than hard earth, and

points of the compass. A man lost in its blue silent distances would be as helpless as a man cast overboard in mid ocean. Ten chances to one he would die of thirst; for there are no rivers, no streams, no permanent creeks and rarely any surface storages in the Mallee.

It was this that terrified and repelled the men of preceding generations. To cross the Mallee safely one needed to be a good bushman. The Mallee being grassless and apparently without permanent water, was useless for stock. No wonder it was classed as worthless desert.



Harvesters at Work in the Pinnaroo

the stations mere galvanized sheds and sidings, with stacks of wheat awaiting shipment nearby; but it has served to open up a new province where fortunes have been rapidly won.

Land which was sold by Government at 8/6 an acre less than ten years before, was changing hands at £6. Men who started with nothing had become independent, and—speculative increases aside—all the capable wheat-farmers throughout the district had done exceedingly well.

Everywhere along the line one saw the work of pioneer settlement going on. In the shallow limestone belt, which fringes the deeper red soils, the fields showed piles of stones as well as Mallee roots. The farm houses here were mostly built of white stone. A dry expanse of stunted, lead-colored Mallee stretched away from patches of newly-cleared land, which followed the railway in a narrow intermittent belt.

This sea of squat, ugly bush extended to all

But, lo! a miracle of Australian nature.

It was discovered later on that, at a maximum depth of 240 feet everywhere under the limestone, there is a plentiful supply of good sub-artesian water for all stock and domestic purposes.

And, lo! the miracle of the Human Mind!

It was also found that the average soil of the Mallee country is peculiarly adapted for the growth of wheat; that by the application of a certain fertilizer, and by judicious fallowing, the rainfall of the very driest Pinnaroo years is quite sufficient to ensure profitable crops!!

And now comes a simple equation. As the physical composition of the Mallee country is monotonously similar, if one acre or one hundred acres will produce a profitable crop of wheat, *the whole of it*, given transport, can be converted into farms!

What a fine sum for the Australian school-master of to-day.



Sons of the "Desert"

He says to his class—

"Boys, I have before me a map of South Australia, dated 1890. There is a corner here to the eastward marked '*Ninety Mile Desert.*' It appears to be about ninety miles in length, and on an average fifty miles wide. There are 640 acres to a square mile. How many acres does that desert contain?"

And the bright boy of the class, the boy who is going to grow into a smart, clean-shaven farmer, fond of Saturday tennis and rifle shooting, will promptly reply:—

"Two million eight hundred and eighty thousand acres."

"Boys," continues the schoolmaster, "I have before me also a copy of the *Adelaide Register*, dated 1912, which contains an advertisement offering a farm of 875 acres of this very country at £5/15/- an acre. Now, to be well inside the mark, we will work out the whole area as just two million acres of wheat lands worth £5 an acre—which gives, as the blackboard shows you, a capital land value for this particular block of 'desert' of *ten million pounds!*"

* * * *

When one learns that there are many millions of acres of this class of country within the already-determined area of profitable production, one begins to dimly realize the opportunities Australia holds for modern agriculture.

Naturally those keen dry-farmers, the South Australians, are running out new railway lines into their Mallee country.

And this "conquest of the desert" is so vastly interesting.

The train stops at a clearing in the Mallee, where one sees a township in the making. One stands up elbow to elbow with tall brown bushmen at the counter of a galvanized-iron refreshment room. The counter is covered with a gaudy linoleum, and behind it are coarsely-gowned bush girls handing out cups of strong tea and pies.

The train moves on again in a leisurely way through more virgin Mallee and fresh clearing.

The light-colored soils have given place to red. At all the sidings there are trucks—full of knotted Mallee roots—waiting to be taken away. Thousands of tons of these roots have been removed from the wheat fields—after the cleaning and burning is finished—and sold. They have a high calorific value, and bring the settler locally 10/6 a ton. The clearing of the Mallee is a simple and inexpensive process. The scrub is first rolled down with a traction engine, hauling an old tubular boiler (for choice) behind it. This or some heavy object is used to iron the scrub out flat; after which it is burned off and the roots removed in time. The rolling costs 3/6 an acre, picking 12/- an acre—about 15/- an acre in all to get it in trim for crops.

The Mallee soil gets better and firmer after it has been worked.

It is now the ploughing and planting season. The freight trains are bringing in gaudily-painted agricultural machinery.

In the vicinity of each substantial farm house, one sees a windmill. It is a land of tanks and wells, but vegetables and fruit are everywhere being produced by irrigation—the Pinnaroo water is good for all purposes.

The banks seem to have opened little galvanized offices at nearly every stopping place along the railway, and the great grain-handling agencies are equally well represented.

A fine red dust works its way into the railway carriages—the dust of the desert, rich with the accumulated fertility of untold ages. The homecoming farmers who have been down to the city on business do not appear to mind this dust. It may still furnish a theme for discomforted writers, but it is a marvellous producer of wheat, and wheat is Bread. The good old Australian "desert" only waited to be tickled and it laughed—into baker's loaves!

Lean out of the carriage window and breathe the air of the "desert"—it is like wine! See the sun setting over the desert—it is a glory! Behold the sons of the "desert." They are six-foot men, stalwart and strong, independent landholders, freemen, each adult a ruler with an equal voice in the government of the country; and each adult woman—sister, mother, wife or daughter—the same.

The train rolls on. Undulating into blue infinity spreads the Mallee, with brown stubble fields marking the steadily-encroaching wheat.

The clean-shaven man is approaching home. He tells with quiet pride of the progress of his particular district. He says they always have cool evenings and nights, even if it is hot in summertime. In the spring his country, all the country, is bright with flowers. Six years ago there was nothing at the town of Pinnaroo, the ter-

minus of this line. Four years ago two houses. Now there are streets and solid buildings of stone and concrete; churches, a public library—they are called "Institutes" in this State—a photographic studio, a newspaper, most of the primary things of civilization!

At Pinnaroo we disembark and find a comfortable hotel, where they charge you for good meat meals $\frac{1}{6}$, for clean beds $\frac{1}{6}$, and give you a

her wherever the Flag of her Progress is carried. Here six years ago, remember, only the wild dog's howl was heard across a waste.

It is hard to realise that this broad, dusty street—bearing all the familiar signs and legends of the butcher and baker, the lawyer, the banker, and the land agent—with its row of young sugar-gums, which have replaced the beautiful scrub pines, its concrete sidewalks and plate-glass fronts,



Pinnaroo

bath with an abundant flow of clear water. We go out to buy postcards at a stationery shop. The proprietor is a Londoner. He had been a carpet buyer in Asiatic Turkey for an English firm. He has seen brigands hanged. He prefers the town of Pinnaroo to either Aleppo or Baghdad. The worry of persuading the Turks to make carpets of a color design that would suit the European taste is upon his mind no more.

Day is calling across the "desert." One hears a bronzewing cooing in the cypress pines somewhere on the outskirts of the town.

The air is frosty; the water in the bath quite sharp.

Where current impression would conjure up distressing visions of a country burned by perpetual heat, one finds a delightful winter climate, bracing, cool and enjoyable for many months in the year. And this applies to nearly the whole of inland Australia.

Pinnaroo is beginning the day lightheartedly. The State-school bell tolls out in token that Australia bears the blessings of free education with

its coach-teams and horsemen, bicycles and motor cars—owes its growth and vitality to four good wheat seasons. Yet the figures are these. In 1896 the first selector took up 4,000 acres of this country, which he sold in 1901 for £10 an acre. His first crop of wheat was 13 acres, from which he reaped just 32 bags of the finest wheat, and this was the first actual demonstration from the desert. But not till the railway came in 1907 was wheat grown for export. In 1907-8 the Pinnaroo Hundred yielded 55,350 bushels of wheat. In 1915-16 its crop increased to 665,662 bushels, and the crop of the adjoining districts advanced in proportion during the same period.

A cultivated belt about fifteen miles wide, with a railway line running down the middle of it! But another line is being pushed on, and it is only a question of time when all this great area of Mallee will be converted into one vast wheat-field.

On the other side of the Victorian border, which is only a few miles away, five out of eleven million acres of the same Mallee are already growing wheat, and there are another three mil-

lions in sight! Here also the "worthless wastes" have been converted into fields and gardens within a few years.

So much for the dry-farming possibilities of the "desert." Later on we will see to what further account it may be turned under irrigation.

As the various aspects of Australian settlement are studied, it will be found that experience has almost universally reversed earlier opinion. If any farmer had predicted thirty years ago that the Pinnaroo would become a granary, or that the Mallee lands of Australia were destined to form the great wheat areas of the Continent, he would probably have been removed to a lunatic asylum.

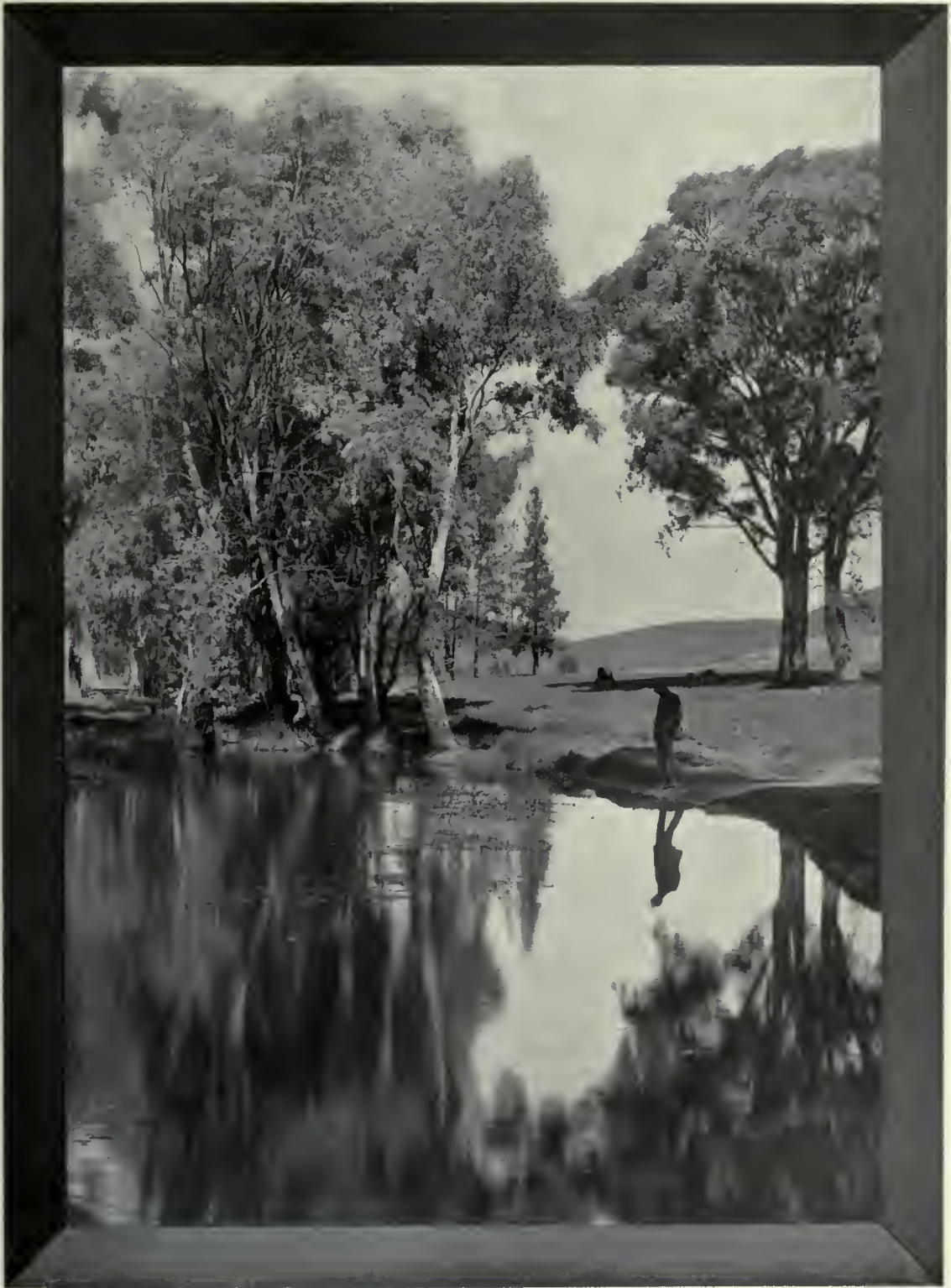
So with the more conservative Australian minds of to-day. They cannot realize yet that the country from sea to sea is one vast Continent of undeveloped riches. Differing from all other countries in flora and fauna, it also presents a series of physical and climatic paradoxes. If Australian nature sometimes masks her smiles

with frowns, it is only that her ancient lineage forbids the familiarity of the unworthy. She would test her courtiers before she admits them to her confidence. It is within the Law of Evolution—which may only be Providence in disguise—that a strenuous environment produces an enduring type. Fortunately for the future of European civilization in the Southern Hemisphere, Australia *has* presented paradoxes and difficulties, for the overcoming of which both mental and bodily activity are necessary.

The problem has been solved, the equation worked out as far as the Mallee is concerned. There is no longer any doubt: the settler of the future will know exactly where his opportunities lie. He will know the correct treatment of the soils. The rest will remain with his individual industry. From the moment the axe is laid to the first root on his holding, the path to success will be plainly marked for his feet. Barring the chance of personal fate, he may confidently look forward to ultimate independence and security.



Stripping Wheat on Land once Condemned as Sterile



In South Australia



An Apricot Orchard

DROUGHT AND DRY COUNTRY.

DURING the hundred and odd years of their experience, Australians have learned that certain districts at uncertain periods are liable to spells of extremely dry weather. The primary industry in each division of the Commonwealth has been pastoral. Consequently, the failure of natural pastures on which stock, and particularly sheep, were dependent, has led to heavy losses. These losses in the early days temporarily affected the prosperity of an entire colony. Not only pastoralists, but a large number of business firms and townspeople would suffer as the result of a drought in the back country. As other industries grew up and the areas of occupation were extended, these depressions became less general. The stock owner, also, in the light of experience, became better able to meet the physical difficulties accidental to his occupation. In time two highly important facts were made plain. First, that no matter how severe or extended the drought might prove on the sheep stations, there would be found in the majority of holdings enough native vegetation to carry the stock through *if water were obtainable*. Secondly, when the rainfall returned, as it inevitably did, to normal, the country recovered its customary fertility with astonishing rapidity; so that the losses of dry seasons were compensated by the gains of the good seasons which followed.

These two features of the much-dreaded Drought made the silver lining to a cloud in the

light of which Australian pastoralists have developed much cheerfulness and a resource which will ultimately cause the drought not to be dreaded at all.

Much pessimistic literature has resulted from the drought, which lends itself peculiarly to word-painting and dramatic description. Some of the most impressive pictures by which Australia has been disadvantageously advertised abroad, were thus created out of entirely local visitations.

We may safely predict that the trials and losses of the Past will not be repeated in the Future.

It is incidental to Australian meteorology that the rainfall of certain clearly-defined dry districts will at times fall below the average. In other parts of the Continent the rainfall will be constantly low. But it is also providentially true that under an enormous surface needing water the most, right away into the heart of Australia, has been found to exist a subterranean sea of artesian water, whereby the remotest places are now being rendered capable of profitable occupation.

Apart from this, the conservation of water in surface storages is everywhere possible throughout these dry districts, which comprise some of the most fertile lands we possess. This carries with it extended possibilities of irrigation and closer settlement for each State.

Not only is the "dry country" Australian learning to depend less upon the rainfall and more

upon human foresight for water for his flocks and herds; but, as a stock raiser, he is coming to the conservation and storage of fodder also.

It has long been known that the natural herbage of our great plains is richest in nutriment. This, with beneficent climates, has led to the production of beef, mutton and wool such as no other land can grow. But it has only of later years been learned that this natural herbage can be converted into ensilage and more than sufficient of it kept in hand to make the longest and severest Australian drought no more than a disagreeable incident, which might occur once in the average pastoralist's lifetime.

Beyond this stage in the evolution of an industry there doubtless awaits a time when these stocks

Australia men will be masters of the seasons instead of their slaves.

With the extension of railways, the conservation of water, and the storage of natural fodder, the future possibilities of the "dry districts" are going to be enormously increased.

Large tracts of Australia are coming into occupation, for which the wildest enthusiast of the last generation would not have dared to forecast a profitable future.

Take, for example, that huge belt of territory which extends from the western shores of Spencer's Gulf across to Esperance in Western Australia.

This belt may be said to begin with Eyre's Peninsula, comprising about fifteen million acres.



Jetty, Port Lincoln



Agricultural Machinery for Eyre's Peninsula

of local fodder will, when needed, be supplemented by fodder readily transported from closer settlement areas.

In north-western New South Wales the siloing of native herbage has proved an entire success.

The system can doubtless be applied elsewhere, as in the northern parts of South Australia, a country which has hitherto proved very uncertain. Here exist extensive areas of fertile but arid soils covered at times with magnificent grasses, thousands of tons of which might, when occasion offers, be converted into fodder reserves. In the dry climates of our back-country, stock-feed properly conserved will last an unusually long time.

The day will doubtless arrive when all over

Now Eyre's Peninsula has been looked upon as one of the waste places of this Continent. The writer confesses that he had little knowledge and less opinion of the Peninsula and the wide lands beyond it until quite recently, when he found himself on the comfortable deck of the s.s. *Morialta*, bound for Port Lincoln, watching cows, horses, and nine-furrow ploughs coming inboard from the busy wharves of Port Adelaide.

The Port, with all its maritime activities, its marine stores, groups of firemen and sailormen, was modern enough. So, too, were the ship's passengers fore and aft. Some were evidently bushmen, some commercial travellers, some farmers, and some, who went for'ard with swags

and folding stretchers, railway navvies and men of the camps.

At last H.M. Mails arrived in huge canvas bags, the mail for the Peninsula and beyond it—letters for Eucla on the Bight, where the delivery is once a month, newspapers for the outposts on the Gawler Ranges, harvester literature for the nearer places, and literature concerning ammunition and supplies for further back.

The *Morialta's* lines were cast off, and her screws began to churn the very smooth waters of St. Vincent Gulf, into which York Peninsula dips an arched foot suggestive of Italy. Nor might any Italian sky be clearer than that in which the sunset colors lingered, nor any Mediterranean breeze kindlier than that which brought the *Morialta's* passengers good appetites for dinner.

Among them was Surveyor Murray, who knew the corner of the Commonwealth whereto we were bound better than anybody, having spent the greater part of a lifetime tracing its features in that particular detail which falls to the function of Government Survey.

Sitting on a hatch under the stars, Surveyor Murray forecasted the future of the Peninsula and told how underneath its apparently inhospitable limestone, very often at the shallowest depths, there was water, and how, with the use of superphosphates, four-fifths of its fifteen million acres (in areas from 1,500 to 2,000 acres) were capable of producing—Wheat.

The discovery of twelve million acres of good grain-growing lands in one corner, which has long been regarded as a negligible quantity, adds another item to the national asset. Some countries would make rather a fuss about it, but the Australian, being used to big things, accepts the fact as a matter of course—or criticism.

We came into Port Lincoln with the sunrise.

Port Lincoln is the depot for Eyre's Peninsula. It is one of the best natural harbors in Australia, well sheltered and deep.

It has two entrances. The Gulf vessels come in by one gate and go out by the other, in perfect safety. It is capable of accommodating a fleet of battleships, and will be used by the Federal Government as a naval base.

Around it spread low, bushy hills covered with mallee. Its waters abound in edible fish, and its shores are rich in oysters. Eighteen miles distant mineral oil has been discovered, a fact which may hasten the future of this excellent port.

Hardly were the *Morialta's* lines fast before the cranes began to heave out material—sleepers from the forests of New South Wales, steel rails from wherever Australian departments make their purchases, fishplates, and all the familiar truck and gear of railway construction.

The uses of the Peninsula being no longer in doubt, the Government in Adelaide was marking out railway lines, surveying lands which were to be made available for settlers, and examining the country for water supply.

From Port Lincoln fifty miles of railway were already open. This line will be pushed up, with feeders, into the heart of the Peninsula. Other lines will go out into the Mallee, running up the coast of Spencer's Gulf, along the western coast to Streaky Bay, and ultimately, no doubt, across to Eucla.

Along these iron roadways the Mallee will go down; the wheat will come up—another Australian "Desert" will be splashed with alternate green and gold.

A man's outlook is largely colored by the feelings of the moment. A man like Explorer Eyre, struggling from one native well to another through absolutely unknown and hostile country, looks upon his surroundings with different eyes from the man who, after a comfortable breakfast in Port Lincoln, mounts the box seat of a coach and sets out for the West Coast behind a spanking team of horses.

All the way to Denial Bay, 284 miles away, he will experience neither hunger nor thirst that he cannot readily satisfy.

He will bowl along a good road, bordered by mallee scrub and sheoaks in places, and in other places by patches of fine agricultural country, by parklike slopes and forest places abounding in tall timber.

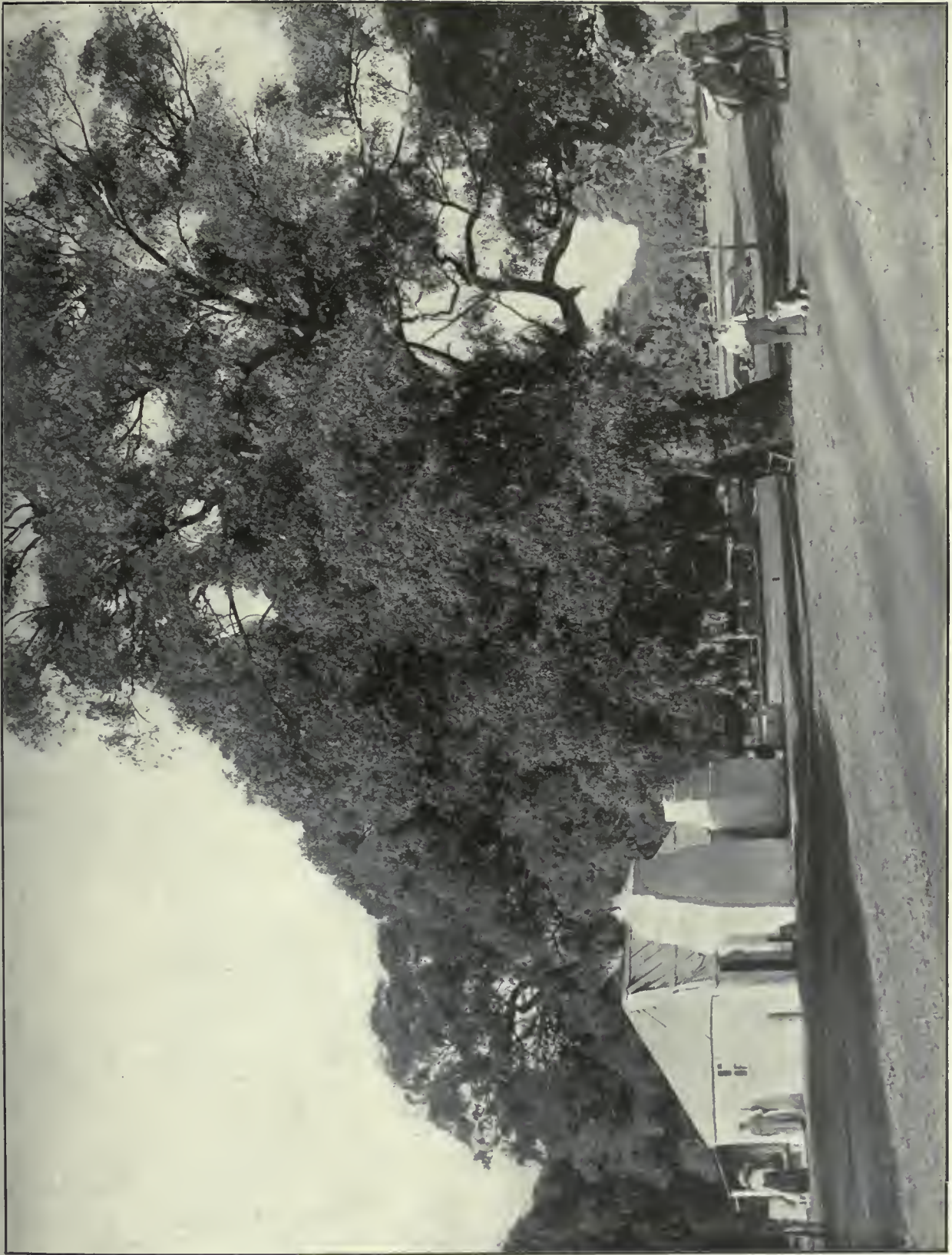
He will take tea at the rest houses and dinner at the hotels, and a hundred miles from Port Lincoln he will still behold wheat stacks and stubble fields!

At Streaky Bay, eighty miles farther, he will find that township sites are at a premium; and at Murat and Denial Bays—still farther, where the railway is to go in time—he will still be in arable country with an assured future. And so on to Chintawanta and Eucla, over a territory as large as a European kingdom. Along this coast—yet imperfectly lighted and little known to the outside world—from Thistle Island—which is growing good barley—to Nuyt's Archipelago, there are already many little ports wherefrom the annual shipments of wheat are steadily increasing.

From Peter Nuyt's Islands—which marked the terminus of Dutch navigation eastward—to Esperance there will be many more.

* * * *

On the eastern shores of the Peninsula, Tumbay Bay has grown up like a goldfields township, only based on a certainty, where the gold town too



A Settler's Home in South Australia

often rests in the shallow wash-dirt of speculation.

Behind Tumby Bay roll fine blue hills, and facing its long, weedy beaches are stout stone buildings, with brick "tucks" to gratify the eye.

Here are huge stacks of wheat covered with galvanized iron, flour mills, an "Institute," and picture shows. Tumby has been entirely built

being built. It runs parallel to Eyre's Peninsula at a considerable distance northward, and sweeps away across the Nullarbor Plains, west to Kalgoorlie—over a thousand miles in all. A large section of Australia which it will traverse is yet undetermined. Western America was far better known and understood when the first trans-American railway was constructed.



A Sheep Station Homestead

up by wheat in six years, and its comfortable-looking population know that it is the beginning of a great centre. . . .

At Franklin Harbor the Gulf steamer picks up a group of wheat farmers going across to Walaroo, to catch the morning's train for Adelaide.

Watching these quiet, manly fellows, numbering, one feels sure, some agricultural college men among the younger members, listening to their conversation as they sit about the decks smoking, one realizes that the old melodramatic Australia, the Australia of the red-shirted bushman, the sun-downer, and the drought is rapidly becoming a thing of the past. . . .

From Port Augusta, at the head of Spencer's Gulf, the Transcontinental Railway Line is now

Much of the country that the Union Pacific line crossed was then classed as "desert." But the American dry-farmer of to-day knows better.

The Australian dry-farmer of the future will be able to pronounce more fully upon the lands to be crossed by *his* trans-continental, after further experience has been gained.

In the light of what has already been written it can at once be realized that not 1,000 square miles of Australia is likely to prove worthless.

* * * *

As far back as 1896 the Western Australian Government dispatched an expedition under the command of Arthur Mason to obtain information respecting a supposed incursion of rabbits from

South Australia. The rabbit—as all the world knows—has been a cause of many losses (and some profits) in Australia. The reason for the rabbit will be made clear in another section of this book.

Even in a big country like ours, where officials are called upon to perform the most arduous tasks, and actually do perform them with a mini-

tion; also a full description of country, soil, and vegetation met with, and its possibilities; and also collect any specimens of natural history or flora, and note any auriferous or mineral indications, and fix positions of same.”

So with three men, eight camels, and provisions to last about five months, we find the expedition leaving Kurnalpi on the 17th of June. Kurnalpi



A Forest Pool

mum of error and a maximum of patience, the commission issued to Mr. Mason was fairly comprehensive.

Among other things, he was “during his travels to record any natural features of interest met with, or any incidents of importance; and also endeavour to fix any positions, landmarks, water holes, or springs, so that they may be laid down in our maps for public and departmental informa-

tion; also a full description of country, soil, and vegetation met with, and its possibilities; and also collect any specimens of natural history or flora, and note any auriferous or mineral indications, and fix positions of same.”

For the first week it rained every day, but the *water did not remain on the surface.*

This is a peculiarity of the whole south-western part of Australia, in which there is not one long river of account. The diamond drill is showing why—the storage is below.

Briefly summarized, the Mason party travelled

east by south, a distance of about 300 miles, to a point some thirty miles from Eyre's Sand Patch on the Great Australian Bight. It then bore away in a straight line to the north-east, two hundred and fifteen miles, and then fell back due south to Eucla, 160 miles.

This divides the journey into three long stages. Mr. Mason condensed his experiences into a printed report of just 50 pages. It is one of the most interesting official documents ever issued by a Government Printer.

We will take a few extracts:—

(First Stage.)—

"The country between Kurnalpi and Yindi looked magnificent, there being abundance of grasses, saltbush, and numerous flowers. . . . The soil about Yindi is of a rich, dark red loam. . . . On the 24th June we left Yindi. For the whole distance during the first day and for a few miles on the next day the country was undulating; of a rich, dark loam covered with salt bush and grass, and timbered with mulga, casuarinas, willows and gums. It is magnificent for stock purposes. Within about eight miles of the Ponton there was plenty of good feed, the grass containing so much moisture that after the camels had been feeding for an hour they required no water.

"For the whole fifty-six miles, the Oasis to Yayouldle Rock Hole, we passed through the most magnificent pastoral downs I have ever seen, and occasionally through small 'oases' of from one to ten acres each in area, with beautiful green feed of trefoil and other grasses two feet high. *The country everywhere had the appearance of an immense farm, covered with all varieties of grasses, flowers, and shrubs. The flowers were beautiful to see, and consisted of Sturt peas, marguerites, daisies, and everlastings. Everywhere the eye can reach it is one vast sea of beautiful changing shades of green. . . . For the next few days our course was 125 deg., on which bearing we travelled about fifty-six miles through some of the best grazing country in the Colony. . . . The soil is exceedingly rich, of a dark red loam, around Yayouldle, and the country is of limestone formation. The plain is richly grassed. This was the end of the first section of the exploration.*"

(Second Stage.)—

"Leaving the main camp, on the 16th July we (Mason and Yonge) started on the journey to Boundary Dam, travelling on a course of 40 deg., a distance of 215 miles. After going about twenty-five miles through some splendid gently undulating grazing country we came on to the plains,

which we named Premier Downs, after the Hon. Sir John Forrest, Premier of Western Australia, who in 1870, on his trip from Perth to Adelaide *via* the Great Australian Bight, penetrated some considerable distance inland. These Downs are entirely destitute of timber, *and covered with magnificent grasses, wild oats, barley, and kangaroo grass, etc.*, a great variety of flowers, including white and yellow marguerites, etc. All around for miles in every direction, the plains have a really beautiful appearance. We journeyed 104 miles through this magnificent country. The soil throughout is of a rich red chocolate loam! At 150 miles we struck the timbered country—myall, mulga, wattle, etc., with plenty of grass, flowers, saltbush, etc."

(Third Section—From a point near Boundary Dam South to Eucla.)—

At this point the natives, during the night, entered the camp, unhobbled the camels, and drove them off beyond any hope of recovery by men on foot; stole the greater part of the provisions, and left the party with eight gallons of water 160 miles from Eucla, their nearest known source of permanent water supply.

They determined to walk the hundred and sixty miles!

And now let Arthur Mason tell his own story of the retreat to Eucla. It is one of many fine tales of the Australian Bush, and it has this particular value that, in spite of all his hardships and suffering, the man never loses faith in the country he is crossing over:—

"On the 27th July we left our ill-fated camp, near Boundary Dam, on our long and perilous tramp to Eucla. We started early, walking for an hour and then resting for half an hour, endeavouring to the utmost to keep up our strength. The load we carried proved heavy, and my hurt knee was already beginning to make itself felt; my only hope was that it would last the journey. The course we steered was about 174 deg., which would strike about ten miles west of Eucla. The country passed through for the first twenty-seven miles was almost desert, of an undulating limestone and sandy composition, with scrub, spinifex, mallee, quondongs, myalls, and a little salt and blue bush. Water may possibly be obtained in the sand hills by digging. At night, for want of a moon, we found it very awkward walking; and it was bitterly cold, as we had no other clothing but what we stood up in. At the twenty-seventh mile we came on to the open plains, *which looked magnificent, being covered with many varieties of beautiful flowers, grasses and herbages.* My feet began to be painful, and through the broken limestone over which we had to pass, I found it difficult to proceed. In consequence



A South Australian Mail Coach—Port Lincoln to Eucla

I felt very nervous, for I knew that if my knee gave way it was all over with me. At night we slept on the plains in a black frost, and on rising our clothes were quite stiff with ice. The weather was pleasantly warm during the day, and, of course, we were fully exposed to the sun's rays, and as we found the water was evaporating, we had to tear up some of our clothes to protect the waterbags.

"After travelling about sixty miles we passed the extreme limit of the blowholes, many of them being in full blast; in some the sound was like rushing water, in others like a train at full speed, and again like the noise of an approaching hurricane; many blow outwards and others suck inwards. On several occasions we tried to go down them, but only succeeded in getting down about twenty feet. They are spirally constructed, and are not more than eighteen inches to two feet in diameter. Once I got caught in one, and it took me some considerable time to get out. *I believe the holes lead to an immense quantity of underground water.*

"*The country is magnificent, one of the grandest grazing lands in the world, thousands upon thousands of acres, covered with many varieties of grasses, viz., kangaroo, couch, umbrella, wild oats, and barley, etc.; numerous flowers, amongst them stars of Bethlehem, marguerites, Sturt peas, everlasting, etc.; and several shrubs, including salt, blue, and cotton bushes, pig-face, wild grape, marsh mallows, and also some red creeping*

poison. We found it very dangerous walking at night on account of the blowholes; they are hidden by the grass, and on several occasions we nearly fell down them. We were still on the plains, and it was terribly cold during the night; we got nearly frostbitten sometimes. There was no wood to make a fire; the water was commencing to get very low; the provisions were finished, and we were beginning to feel the pangs of hunger. I did not know how it would end, as Eucla was still a long way off."

This portion of his narrative is quoted because it emphasises the important fact—that in spite of its lack of surface water—due to physical conditions alone—the land so painfully traversed was "still magnificent and looked like fields of undulating crops."

Obviously the rains, although quite adequate to ensure these growths, soak rapidly away through the porous limestone.

A little human ingenuity to conserve a sufficiency of this water for domestic purposes is all that the country needs to make it capable of producing enormous wealth.

Mr. Mason says of the Premier Downs: "Even without water it is the richest pasturage I have ever seen, and is even better than the Riverina."

Altogether he estimated that there were "30 million acres of some of the best pastoral and agricultural land in the world" within the radius of his travels.

Since 1901, Transcontinental Railway explorations and developments have largely verified these statements. There is no doubt now that, as all Western Queensland has been made occupiable by surface conservation and by the discovery of artesian supplies, so the greater part of South-Western Australia, long regarded as useless, will prove a national asset of incalculable value.

* * * *

We have seen that of Eyre's Peninsula twelve million acres are set down as arable, and that in the continuing country between Eucla and Kalgoorlie 30 million acres are pronounced "the best in the world." What now of the country following on after that, the part of South-Western Australia lying between Mason's Camp at Yayouldle Rock Hole, above Eyre on the Bight—and King George's Sound—roughly, about 450 miles?

Taking an average width of 100 miles, this gives another twenty-eight to twenty-nine millions of acres.

Esperance lies almost midway between Eyre and Albany. It is 836 miles from Adelaide, 524 from Fremantle, and 220 from Norseman, the nearest railway depot. Esperance is yet fairly remote from any centre.

Remoteness has too often been confused with



Grass and Water in the Interior



South Australian Merinos

barrenness in our ideas. Outlying places are condemned on any chance statement, simply because they are remote. Their inaccessibility puts them at a disadvantage, and the voices of the few people who could testify to their possibilities are not heard. It must be kept in mind that the whole continent is still new to settlement; that each district in each State is clamoring for attention.

Since the opening of the eastern goldfields of Western Australia this country to the southward of Kalgoorlie has become better known.

A direct railway survey has been made and a *million and a half acres of fine wheat country* determined along its route. The average rainfall over the largest area is 23 inches—more than sufficient for the growth of cereals. Pinnaroo produces millions of bushels on an outside average of 15 inches!

The climate is found also to be delightful, with cold invigorating winters, and summers during which there are compensating breezes at night after the hottest days; for all this land faces the Antarctic Ocean, and is continually swept by currents of cooler air; altogether a country fitted for occupation by Europeans.

Another undeveloped agricultural province may be added to the list, possessing at Esperance what is claimed to be the "best natural harbor from Port Darwin to Port Phillip," holding within its wide-spreading arms stretches of rich wheat and dairy lands.

So promising is this Mallee that a number of experienced South Australian dry-farmers have selected lands—obtainable from the Government at 10/- an acre on easy terms—and although handicapped yet by lack of transport, are quite satisfied that their future will be a rosy one.

On one farm, 45 miles north of Esperance, 600 acres recently gave $2\frac{1}{4}$ tons of hay to the acre, and a cleared paddock of 1,000 acres, left to grow grass, carried 800 sheep, 16 horses, and several cattle for nine months of the year. There is no difficulty with water conservation, and the district is as healthy for stock as any in Australia. Take this in conjunction with the proved fact that the lands of the coastal sections are capable of intense culture, and the last area of this "Great South-Western Desert" begins to look quite as promising as the preceding forty-two million acres.

Let us hear what some of the pioneers are growing, over in that country where Eyre staggered, thirst-tormented, exhausted, despairing, on his western way; where the great waves of the Bight beat on hundreds of miles of lonely shores; where the average Australian imagination conjures up a vision of desolate sand dunes and forbidding sterility.

Mr. J. W. White, an ex-member of the South Australian Legislature, a recognised authority on Mallee, who was also a member of a Commission appointed to report on the Mallee lands in the central State, after taking up his residence in the Esperance district and living there for several years, writes:—

"It has been proved without doubt that the land in and around Esperance *is capable of intense culture*. As an example, in the garden of Mr. F. Douglas, vines, figs, apples, peach, mulberry, apricot, etc., bear fruit that for quality and quantity is *equal to anything* in other parts of the State. The vineyard, situated about three miles inland, planted by Mr. Sims, contains a choice selection

of table grapes, the *bunches of which often weigh from 6lb. to 7lb. each.* On the Dalyup river, 20 miles west of Esperance, and from five to ten miles inland, are the orchards of Messrs. Rouse, Daw and Irvine. *All kinds of fruit grow there in profusion.*

"The wonderful growth of vegetables is noticeable wherever settlement has taken place. Potatoes and onions weigh 2lb. and 3lb. each. The former near the sea coast can be *grown successfully all the year round,* as also can tomatoes. Marrows, pumpkins, squashes and pie melons grow in fallowed land without irrigation, and yield heavily. An abundant supply of *fresh water* is obtainable at from 4ft to 12ft. *sinking,* in most places within ten miles of the coast.

"Twenty-six miles north of Esperance some of the *best farming land in the State* is to be seen, and extending northwards for a distance of 40 to 45 miles. Wherever cultivation has taken place *results have been most satisfactory.*"

There is in reality less doubt about the possibilities of this last section of the Great Southern Belt than the two more eastern divisions.

Of the land that lies between Albany and the Leeuwin something specific will be said later on. For the present it suffices to know that it is already in places producing profitable crops of grain. In other parts it is covered with the finest and most valuable hardwood forests in the world.

Any agricultural amateur knows that deserts

do not produce titanic trees, or 15 to 30 bushels of wheat to the acre; but it requires some special Australian experience to realize that waterless tracts of country like the Premier Downs, though superbly grassed and timbered, are not desert either. In the light of experience also we learn that enormous stretches of porous soils may receive a rainfall sufficient to yield the finest harvests when brought under the plough, and yet refuse the unprovided traveller enough drinking water to keep him alive.

We have jolted roughly over that part of Australia which lies between the 141st meridian and the 115th: i.e., from the eastern boundary line of South Australia to the shores of the Southern Ocean. The string of that bow is 1,500 miles long, and the bow itself (only a narrow slice of the continent) holds probably 70 million acres, which, mostly untouched, may be classed as "the finest pastoral and agricultural lands in the world." The most that can be said against them is that they are lacking *surface* waters in certain places. But they receive more than an adequate rainfall, and the application of the merest human effort and intelligence will make them eminently liveable from end to end.

From the border of South Australia east to Cape Howe, lies the State of Victoria—how good has been shown in detail elsewhere.

From Leeuwin to Howe, in fine, there rolls the whole Southern breadth of the Australian Continent, and behold! IT IS ALL GOOD.



An Irrigated Orchard



Drying Raisins at Renmark

IRRIGATION, WATER CONSERVATION AND DRAINAGE

NATIONAL irrigation in the arid and semi-arid States of America was once a dream of the future—to-day, it is in actual practice. Country which was considered as “desert” now supports, with the successful and economical application of water, tens of thousands of prosperous settlers.

South Australians, who know their country and appreciate its resources, are for expansion as regards irrigation. They know that the monarch river of Australia—the Murray—which flows through their State for nearly 400 miles, can be used as a fertilising agent on a grand scale. It is officially estimated that there are 160,000 acres of low-lying lands along the Murray within South Australia which, at moderate cost, can be reclaimed and made available for intense culture. There are also approximately 250,000 acres of high lands which are capable of irrigation by pumping.

The birth of practical irrigation in the Central State dates from the advent of Messrs. Chaffey Bros., at Renmark, in 1887. Previously, a number of progressive settlers had practised artificial watering, but not on an extensive or properly established system.

The State Department of Irrigation and Re-

clamation was formed in 1910. A vigorous policy is now being pursued in preparing settlements that have hitherto been utilised for nothing more than sheep runs. Vast areas of fertile land still remain in the hands of the Crown, to be offered at a small rental and under ideal conditions to the settler who is able to contribute industry and intelligence, with a reasonable amount of capital, towards its development.

Renmark affords a striking example of the many prosperous communities which, with increased population, will become established on South Australian river areas. To-day this settlement stands as a monument to the persevering industry and intelligence of those settlers who were undaunted by initial difficulties and early failures. In 1913 a total of 5,237 acres were irrigated, and the results achieved during several years past have been remarkable; the total value of the produce is not less than £135,000 annually.

The Renmark Settlement has established a reputation for the quality and flavour of its dried fruits. The prevailing climatic conditions enable sun-drying to be carried on with more than ordinary success. It is also the home of the famous Washington Navel oranges, which a leading



Irrigation Drain near Beachport

English journal declared were undoubtedly the finest that had ever entered Covent Garden.

A little more than 5,000 acres has been settled under the State's scheme for developing these lands, while over 40,000 acres are now in process of preparation for allotment, by the construction of water supply channels and the erection of pumping plants. Yet this is the fringe only of lands on which successful irrigation practice is possible.

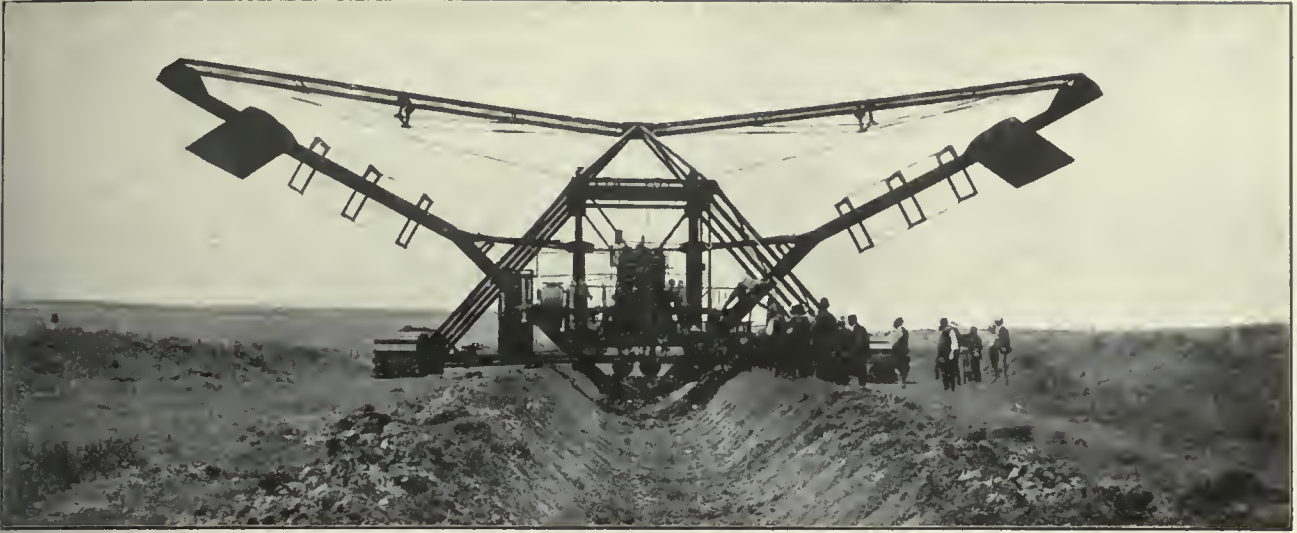
The lands mapped out for future development comprise about a quarter of a million acres, capable of producing to the greatest perfection the peach, apricot, nectarine, orange, lemon, fig, pear, and grape-vine—including the muscat, sultana and zante currant varieties for drying, and doradillas for distillery purposes. Lucerne and other fodders have also proved their adaptability to both the sandy and heavier soils of these areas and are everywhere being grown successfully.

The State's operations in providing for future settlement are not confined to the class of lands already dealt with. The reclamation of the swamp lands on the lower reaches of the river also forms an important part. The reclamation policy was inaugurated by a former Governor of the State, Sir W. F. D. Jervis, who in 1881 reclaimed about 3,300 acres of swamp land near Wellington. Further areas were developed by

private enterprise from that time onward, and in 1904 State operations were commenced by the reclamation of Mobilong and Burdett areas. About 3,000 acres of this class of land are now held under Closer Settlement conditions, and many families are making a comfortable living off areas varying from 20 to 30 acres. Several swamps, comprising about 5,000 acres, are in course of reclamation.

Many thousand acres still remain to be dealt with, whilst the reclamation of Lake Albert, situated near the Murray mouth, and comprising an area of 40,000 acres, is receiving serious consideration. Lake Alexandrina, of 75,000 acres, is also to be considered. Major Johnson, who has been engaged by the State in preparing a scheme for locking the River Murray, has already made a special report on the subject of the reclamation of these areas.

The soils on these lower reaches of the river have proved by analyses and actual results to be amongst the richest in the world. They are composed of layer upon layer of rich river silt, intermixed with immense bodies of decomposed vegetable matter to a depth in many places of over 40 feet. There can be no possible shadow of a doubt that, where such lands are properly reclaimed against the inroads of flood waters and



The Austin Excavator Working on Swamp-lands, River Murray

effectively drained, they will become some of the most productive in the world. In referring to these lands in a pamphlet published in 1903, Professor Perkins, now Director of Agriculture for the State, said: "The swamp soil, as might have been anticipated from the results of the mechanical analysis, is abnormally rich in nitrogen; of phosphoric acid it contains twice the amount normal to a good average soil, and possibly ten times the quantity usually found in the

average South Australian soil; in potash, soluble and strong acids it is exceedingly rich."

Practical results from these lands include a crop of 150 tons of onions from five acres, grown by Messrs. A. W. Morphett and Co., of Woods' Point. The average annual lucerne hay crop is from seven to ten tons and over. During the summer of 1914-15, when the State was visited by its record drought, the settlers on the reclaimed lands reaped a rich harvest, the returns for



Steam Shovels at Work on South-Eastern Drains.

lucerne-hay reaching up to £90 per acre. Dairying, pig and sheep raising are the principal occupations of the settlers on these lands.

The conditions applying to allotment are simple. The lands are allotted under the Perpetual Lease system, at rentals based on 4 per cent. on the unimproved value, or cost of the land when resumed by the State and cost of reclamation. Water and drainage rates are also charged, sufficient to cover cost of pumping and drainage and general management expenses of the areas. In the case of irrigable lands, as distinct from those reclaimed, interest on the channels and pumping plants is obtained through the water rate. The area of land either irrigable or reclaimed allotted to any one applicant is restricted to 50 acres, but this area has proved to be much in excess of what can be successfully developed by one man without the hire of considerable labor.

Assistance is offered to the lessees in preparing the land for planting, the Department having power to expend up to £15 per acre on the irrigable and reclaimed land in each lessee's block, for fencing, clearing, grading and constructing irrigation channels and tanks, or in other words, the land can be actually prepared for planting, with the exception of the ploughing. An amount equal to not less than 15 per cent. of the estimated cost of the work must be paid as a deposit, the balance being repayable by 20 annual instalments with interest added, commencing after the expiration of the fifth year. The lessee, however, has the option of paying off the whole of the amount due at any lesser period.

Further advances can be obtained on improvements effected by the settler on his holding, in the erection of buildings and other improvements and the purchase of stock. The services of an expert irrigation instructor are available to advise the settlers, free of cost, on all matters pertaining to the development and management of their land. Further than this, assistance is offered in the marketing and disposal of produce through the erection by the Government of fruit-packing and grading sheds, and it is intended to still further extend this means of assistance by providing distilleries and butter and cheese factories.

Undoubtedly, the future of irrigation development in the Central State is exceptionally bright. At the present time, the local markets can consume much more than the produce from these areas, while the increase in population in the near future, with the exploitation of markets further afield, should give a wonderful impetus to these long-neglected and unsettled lands.

The problem of Water Supply is inevitably one of vital importance to a growing country, especially to a State in which the greater part of the

yearly revenue is derived from its agricultural and pastoral industries.

Though, in the eighty years since its first colonisation, the population of South Australia has only ranged from about 400 people in 1836 to 433,000 at present, this far-sighted, if small, community has up to June 30th, 1916, expended £5,413,853 in water conservation and reticulation—an outlay which represents a capacity in reservoirs, etc., of 8,056 million gallons. Roughly, four and a half millions was spent in reservoirs and reticulation for the settled areas, and the balance in water provision for outside and remote districts, and the opening up of mail and cattle tracks into the central regions and to the north-eastern borders of the State.

The water supply for Adelaide and suburbs is obtained from the watersheds of the Torrens and Onkaparinga rivers, which have a catchment area of about 305 square miles. Thorndon Park was the first reservoir from which the city was supplied: it was constructed in 1857, and had a holding capacity of 139 million gallons. In 1872 Hope Valley reservoir was constructed, to hold 746 million gallons, and, from these two, Adelaide and its suburbs were supplied until 1896 when, owing to the rapid increase in the population and the extension of the deep drainage system, a further source became essential. In October of that year, the largest reservoir in the State—Happy Valley—which took five years to construct, was brought into operation. It is filled from the Onkaparinga River, and has a holding capacity of 3,200 million gallons. Looking ahead, however, the Government, with an eye to the city's continual expansion, are now constructing a reservoir at Millbrook with a holding capacity of nearly 3,650 million gallons, which, when completed, will provide an auxiliary supply for the city and suburbs.

There is a stretch of country nearly 300 miles long, between Happy Valley (a few miles south of Adelaide) and Port Augusta (in the north), which is reticulated by a continuous and ample supply of water from the various reservoirs of the Metropolitan, Barossa, Bundaleer, Beetaloo, Port Germein, and Port Augusta systems. They are tapped with about 3,200 miles of mains and represent a gross annual revenue of £170,000. The principal country water districts are the Bundaleer, Barossa, Warren and Beetaloo, in which a number of towns, as well as country lands, are supplied. The holding capacities of these reservoirs are 1,334, 1,000, 1,000 and 899 million gallons respectively. Many miles of concrete channels and tunnels convey the water to these storages from their different catchment areas of about 724 square miles, upon which the average rainfall is about 19 inches on the Bundaleer, 28 inches Barossa, and 26 inches Beetaloo.



Barossa Reservoir (capacity—1,000,000,000 gallons)

The water districts reticulated with mains of different sizes extend from Aldinga in the south to Port Augusta in the north, and include an area of about 3,708,748 acres. A good supply has been provided in each of the districts for all landholders, which is of immense value to the farmers as well as the State. Several Murray River townships and country lands are supplied with water pumped from the river into small reservoirs or tanks. Mount Gambier in the south-east has an unlimited supply of excellent water pumped from the Blue Lake, which, with precipitous banks 200 to 250 feet high, is perhaps the most picturesque lake in the Commonwealth.

The semi-arid nature of much of the interior and the precarious natural water supplies at one time rendered the occupation of a great deal of the country impossible for pastoral or agricultural purposes, and only in exceptional seasons could the main north-eastern stock routes be traversed with cattle. Now, however, the great stock routes, extending north-east to the boundaries of New South Wales and Queensland, north to the Northern Territory, north-west toward the Musgrave Ranges, and south-west to the border of West Australia, have been opened up by a system of wells, bores, reservoirs and tanks with the necessary pumps, buckets, and troughs, constructed often in the face of great

difficulties, work having at times to be suspended until the arrival of more favorable seasonal conditions.

In some cases, the stock route supplies become pioneer supplies for agricultural settlement, together with such further provision as may be necessary. In those districts where underground water is not available, excavated reservoirs up to six million gallons capacity have been made where suitable catchments and ground exist, and excavated tanks, concrete-lined and roofed, with capacities of 200,000 and 500,000 gallons, have lately been adopted with success for the smaller catchments, while numerous masonry tanks of less capacity have been constructed in the past.

As a preliminary aid to agricultural settlement a large number of catchment sheds, each with galvanized tanks, aggregating 10,000 gallons capacity, have been erected on lands thrown open for selection, and a similar type of shed with tanks is also used on stock routes where no natural catchments exist.

The south-western portion of the greatest known artesian basin lies within the borders of South Australia. The extent of the Australian artesian basin is 590,000 square miles, of which the central State has, as determined by planimetric measurements, about 102,400 square miles.

South Australia was one of the first States to move in extensive artesian boring. Every successive experiment was keenly watched, and, before long, a definite area was mapped out in which it was tolerably certain that water in great quantity could be obtained almost everywhere by the use of boring rods.

The theory formed—that the excessive rainfall on the Queensland Great Dividing Range soaks down into an immense layer of porous strata between two impervious rock beds, forming a kind of water sandwich—appears to be

to be explored by the drill, and the problems of the south-westerly extension of the Great Basin, or of the existence of other supplies in the western region, have to be solved.

Keen engineering minds the world over have for years been giving of their best in the great work of conquering unutilised lands. How the waste and arid acres of immense distances have yielded to the fertilising agency of irrigation forms history in many a now-thriving settlement. On the other hand a wonderfully fertile tract of country known as the South-East, is largely given



Drain excavated by machinery in limestone country

borne out by the facts, as revealed by the drill within the assumed artesian area. South Australia has within the great basin, forty-one useful bores, of which thirty-one are artesian, and the remainder sub-artesian. These vary in depth from 280 feet to 4,850 feet, and in temperature from 86 deg. F. to 208 deg. In the River Murray basin, useful water has been found in seventy-three bores, the two southernmost of which flow. In various other localities, twenty-six successful bores have been sunk, and three of these are artesian.

In addition to the above, a large number of experimental and exploratory bores have been put down, one of which, within the great basin, has attained a depth of 5,458 feet, without so far securing useful water. Private enterprise, too, has made rapid strides in boring, and the more progressive agriculturists, pastoralists, and gardeners have their own bores and pumping plants. Vast areas of this State still remain

over to swamps. This country lies in close proximity to the dry sandy belts of mallee.

It is the dream of South Australian statesmen to convert it into a closely-settled and highly-cultivated region of a productivity akin to that in the drier portions of the district, where the rich volcanic soil continuously yields wonderful crops of cereals, fodders, and vegetables. With a rainfall averaging from 25 to 30 inches annually, all that nature requires to restore her equilibrium in this waste country is a scheme of artificial drainage.

The district reveals some remarkable features. The settled portions are situated chiefly within the counties of MacDonnell, Robe, and Grey, which comprise approximately four million acres. General features of the country are a series of low ranges running parallel with the seacoast, with flats between them ranging in width from one to six miles. The ranges are



SWAMP COUNTRY BEFORE DRAINAGE,
SOUTH-EAST SOUTH AUSTRALIA.



CULTIVATION OF INFERIOR COUNTRY UNDER IRRIGATION
NEAR MILLIGENT, SOUTH AUSTRALIA.

covered with trees and scrub and are usually of a sandy nature on top, with, in places, a surface-crust of limestone overlying sandstone. These ranges, little used except for grazing purposes, are proved capable of growing apple and other fruit trees.

The flats between the ranges vary, in soil quality, from rich peaty ground to very shallow soil overlying hard limestone. All are, or have been more or less subject to inundation by flood-waters which accumulate on the flats. The only natural outlet for these flood-waters was in a northerly direction along the low or western side of the flats. The porous nature of the sub-soil on some of the higher levels causes a good deal of percolation under the ranges from one flat to another. Many instances are known where large quantities of water, at one time, disappeared into what are locally called run-away holes. During recent years these run-away holes appear to have lost their absorbing capacity to a large extent, and it has been found impracticable to utilize them to any great degree in permanently draining the country.

Drainage, therefore, must be by way of artificial outlets to the sea. Getting down to serious work, Parliament, in 1908, passed a bill authorising an expenditure of £300,000 on main drains to intersect the country and carry the flood-waters in a direct course to the sea. Prior to this, some work had been done in the way of cutting drains along the valleys to assist the floods along their natural course northwards. These drains, together with others yet to be constructed, will act as feeders to the main line of drainage towards the sea. The whole of the drains which were contemplated under the Bill are now well advanced towards completion. Considerable improvement in the country traversed by them is already apparent. Though draining produces a noticeable effect almost immediately, the land is usually not at its best until after a drying period of about three years.

The Millicent district may be said to be the only area in the South-East where complete drainage of the land has been carried out. Here between 75,000 and 80,000 acres of land have been drained, and what was once only fit for grazing

has now become one of the most fertile and productive areas of the State.

The amount spent on national drains in the South-East other than those provided for in the 1908 Bill is £346,627, which includes the cost of the Millicent drainage scheme. A further sum of £35,378 has been spent under another Act which empowers the Government to construct drains on requests being made by the landowners, the cost to be refunded to the Government in forty-two yearly instalments, with interest at 4 per cent. The area to be benefited under the 1908 Bill is given as 1,700,000 acres. The works proposed, however, will not give complete drainage to this area, but are designed as the main arteries of a system which will eventually be carried out under some scheme of closer settlement not yet formulated.

A good deal of the land in the South-East is held in large holdings, which are used exclusively for grazing. This prevents the country from paying the amount required to give complete drainage, but closer settlement under a Government re-purchase scheme should rectify this condition of affairs, and the South East would then make rapid advancement in point of productiveness and population.

Undoubtedly, South Australia may be congratulated on its drainage enterprise. Nothing similar has been done in any of the other States. In 1911 the Engineer-in-Chief (Mr. Graham Stewart), under whose direction the drainage works are being carried out, was commissioned by the Government to visit Europe and America for the purpose *inter alia* of selecting suitable machinery for making the extensive excavations necessary to cut direct lines of drainage to the sea. The department has utilised the most up-to-date methods in the work. The machines, which were introduced in 1913, have removed nearly 3,000,000 cubic yards of excavation. Rock drills are used for boring holes for explosives, and the latter loosen the ground sufficiently for the economic and expeditious operation of steam navvies. The plant has proved highly satisfactory, especially in a work unfavourably situated for manual labor on account of the wet nature of the country. The scheme and its progress have been favorably commented upon by all engineers who have visited the works.

WESTERN AUSTRALIA

SOUTH
BEACH



FREMANTLE



ROTTNEST



Western Australia

DAMPIER'S "MISERABLEST COUNTRY"

IT will be remembered that the Voyager Dampier, in the year 1688, roundly condemned the whole Australian Continent, because he failed to readily supply his ship with water along that limited portion of the North-West Coast which he visited.

Describing the land as "barren and destitute of water unless you make wells," he strengthened his assertion by declaring its natives to be "the miserablest people in the world." Such a race would naturally be natives of the miserablest Country—and for two centuries all the world accepted Dampier's statements as facts.

Several preceding centuries had believed the world to be flat, and it required much argument to correct this popular error.

That portion of Western Australia visited by Dampier in 1688, is still believed to be the poorest of the Commonwealth.

As our readers have been asked to accept some facts concerning the admittedly *good* parts of Australia, a little account of this "miserablest country" makes an appropriate conclusion.

There is a regular fortnightly service from Fremantle (W.A.) along the North-West Coast and down to Batavia and Singapore, carried out by the W.A. Steam Navigation Co. and the Ocean Steamship Co. conjointly.

We will board the ss. *Charon*, two thousand eight hundred tons, at Fremantle, with a good supply of Kodak films and a notebook. It is also well to take some tropical clothing, for Australia enjoys more than one climate.

Forward, the crew is composed entirely of Malays. Aft, all hands except the engineers and deck officers, are Chinese.

We will find Captain Dalgliesh affable, and we will cultivate him. He will let us have the run

of the chart room, and he knows the North-West Coast as well as any man afloat. He is also an authority on the law of storms.

Our cargo consists largely of supplies and merchandise for the Nor'-West towns and sheep stations. Forward, laid along the deck, are several huge piles of jarrah, intended for repairing the wharf at Cossack, which suffered in the great *Koombana* gale.

Our first port of call is Geraldton.

While the vessel is putting cargo out at the long pier we will go ashore and look round.

There is a railway from Perth, 306 land miles, to this place, running through country which is being rapidly settled and converted into dairying, pig raising, horse breeding and wheat growing districts, enjoying a sufficient average



"An air of leisurely prosperity at Geraldton"



Harvesting on Hawkhurst Estate, York

rainfall of $18\frac{1}{2}$ inches. In this neighbourhood Pelsart landed after the wreck of the *Batavia*.

As the historical Abrolhos Islands bear 40-45 miles due west at their highest point, we will not be able to see them.

There is an air of leisurely prosperity about Geraldton. Pelsart marooned the two first authenticated Australian white settlers at Champion Bay. The population of town and district numbers at present—three hundred years later—13,500.

Judging by the bales of sheepskins and wool waiting on the wharf to be hoisted into the *Charon's* hold for Singapore, the outskirts of Dampier's "miserablest country" are not altogether hopeless these days.

If Pelsart could come back to inquire what became of his two mutineers he would see what foolish conclusions some fine old sea-captains cherished about the quality of this particular coast. He would find wharves, mills, railway yards and many unexpected changes, including 32-bushel crops inland. He would hear that one concessionaire had sold £400,000 of land between Perth and Geraldton in $2\frac{1}{2}$ years; that the North-West is regarded by experienced pastoralists as being amongst the best sheep country in Australia, and that from Geraldton eastward one might travel by railway to Sandstone (309 miles) and west and north to Meekatharra (334 miles) through lands classed first as agricultural and wheat, and then through good pastoral and mineral country, to his journey's end.

The old Dutch commodore, who had such an unhappy experience along here in 1629, would be still more astounded to find orchards of citrus fruits, wherein the average yield from a single mandarin-tree is 200 dozen of excellent quality.

The sand plains that seemed so barren to his eyes, and to the eyes of Dampier and others who followed him, he would hear spoken of as good

summer pasture for sheep; while the country covered with stunted trees—York gums, jam and black wattle—is classed among the best. The York gum land, when cleared, at a maximum cost of £2 an acre, grows excellent pasturage. Its soil is a heavy loam, easily ploughed, and cannot be surpassed in the State for the growth of cereals. It is refreshing to find that in the coastal strip from Geraldton to the Murchison River there are still hundreds of thousands of acres of good country available for settlement; that more than one site for an irrigation colony exists, and that a 16-bushel crop of wheat is often possible from these first-class arable lands, on which any practical man can make a good living and more.

Of coal and gold, lead and copper, this particular district in the "miserablest country" has added no mean sum to the national output. The Great Fingal goldmine at Day Dawn alone has produced about £4,000,000 in gold to date!

As nowadays in America land is valued by the amount of lucerne it will grow, the fact that experiment with lucerne out here has *demonstrated its power beyond doubt to get rooted and live through the hottest summer, without irrigation*, is worthy of attention.

As in other so-called "dry districts," water is available in good supply at a depth of 20 feet.

Inland from the coast again is a vast artesian basin, the extent of which is yet unknown.

So, for the growth of cereals, fruits, dairy and garden produce; for the raising of stock, and for the production of precious metals, this section of "miserablest country" is proven quite suitable.

Both Master Dampier and Mynheer Pelsart were wrong. The land which produces oranges—14 to a stem—peaches, apricots, grapes, passion fruit, figs, nectarines, and other luscious fruits; where "sweet potatoes grow like weeds," and melons crop 20 tons to the acre, is good enough for European settlement!

In the morning, leaving Geraldton, we will slide back the teak door of our deck cabin, while the "boy" is getting our "chatty" bath ready, and behold the brooding shores of Western Australia, under whose ruffled breast a covey of fledgling islets are nestling, and the fresh, invigorating breeze will come to us across a sunlit sea. We are travelling north in midwinter, when the seas are always smooth and the skies are always clear. Each day brings us farther into the Aus-

and tie up at Carnarvon Wharf late in the evening—a day after leaving Geraldton.

This part of the coast, projecting farthest towards the early tracks of Indian trade, was apparently the first known to Europeans. Here came Dampier in the *Roebuck*, in August of 1699, when William the Third was King.

We will rise early, for the mornings on this coast are too beautiful to miss.



Loading Camels for Nullagine

tralian tropics—that wonderland which has yet to be pictured and written and sung.

There are 150 tons of pearlshell waiting shipment at Broome, and the skipper is anxious about the tide, although we are yet many days from that port—for the thirty and forty feet tides of the North-West Coast have to be reckoned with.

As the lazy hours drift by we will steam round the sandy headland of Cape Inscription, where stands one of the few lighthouses of this coast—the most westerly beacon in Australia. From here our course lies north-east across Sharks Bay to Carnarvon, on the Gascoyne River. We pass Bernier and Dorre Islands, used as lock hospitals for natives by the Westralian Government,

It is an open port, facing Geographe Channel, so named by M. le Capitaine Baudin, in the days when the First Napoleon was Emperor of France, and tried to name Australia "Terre Napoleon."

A broad electric-blue band right around the horizon, a sky stained to the zenith with an incredible blending of colors, herald the sunrise.

A whale ship, red and smeared, is steaming slowly into the roadstead. In her "crow's nest," a white barrel at the crosstrees, no lookout is stationed. Her bomb gun for'ard glitters in the dawnlight.

She drops anchor softly and comes to rest, the flag of Norway drooping over her stern.

The Malays chatter and laugh as they begin to take the *Charon's* hatches off.

One's splash bath is cool and refreshing, and the brightness and smoothness of the Tropics are with us now.

The cabin boy slips in announcing, with silken voice, the benefaction of "tea an' toas'."

Our Carnarvon cargo will not be all out before night time, and as there is wool to load, we can breakfast at our leisure, before walking the mile-long jetty that takes us towards the town.



Unloading Pearl-Shell

It is Saturday, and there is a large assemblage of Australians, young and old, at the sports ground to witness a football match.

These residents of Dampier's "miserablest country" are surprisingly active, cheerful, and prosperous-looking. To all enquiries regarding the climate they give optimistic replies. When we ask about the country they take us to one Angelo, a resident of substance, who is carrying out some experiments in agriculture at a little distance from town.

Angelo is an Australian and an enthusiastic believer in the destiny of the North-West. He brings a buggy and drives us across a very dry plain to the banks of the Gascoyne, where he has laid out his irrigation area.

Now the Gascoyne, like many other Australian rivers, is among the paradoxes of this unrealized continent. For many months at a time it apparently ceases to flow. To the eyes of an inexperienced observer, like Dampier for example, it would then be a river of dry sand—no more. Dampier spent eight days around here vainly looking for water. Apparently the river was not running in August, 1699. Other staggering, swaggering figures out of the Past have landed, looked, and turned seaward again, roundly cursing an inhospitable shore.

Had they only known it, the Gascoyne—which drains an enormous area of country—was running all the time—below!

Under that wide, sandy river bed, and for a mile or more wide, on either bank, for a proved distance of 100 miles upstream, there is a constant and abundant flow of good, clear water. This fact our friend Angelo realized full well. One doubts not that many who are to come, the future settlers of the North-West, will know also.

There is a "sumph" hole sunken in the sand some distance away from the Gascoyne, and a petrol engine is pumping up water at the rate of about 1,300 gallons an hour. This, supplemented by a supply lifted by windmills, is disbursed over the area under treatment, as the particular sections of Mr. Angelo's cultivation require it. The soils are typical Australian red soils, similar to those about Yanco in New South Wales, or such as are found anywhere through the saltbush districts.

The water is struck at a depth of about 24 feet from the surface. Unlike some of the artesian supplies, it is not highly mineralized. The system followed here is to give the ground 2 cwt. of "super" and half a ton of lime to the acre. The results stand, or rather flourish, before us. Here, for example, are ten acres of irrigated lucerne planted in November which gave five "cuts" before July 13th. At the March cutting this lucerne was three feet four inches high, after twenty-seven days' growth!

Here also are tomatoes—worth £1 a case in Perth—pomelos, papaws, lemons, oranges, and mandarins in fine promise, figs in profusion, plantains, mangoes, guavas and rock melons, with peas, cauliflower, and all kinds of vegetables.

As evidence of the catholicity of climate in this district, we will gather a sample of cotton growing alongside a bed of strawberries.

The success of the Angelo irrigation area at Carnarvon can be repeated in hundreds of thousands of similar sites in the North-West. There is room for millions of prosperous people in that vast hinterland between the Murchison and the Kimberleys, which to-day contains only 7,000 inhabitants.



Diver and Crew on a Pearler

The following morning will find us on the way to Onslow, just around the shoulder of the Continent. We have now entered the pearling grounds, which extend round to Cooktown on the Queensland Coast. They are a national asset worth at least a million annually if they were reasonably exploited. We are running down a little-known coast line, where the ship's charts still carry dotted lines in places and shore-lights are few and far between. On the islands offshore,—of which there are hundreds, from a few acres in area to the size of a European duchy—we could get wild sheep and turtle in abundance.

Behind Onslow extends, as usual, plenty of good pastoral and agricultural country. For 50 miles in places one might run a straight furrow through richest soil without clearing a stump. These lands will grow anything. They must some day come under the plough. Individual fortunes are certainly being made in the North-West. Recently a man bought a station for £1,000 at the conclusion of a dry spell. The good rain came shortly after, and he made £40,000 on his deal. But that is not the final destiny of the Great North-West, despite the fact that our old *Charon* already has 1,500 bales of wool, worth £14 a bale, in her holds.

Onslow itself is low-lying and sandy. It faces the Indian Ocean—calm enough except in the typhoon season, and dotted now with sails of the

pearling luggers in the offing, laying east by north for Port Hedland or Broome.

We lie at anchor, waiting until the two-masted lighters with huge brown fore-and-aft sails, bear slowly down to us on a nice little ruffle of wind.

They are laden with bales of wool and heavy boxes of pearl-shell, and manned by crews of fine-looking half-castes. There is much colour in the North-West.

It takes all day to dump the cargo in and out. At last the lighters, fully laden with fodder, tyres, sulkies, beer, groceries and other requirements of remote Australia, spread their brown wings in the lovely afterglow of sunset, and drift away ever so slowly towards the low-lying sandy shore.

The Malays fasten down our hatches again. The Captain is finishing a game of bridge; the passengers lounge about in their deck chairs enjoying a rather warm evening breeze—the characteristic dry air of this coast, purified by contact with the great plains.

Strange Asiatic words, shouts, and orders echo along the decks. Presently the screw begins to churn phosphorescent seas, as we bear away for Cossack.

Morning finds us among the islands of Dampier Archipelago. This coastland being impregnated with iron (of which there are large deposits, as well as gold and other metals), red is the dominant note in Nature's color scheme.

Between Onslow and Cossack there is a calling place for steamers called Fortescue, where the ship's compasses are always affected—probably by a submarine deposit of iron. At Magnetic Shoals and Cape Lambert, similar



Cleaning Pearls



Pearling Luggers at Anchor, Port Hedland

deviations are to be expected. To quote that naval oracle, the Admiralty Chart:—

“The whole of the coasts of North-Western Australia are as yet very imperfectly examined and charted, and mariners are cautioned accordingly.”

We will pass Legendre Island towards evening. Its red masses of ironstone, shaped into fantastic natural architecture, look like the canyon villages of New Mexico.

Next morning we will find ourselves by the high wharf at Cossack, built, as all wharves have to be built on the North-West Coast, to meet the tremendous rise and fall of tide.

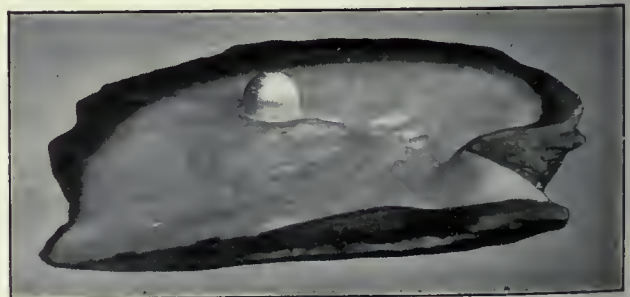
Day glides gloriously over a red headland, and brings an immediate sparkle to the sea. We may go ashore on a tropic beach, and gather pink seashells and spotted cowries. It is all blue and gold. Sky, land, and sea have taken on brighter colors, and the dim shadow, the mist, the spin-drift, the grey clouds of the temperate zone have vanished—we are in another country, where people wear white clothing and helmets in winter.

Along curving forelands, like the walls and battlements of ancient cities, of square and solid seeming, stand naked masses of ironstone. Rank grasses grow along the sea margin, but inland there are deep red soils holding rich pasture and succulent herbage. Where there is a

good tropical rainfall—11 inches have fallen in an hour—one finds running rivers and lush bush growth.

Big men wearing wide-brimmed felt hats and khaki trousers, are laboring to land the long sticks of timber from the steamer. Their calm and easy efficiency and great strength make favorable contrast with the excitability and lesser physical strength of the Malay crew. Whether or not Tropical Australia is to be conquered entirely by Europeans, the European is the more competent and capable worker, albeit independent and harder to handle in large operations.

We will leave the pearling luggers at anchor, the sage-green hillsides, the pink and white cliffs, the lighthouse and the tramway that make the picture of Cossack, and we will go out on a



A Pearl Blister,
(Containing either a Pearl or Mud)



Port Hedland

fourteen-foot rise, our skipper handling his ship like an archangel in white uniform and gold braid. With a cool breeze blowing, a clear sky and a smooth sea, the run to Depuch Island is like a yachting trip on Sydney Harbor. But in the willy-willy months we would find this to be the pivot of tremendous storms. The roofs of the houses in Cossack are secured by chains to prevent their being lifted off by the wind. At Depuch we find evidences of the *Koombana* gale and other typhoons.

Here is the *Concordia* barque, refloated and lying off the narrow sandy beach, where, luckily, she went ashore. Opposite our anchorage is a schooner, high and dry, and near by the *Crown of England*, broken in two; part of her stern visible above the water, and a raffle of wreckage ashore. . . .

The lighter, *Cuprum*, laden with wool and ore and manned entirely by Greeks, comes alongside. The Chinese tally clerk, a neat person who always wears white shoes, takes up his position with his back to a stay, to set down in his tally book in neat English hand-writing, the number and distinguishing marks of the squatters' wool bales as they are swung inboard. He checks also the baskets of champagne and other requirements of the mines, as they go out.

It is another side of Australia, with which Australians are little familiar.

The products of this coast are mostly sent for transshipment to Singapore. It is cheaper than shipping them to Perth and thence to Europe. Depuch Roads make the port for Balla Balla, a rich mineral district, where, within a radius of 20 miles, iron, silver, lead, copper and gold have been worked at a profit; but the mineral resources of the wide North-West are practically untouched. Competent mining authorities predict that it will yet prove the Ophir of Australia.

It is, somehow, a rich mysterious light of Ophir that softly glamors all the afternoon. Deepest greens and blues and reds are continually coming and going over sea and land. A green tide runs like a flooded river under the ship's quarter, and, beyond the colored islets, spreads a sea of absolute azure.

Shoreward rises a series of ruddy hills, with patches of vegetation sprinkled through them.

Around a wall of geranium-colored rocks the tide rapidly recedes and leaves marine growths of vivid hues to add their quota to the painted picture.

White trunks of distant gum trees are silhouetted against the universal background of red. But in the falling sunset everything turns to rose and gold. For the mystery and romance of this enchanting coast, neither the stout Greeks in the lighter nor the brown Malays in the hold have much leisure. They are kept intensely busy to get everything in and out, so that our ship may



The Chinese Tally Clerk

depart upon the next tide. Tides here are the constant study of shipmen and to this, in the typhoon season, is added a constant study of the glass.

In the lighter's cuddy—which is no more than a square malt tank cut down to accommodate an American stove—a huge pot of stew is cooking. Demetrius, the lighterman, has evidently learned to appreciate our good Australian mutton, of which he may cheaply procure an abundance here. Such wages and such living could never be his along a Mediterranean shore.

Like the Italian, he is a good colonist, and the children of both make fine Australians.

The last bale is inboard, the last packet slung over the side. Our anchor is lifted out of a hyacinth lake, the drops falling from it as red as zircons when it leaves the water. With golden and vermilion clouds floating lightly overhead, we slip onward to Port Hedland over an opaline sea.

From Port Hedland a railway runs through the Pilbarra goldfields to Marble Bar—125 miles. We are now over a thousand miles from Fremantle. Marble Bar is said to be the hottest place in Australia. One month the temperature averaged 112 degrees, but—and here is a striking fact—the people of Marble Bar are “White Australians” to a man.

Ask any of these residents—one white woman at least has lived there for 18 years and mothered

a family of twelve—ask them without prejudice if they regard their climate as healthy and live able for Europeans, and they will say “Yes.”

They tell you that the white man can work in the sun of the Australian tropics better than the black; they tell you that they are singularly free from all kinds of sickness, and they point with pride to their children.

All this can doubtless be attributed to the exceeding dryness of a climate wherein the most intense heat is invigorating rather than enervating.

The way into Port Hedland is wicked and winding, as our skipper knows. We slow down before the Outer Bar, and the voice of the Malay leadsmen at his station is heard droning—

“Maark Tree!

“Undah Quartah Tree!

“Hahahrp Tree—Dee-ee-p pfour!

“One’n’a quartah, pfour, Hahahrp pfour”—Beyond the Inner Bar lies a sandy point on which the houses of Port Hedland have been thrown, one hopes more from expediency than choice.



Heaving the Lead

The steamer is safely landed at the pier. There is more wool to load. We will go ashore and hear what the local people have to say about things.

They are all firmly convinced that they live in a healthy country. There are mud flats and



A Wool Schooner

mangrove swamps about the place, but it is claimed to be free of fever. We will hear from the mountainous O'Meara, foreman of the railway gang, that his heavy fellows find the climate perfectly healthy, but a trifle too hot for mid-day work during a summer which lasts from November to March.

His fettleers are earning 15/- a day. O'Meara, a railway builder of much experience, asserts emphatically that they can outlast and outwork any colored laborer.

He swears that one white railway navy is worth at least ten coolies.

O'Meara is not, physically, the kind of person with whom one would care to argue violently and his gang look more like gladiators in the pink of condition than the weak and degenerate white man who is usually associated with the Tropics.

Furthermore, out here one meets the finest type of man Australia is producing. They are, as a body, of stalwart and enduring physique; generous, intelligent, and courageous in temperament.

No band of frontiersmen ever met difficulty or danger as light-heartedly as that bronzed bush brigade of the North-West.

Our Australian bushmen are unequalled riders, peerless shots, resourceful hunters and brave as

men may be; but the revolver and the knife have never been permitted to usurp the functions of judge and jury as in some other new countries. Not a mining camp along our whole continental line of advance but has been strictly kept to law and decency, from the putting in of the first prospector's peg to the height of the highest rush. There is not a settled district throughout the Continent to-day where men carry firearms, although they have been everywhere free to do so. Only in very few places nowadays in the far North need one anticipate any trouble with natives. Nowhere on earth is there a greater security for every citizen, or better protection for life and property than in the Australian Commonwealth.

Out here, where the pearler, the trepang-fisher, the trocus and tortoiseshell gatherers, and the beche-de-mer men sail over yet uncharted seas; where the prospector, the drover and the stockman ride across yet unmapped distances; where police stations are hundreds of miles apart, there is no open lawlessness, and—despite a mixed population—comparatively little crime.

From Port Hedland to Broome our course will be across a corner of the Amphinome Shoals, past Bedout Island lighthouse, and wide of the Ninety-Mile Beach to Roebuck Bay.

Broome is the great pearling depot of the North-West. Here we find Asia and the East



O'Meara, Boss of the Gang.



On the Road to Marble Bar

Indies fully represented. There are 2,500 people in Broome, of whom 1,500 are aliens.

In a business street we will read, following one another, the signs of Horimoto, Japanese cabinet maker; Kazakos, Greek fish-vendor; Ted Quinn, Irish saddler; Chas. Mummery, English chemist.

The *Charon*, having £43,000 worth of pearl-shell to take aboard, we can go ashore for dinner at a hotel, where Japanese waiters will serve us with superior mien. We will see the many picturesque activities of the pearling industry, and hear the two sides of the case—all of which may be given later.

The Asiatic quarter in Broome is decidedly unpleasing. It consists of narrow lanes and insanitary houses, where dirt and overcrowding, most offensive to Australian eyes, certainly prevail.

Pearls worth—before the war—four to five thousand pounds a shell are sometimes found. Pearls worth a thousand are fairly frequent.

Life on these white-sailed luggers, lying east by north around the Western Australian coast was worth, to the adventurous, more than the price of pearls. Many of those engaged in the industry were born gamblers, who went ashore for high

play now and then. These are the men who pay £500 for a good-looking blister and sell it for 5s. ten minutes afterwards if it proves a "duffer." The luggers watch one another very closely. When they see a fellow away out off the land, and guess he is on "shell," the whole visible fleet swoops down on the spot like a flock of gulls. On Saturdays the supply ships go out with wood and water, provisions and necessaries. With an east wind, not too strong, the pearler is happy. The crews at the pump sing as the shell is coming aboard and work morosely when the diver is not on it. The deepest pearling grounds which can be worked are at 22 and 23 fathoms. Divers have groped for shell at 30 fathoms; but the mortality is high enough under what may be called normal conditions. The principal pearling grounds are from Amphinome Shoals to Roebuck Bay, and round to King Sound. The celebrated 'Southern Cross' pearl was found at the Lacepede Islands. It is said that this queen of pearls was discovered in a shell on the beach and first sold for 25 shillings.

The natives of the mission station on Sunday Island vary the cultivation of tropical produce with pearling—the whole coast, before the war, was more or less interested in shell. If you

wanted to buy pearls cheap, you would go to the yardmen in the hotels. You might get a bargain worth £50 for £5. I spoke with a nice little man, who produced £120 worth of pearls in a Cockles' pill-box from his waistcoat pocket. There was an ex-policeman along the coast who owned a hotel and four pearling luggers. There were

The coast, from Sharks Bay northward, is all looked upon as pearling grounds, but the workable places extend intermittently over this wide marine area, in depths up to 26 fathoms.

Shells exist in deeper waters farther from the land, but it cannot be got at. The deeper water gives better patches of shell, just as the most in-



Coongan River, Marble Bar.

men who went to the coast with next to nothing—two of my own bush school mates among them—and came away "close up" millionaires.

It is a romantic life; the grounds have stories as opaline as the wide-lipped shell they bear. Out here "Gentleman James" pursues his tossing way among a thousand sparkling islands. Out here "Black Jack" goes up and down flying the pirate flag on his lugger. Down here come queer craft out of Java, out of Koepang, out of the Malay Archipelago. Without doubt Asian strangers are landed at times in quiet bays, mangrove fringed, where the patrol boats of the Commonwealth, if there are any, do not go.

The pearling industry began thirty years ago on this coast with naked divers, mostly aborigines, who fished new grounds with whale-boats. When I first went into the north-west there were about 3,500 men engaged in pearling, of whom a few hundreds were whites.

accessible regions seem to hold the biggest nuggets of gold.

This industry has been worth £300,000 to £400,000 a year to the Commonwealth. Before the war pearlers reckoned that it ought to yield five millions within fifteen years. Pearling is not the only marine industry along this coast, trepang, trocus shell, tortoise-shell, beche-de-mer are all abundant.

Diving for pearl-shell has been brown man's business. The mortality among white divers has always been heavy. White workers earn at wharf-labouring, safely, as much as diving would bring them, so they do not put on the dress and go below. Those who have done so, mostly got paralysis and died or else got out.

Out of 300 coloured divers on the coast deaths average 20 a year; so the luggers' crews are composed of Malays, Manilamen, Javanese, and Japanese. The latter make the best divers.

These men sign on for a period of three years at thirty shillings a month; Singapore is the recruiting ground. Earnings increase to 50s. a month with experience. Practised divers get £3 a month and a "lay" of £30 a ton on shell. Pearl-ers whom I talked with in Broome said their

keep a warship to patrol, probably a fleet of them. Men would land to get wood and water and abscond. In fine they preferred to live under the British flag, but, if driven off the northern coasts, they could live under another and still take pearls and pearl-shell from Australian waters.



Japanese Monument, Broome.

divers were making £150 and £200 a year; most of which they spent in that town during "lay-up" season. They believed that the white man could not dive. If the Commonwealth Government insisted upon a White Australia policy in connection with the pearling industry, the luggers would go over to Java and register under the Dutch flag. This, my pearling friends explained, would be certain to cause international trouble sooner or later. Luggers would come across and work off shore, outside the three-mile limit, and inside it wherever they could. Australia would have to

As poaching shell along a coastline of 800 miles presented little difficulty, I saw no reason to doubt their statements. Chinese and Arab owners of luggers registered in Koepang already carry on nefarious trading. They can see a steamer's smoke a long way off, and glide away into one of the many unknown creeks and bays along this coast.

The Asiatics are quite familiar with our uncharted places.

Most of the business in Broome is carried on by Japanese. It may be true that during the

monsoon, the "lay-up" season, pearling crews spend ashore nine-tenths of the money they have earned afloat, but they spend it chiefly among their own people. In Broome one finds Japanese billiard-rooms, Japanese brothels, Japanese clubs, Japanese doctors, and Japanese stores. Japanese newspapers and magazines circulate, and the Japanese language is written and spoken more than English. The Japs import their food and clothing from Nippon.

Broome wants building and sanitation by-laws badly. It might be made a beautiful tropical city—the palms and flowers in the mission garden and the houses in the European quarter prove this—but its crowded, neglected Asiatic quarters are not good for Asia, and reflect no credit on Australia. As long as this continent contains alien citizens they must be given all the privileges of citizenship, and encouraged, or compelled, to carry out all its duties.

The people of Broome, believing that their prosperity depends upon pearling, excuse and tolerate conditions which would not be allowed to exist elsewhere in White Australia.

The people of Broome are wrong. Beyond pearling, which, like mining, is always a speculative industry, there lie permanent pastoral and agricultural possibilities for their districts—as yet realized by very few.

Right in the town of Broome two artesian bores have been put down. Water was struck at 1,600



A Westralian Mounted Policeman

feet depth. The second bore yielded a million gallons a day.

There are large areas of pindan country. At a hundred feet depth everywhere at the edge of the plain, wells yield good supplies where 500 to 1,000 head of cattle can be watered. The maximum capacity of these pindan wells is estimated to be as much as 40,000 gallons a day.

These discoveries have begun to put a different aspect on the question of settlement. Fourteen years ago there was no water, no cattle—nothing. Now water is being located everywhere, and there has been a rapid increase of cattle and other pastoral development.

It is a relief therefore to leave the Asiatic quarter and come up town again and see the clean tropical houses of the Europeans, built up on piles or masonry pillars, which, with their wide verandahs and open rooms, ensure health and coolness. Many of them have gardens, for the red sands of Broome will grow anything if watered. The cable station is a fine building, with trees and grounds. Occasional street palms and baobab trees, with a beautiful blaze of flowers in the Mission garden, show how this tropical town might be beautified.

Like all the North-Western population, the white people of Broome seem well and robust. The chemist says the climate "is rather too healthy for his business." Others, who have an opportunity of forming correct conclusions, support this statement.

Of course there are people who drink too much whisky; for the Australian has not yet realized that overmuch alcohol is quick death in the tropics.



Landing at Broome



A Camel Train



A Camel Sulky



The Camel as a Lady's Hack

Leaving Broome in the heel of its great open bay, its placid green-blue waters dotted with white sails of pearling luggers, we will sail on through the Buccaneer Archipelago to the mouth of King Sound. By Cape Leveque terrific tides make white water on seven-fathom depths. Our ship will go down the Sound with a ten-knot tide that stirs up the mud from the sea bottom.

We are landing the first white woman for the Leopold Ranges, and she is getting her goods and chattels ready—chairs that unscrew, wire stretchers which will roll up, mosquito tents—the furniture which experience of outdoor life has told her to collect. Her husband is going up to the Leopold to take charge of a mining proposition, and she has elected to go with him.

We have reached Derby, the last place of any importance on this coast until we arrive at Wyndham in Cambridge Gulf, at the other side of Kimberley, 537 miles by sea, and nearly 400 miles across country in a straight line; but the journey across country should only be undertaken by an experienced bushman, for a large part of the Kimberley country is not yet occupied by Europeans; although the grapes and European fruits found growing wild there, with the old guns and Dutch relics that have been picked up, lend colour to the belief that the Dutch established a secret outpost here hundreds of years ago.

From Derby to Wyndham lies a fertile province, enjoying a regular rainy season. It is an intensely tropical country capable of producing rubber, cocoanuts, dates, fibres, coffee, cotton, rice, and other valuable commodities. Its seas are rich in pearls and trepang—which is prepared here and shipped to Macassar and Singapore. Off the Kimberley coast lie the Lacepede Islands, where that great "Southern Cross" pearl was found a few years ago.

Occasional pearls that bring four and five thousand and many worth a thousand are got along this coast. Pearl and trocas shell are a constant export.

The rice plant is indigenous to Kimberley, as to the Northern Territory. Date seeds thrown casually upon the soil will spring up in the wet season. Here flourishes the beautiful baobab tree, introduced, mayhap, in the far past by Arab sailors. Here grow a thousand tropical plants, which might be turned to profitable account. Sheep and long-horned bullocks the Kimberley produces most successfully. Cattle, so far, have been its chief export, but, its future will not be pastoral only. Its vegetation and physical features differ from the rest of tropical Australia. One enters the Kimberley forests to find beautiful white gums drooping over long brown grasses, which give place to green natural pastures in the rainy season.

Native trees with scarlet beans and the spreading baobab displace the quiet eucalypts of the South. Both surface and artesian water are plentifully disbursed over this as yet undeveloped



As a Carriage Horse

territory; which also abounds in gold and tin and other precious metals. In its beautiful alluvial valleys the tamarind trees are growing from stock dropped originally as seed by visiting Malays, perhaps long before Cook landed at Botany Bay. Its rivers, lagoons and chains of ponds teem with fish and game. If it were developed by closer settlement it would be a land of Plenty and Profit. It is not wise policy that so much highly-productive country in the North should remain unoccupied. With conservation of water, ensilage, tropical agriculture and stock raising on small areas this country will support thousands of prosperous homes.



Captain Dalgleish and "Paddy"

Lest all the foregoing should be regarded as an enthusiastic defence of Dampier's "Miserablest Country," it is advisable, in conclusion, to supplement it by some extracts from official sources:—

Bulletin No. 13 of the Department of Agriculture of Western Australia, is entitled

"THE NOR'-WEST AND TROPICAL NORTH."

The author of this most valuable report is Mr. A. Despeissis, M.R.A.C., and ex-Commissioner for Tropical Agriculture.

He was given a special commission from his Government to go into the whole question of agriculture in the North-West and the Kimberleys, and the report embodies the result of his skilled and patient investigations. First he has something to say about the soils:—

"The drainage area of the North-West and Northern Rivers covers immense areas. The country forms an extensive succession of prairie lands, intersected at distances by the beds of rivers and watercourses, a number of which only run for a few months in the year. These immense plains extend between the sea board and the ranges, which rise about 60 to 100 miles from the coast.

The soil, on the whole, consists of deep alluvial deposits, the result of the disintegration of

the rocks which constitute the backbone of the ranges.

"These rocks are, in the main, granite, basalt, and other volcanic rocks, limestone and sandstone. As may be expected the resulting soils contain a plentiful supply of mineral plant-food elements. The aridity of the climate, which prevents the excessive leaching of soluble salts, tends to maintain the initial fertility of such soils.

"A depth of free soil, such as we are not accustomed to in the South-West is a striking feature of the North-West land.

"From the Gascoyne to the Yennary, leguminous plants abound. The solanums are also very prominent and afford an explanation of the luxuriant growth of tomatoes, chillies, cape gooseberries, and egg fruit (bringels), found in gardens.

"Every plant met with is pretty well an edible one, and few there are that sheep or other stock will not eat at some period of the year.

"This variety of natural feed thus gives an explanation of the reason, now that wells and artesian bores are well distributed over the country, of its comparative safety even in years of drought.



A Baobab Tree, Derby



Fishing on the Estuary.



MANDURAH



Date Palm, Yarrie

"Except in isolated spots, which are apparently salty, no fears of a rise of alkalis need be entertained. The analysis of soils officially taken strengthens this statement, which to some extent has already been demonstrated at station gardens, where particularly fine vegetables are grown under a system of artificial watering.

"Over the North-West the soils *are very deep*, and to a great depth are very consistent both physically and chemically. In that respect it is much like Utah, another arid country, where the valleys are broad and level, the soil deep, and every foot suitable for agricultural purposes. There it is found that, under ordinary conditions, the soil is able to retain in each foot an amount of water that is equivalent to about three inches of rainfall. The average total rainfall for Utah is 12 inches, which could be retained by about four feet of soil according to this calculation. Consequently a farm, the soil of which is eight feet deep, can retain, without loss of drainage, the total rainfall for two years, and if 12 feet deep, the rainfall for three years, provided the land be thoroughly and suitably cultivated.

"The problem therefore which concerns the Utah farmer and also the farmer on our dry areas in a great measure is the storage of as much as possible of the rainfall into the soil.

By means of appropriate surface cultivation this he is able to do in a great measure.

"The importance of deep soils is recognised in both arid and irrigation farming, and shallow soils are of little value in arid farming.

"From the Gascoyne to the Ashburton, where the level country consists of 10 to 20 feet of free loam, the conditions required for retaining rain-water are distinctly favourable.

"*Underneath an apparently waterless country it has been proved that there exist vast stores of water, which every few miles are tapped by means of wells.*

"The objective of station owners is to provide water for stock at least every six miles, and unless a river with pools of water runs through the country, wells are now put down. They are from 10 to 100 feet deep, the majority 20 to 40 feet.



Prospectors of Kitchener Mine, Bamboo Creek

"Of late years, the windmill has become a familiar feature in the landscape, and when the country is clear, one has at times two or three mills in sight when travelling.

"Inquiries made on my return, from Perth and Fremantle firms, enable me to state that during



A Ship of the Desert

the last five or six years over 1,200 windmills have been sold for the North-West."

Now comes a statement of supreme importance. As a flash suddenly illuminates and makes clear the darkness of a landscape, so does this statement, solidly grounded on scientific fact, throw a clear white light on the problem of the conquest and development and effective occupation of an enormous territory.

"From the Gascoyne to the Ord in Kimberley, over twenty rivers carry away the flood water during the rainy season, and drain an immense stretch of country *about 2,000 miles wide*.

"The conservation of portion of the flood water which at times runs to the sea is an engineering proposition which I am told by the officers of the Water Conservation Department offers no difficulty!

"When the North-West rivers are properly dammed, and a systematic method of water conservation and distribution is effected, millions of acres of rich plains along lengthy river frontages will be made available for the plough. Land bringing 10s. per 1,000 acres rental will sell for as many pounds an acre." Back the prospect this opens up with the knowledge that systematic borings have revealed the presence of an almost continuous artesian supply of water around the coast-line of Western Australia between the tableland and the sea-shore," that vast areas of sub-artesian water have already been located at Kimberley, and out as far as Hall's Creek, and imagine what the future of this country will be for irrigationist and pastoralist alike!"

Remember also in regard to the former that enormous deposits of guano exist along the

coast from Sharks Bay northward, and that lime in abundance is found through the North-West and Kimberley.

The report affirms further on that—

"The soil of the North-West in every respect, both physically and chemically, is suitable for raising some kind of tropical crops, the choice of which would be governed to a great extent by the amount of moisture, either naturally or artificially imparted to that soil.

"A vast area of fertile country, well watered, remains yet to be opened on high plateaus north of the King Leopold Range, and there again the country will probably be found to be capable of carrying a white farming population.

"Provided some of those comforts which abound in other tropical countries are procurable, the North, for seven or eight months in the year, can be made as pleasant as almost any portion of Australia. Women, probably on account of their sedentary life, do not stand the climate as well as do men, who live mostly outdoors."



A Trolley driven by Sail

This statement applies pretty generally to Northern Australia. It opens up an aspect of European settlement which has been fully considered in another part of this book. The Commonwealth, with less than five million people, annually imports £4,382,000 of products capable of being grown in her own tropical North. As our population increases this sum will increase with it. Australia has reached a stage when she must take into very serious consideration the effective occupation and development of her tropics, which extend over hundreds of thousands of square miles.

Among the crops which the North-West and Kimberley are capable of producing profusely—according to the Department of Agriculture—are almonds, apricots, arrowroot, bananas, breadfruit, coffee, cocoa, coconuts, cotton, dates, peanuts, grapes, maize, oranges, olives, rice—“which should become for the tropical North what wheat

now is for the southern part of Australia”—rubber—there grows in Kimberley a native gutta percha tree, and an allied native rubber which extends over the Territory and North Queensland—sesamum, sisal hemp, tobacco and other tropical and sub-tropical crops.

Such being the case, it only remains for wise Governmental policy to rapidly develop a large area of this continent, which we have proved to be anything but the “miserablest country” in the world.

Already the land richly produces wheat, beef, mutton, wool, horses, pigs, and other crops and stock of commercial value. Its possibilities have hardly been glanced over, its potentialities are yet unknown, but with correct treatment, it can be made like the rest of Australia—a land of wealth, health, and happiness for many millions of the White Race.



Sheep at the Harding River



The City of Perth

WHAT THE WEST WILL DO

SPICER was my cabin mate on the voyage to Western Australia. He had been to Ashanti, the Gold Coast, western and southern America, China, Siberia, the Rand, all places where gold men go. But Coolgardie, at the height of its glory, was *the* thing of his experience. He was like an Alpine climber who in his time has looked over many tall mountains, but has a vivid memory of one transcendent peak that rises above all the others. Spicer, after the manner of mining experts, was retrospective and prophetic. He recollected how in the early days 25 miners perished, going out to a new Westralian rush, because Lindsay's Afghan camel-drivers forgot or misunderstood the instructions, and failed to follow up the excited prospectors with supplies of water. He predicted that the Pamirs will be the copper country of the future and Bolivia the land of tin. He swore by the Krooboy, invariably dressed for dinner, though the custom was optional on our merely interstate steamer, and growled because he had to be in Mexico in a few weeks, revolution or not. He was familiar with all the known and unknown processes for the reduction of payable or unpayable minerals, and he had 3,000 photographs, taken by himself, of the gold mines of the world.

Spicer had been shot in Portuguese Africa, and sunstruck in Arizona. He was a walking gazetteer, a mine of splendid stories, an interesting and instructive travelling companion, with refined tastes in literature and sound judgment in cigars.

In Western Australia you will yet meet many men of this type, for Western Australia, until then a mere British colony of the dullest type, suddenly became, in the early nineties, a golden Mecca towards which pilgrims began to pour from the four corners of civilisation, and especially from the forty-four corners of its frontiers.

There have been, and no doubt will continue to be in this world, sons of Jacob who will be farming men and stay peacefully at home and go the rounds of the nests after the laying hens, and sons of Esau who will chase the wild goose from Alaska to Leonora, and after resting awhile, repursue that elusive bird to Meekatharra and Marble Bar.

Since the world grows smaller year by year, and German cannon carry twenty miles, it is well, mayhap, that one-third of a continent remains to the adventurers. It is the devout prayer of the author that when *Australia Unlimited* is issued the greatest war of history will be over. Its conclusion should leave some hundreds of thousands of stout-hearted Europeans with nowhere particular to go, and nothing in particular to do. Let them give Australia their serious consideration. Let them reflect that the western third of this continent contains a total area of over six hundred and twenty-four and a half *million* acres, of which 13,584,000 acres are in process of alienation. Let them remember that at this date the total population of Western Australia was only 318,016.

The United States expects to get five million new immigrants after the war. There is no country which has more need for immigrants than

Western Australia, while its vast and varied desmesnes will give employment and wealth to millions. The total number of its inhabitants is not yet greater than half the population of Sydney. Imagine an area of 957,920 square miles holding a population hardly equal to that of a London suburb, when it is capable of sustaining all the people of England and France in greater comfort than they ever enjoyed before the great war.

Although the people of Western Australia are so few in numbers they have achieved great things.

At the end of the financial year 1915-16 the State had produced gold to the value of 125¼ millions; add to this nearly a million pounds worth of copper, nearly a million pounds worth of coal, and nearly a million and a quarter pounds worth of tin, and it makes a fine total from mineral wealth alone.

In 1915-16 the State had 1,867,547 acres under crop with edible grains. The value of timbers exported during that year totalled £442,014, of pearl shell £162,597 (in 1913 it had been £374,729), of wool £1,273,183, and of wheat £1,023,362.

In fine, the trade of three hundred thousand people—men, women, and children—was worth £8,983,000 in imports, and £8,040,484 in exports.

Our voyage across the Bight from Adelaide occupied four days, during which one had an opportunity of discussing the West and its problems with many home-going passengers. Most of these people had migrated from the eastern States of Australia during the great gold-finding period. Beyond an occasional trip East, which they may take for sentimental or business reasons, none of them wished to return. They were enthusiasts whom the "Golden West" had claimed for evermore. They seemed universally proud of their adopted country, realised her incalculable resources, and fervently believed in her future. This fine local patriotism is general throughout the West.

The gold fever brought the cream and the dregs of the Eastern States. It is safe to say the dregs have long drained away: the cream remains. You meet loveable and hospitable folks all over Australia, but there is a fine hospitality and rugged manliness about Western Australia which invites the stranger to prolong his stay.

For a student of pioneer character there is a golden field wherein will be found at their highest, those British qualities which glorified the shambles of Yser, and lit with rainbow light the darkness of the mine-strewn submarine-haunted North Sea.

Among that quiet well-behaved crowd of Westerners in the *Kyarra's* spacious saloon, there were

some whose ventures, privations, failures, and achievements would make volumes as interesting as the best of fiction.

You meet such characters all through the unpeopled distances of this great State. They are not boastful—the Britisher holds it small to boast—but they have gone through remarkable experiences without losing grip; and their atmosphere is one of quiet strength and great self-reliance.

From home-going Western Australians I gathered preliminary good impressions of a country which was new to me.

My first near-view of Western Australia—whose coasts gave European eyes their earliest impressions of a new continent—was gained on a grey May morning, near Albany.

Islands, bluish bays, and cone-shaped peaks grew more distinctly from the water. Then came Albany with bare granite rocks, splashes of dark shrub, steep low cliffs, sandy beaches, and blue low-lying hills. Slaty clouds drifted away. The land before us was lit by a pale orange light, a land with an air of mysterious distances, drawing you towards them with the ancient Lure of Gold!

A cool north wind was blowing, which would be anything but cool in summer. Slow Westerners on the upper deck awakened at the approach of home. Soft lights glowed in their eyes; but they did not display the wild enthusiasm with which returning Sydney people enter the Heads of Port Jackson.

Cone-shaped hills in the background rose higher, mottled granites of nearer hills grew plainer, and with the sun at last ascendant, we glided over a spacious harbor to the pier.

Although Albany is so far south in latitude, it seems tropical in climate and conditions. While the ship lay at her wharf a tremendous rain-storm, reminiscent of Northern Queensland, swept across the bay. The beauties of Albany Harbor compensate for a certain dullness in the town. It is a summer resort for the Goldfields, the centre of a growing agricultural district, and a port of some importance. It is the capital of the South-West, and the South-West contains fifty million acres of virgin agricultural land waiting for occupation and development. Rainfall along the coast, Albany to Cape Leeuwin, is from 30 to 50 inches annually. Soils of the South-West vary from sandy to heavy chocolate loams, producing potatoes, onions, root crops, cereals, maize, and millet; fruit—especially apples—and general produce. Dairy farming is yet only in its infancy, but a proved success.

When cleared of timber this land becomes splendid natural pasture. It can be rendered more productive by the sowing of artificial grasses, which grow readily.



St. George's Terrace, Perth

Guano deposits are believed to exist in caves along this coast. There is scope for irrigation and intensive farming on drained swamp-lands.

Living areas well watered and productive are practically given away by the Government. The climate is perfect, the summer temperature rarely above 80 degrees.

Fremantle is usually the first Australian port visited by steamers coming out *via* the Suez Canal. It is interesting, but unbeautiful. Large sums of public money have been expended on harbor

tralian culture and progress, will benefit by association. The Commonwealth will gain more from this transcontinental railway than mere pecuniary profit on outlay.

It was Empire Day when I arrived in Perth. Some thousands of State school children were assembled in one of the public parks.

Western Australia has an educational system similar to that of the other States. Primary education is free and compulsory. General religious



Yachting on the Swan River

works. Since the discovery of the goldfields Fremantle has become a shipping and transshipping depot for an enormous territory containing the greater part of Western Australia's present population. The connecting of Fremantle with Melbourne by rail is going to effect a great change in western commercial life. Mails will be brought overland daily. Transport of passengers and goods between the East and West will be shortened by days, and two countries, East and West, welded more closely. One result will be that the more populous East will gain a better understanding of the undeveloped West and its needs. The West, by coming into closer contact with centres of Aus-

teachings are given. Compulsion is regulated by the distance of parents from established schools, two miles being the limit for children between the ages of six and nine. For those between nine and fourteen, three miles. But the State makes a driving or riding allowance at the rate of sixpence per day for the children of settlers beyond this radius, if the child attends school regularly and punctually. Every effort is made by the Department of Education to carry the school to farthest back. Provisional schools are established on an average minimum attendance of ten pupils. Vast as the State is, the immigrant need have little fear that his children will not receive the same educa-



Bathers on the Swan River

tional opportunities as those of the more-settled East. By means of provisional, half-time, and sparsely-populated districts schools, the Department follows the pioneer. The system of training has wisely been adapted to meet probable requirements of a generation destined to carry on the work of settlement and occupation. It aims at being more than usually practical. The school buildings are designed with proper attention to lighting and ventilation, with class-rooms giving an allowance of eleven square feet space to each child. Systematic medical and dental examinations of all State school children are carried out. Beyond primary schools is the Perth Modern School, and the new University. Bursaries and exhibitions are part of the system, with continuation classes and technical schools in the larger towns. It is intended that Perth University shall be a free and democratic institution, and its curriculum more practical than classical. A Chair of Agriculture has been privately endowed.

So much for the school system of the Great West. The scholars assembled in loyal demonstration that day seemed of lighter physical mould than the children of Eastern Australia, somewhat browner than Tasmanian or Victorian children, but doubtless quite as healthy and enduring as any other Australian type.

The people of Perth approximate to the people of Brisbane in physical appearance. The native-

born men are tall and lean, the women smart, tall, and generally good-looking. There is a local tradition that the eastern-bred woman has to go home from time to time to keep healthy; a theory based, I imagine, more on sentiment than fact.

All my enquiries, general and scientific, indicate that the climate of Perth, at least, is no more trying to European women than the climate of Sydney. There are no complaints among the native-born. Some of the freshest and healthiest-looking girls in Australia are to be found in Kalgoorlie.

The national emblem of the West is the black swan, mentioned by Juvenal, and later by Camoens. Specimens were probably introduced into Europe from Western Australia long before Pontius Pilate represented Roman government in Jerusalem.

The emblem is everywhere patriotically displayed, on the summits of buildings, at the bows of steamers, in shop windows, on post-cards, letter-heads, stamps, flags, and various appropriate surfaces. Some of the commercial swans look exceedingly like geese, but the official swans are generally graceful and pleasing.

On the Swan River, which greatly adds to the attractions of Perth, flocks of black swans are frequent; the birds are legally protected, tame, despite the passing of steamers, motor-boats, and all the disturbing machinery of civilisation.

Perth, with its 107,000 people, is a beautiful and attractive city. I used to think of it as a very dry and dusty place, but during the several pleasant busy weeks I spent there rain, heavy rain at that, was rather too frequent.

During fifteen years the modern city has been built. St. George's Terrace, overlooking the Swan, is one of the finest streets in Australia, running from an important business thoroughfare into a residential avenue.

sees, beyond a vista of embowered villas built in Swiss and Italian styles, a fine city spreading towards a background of blue hills, he realises that the West also is good.

In King Park expansive lawns, plots of glorious flowers, groves of ornamental trees gleam in the foreground facing the city. Behind them still grows a native vegetation, comprising the oldest and most enduring forms among surviving botanical species.



Ascot Racecourse, Perth

Between the modern houses of new Perth, old shingle-roofed dwellings are still sandwiched, but these examples of cruder architecture are rapidly disappearing.

Blue clear winter skies, cool winds, and soft rains are etched deeply into my impressions of Western Australia, particularly of Perth. These things the eastern Australian finds hard to realise. He has been schooled by jaundiced teachers into a belief that the West is chiefly composed of sandy wastes. When the astonished Easterner takes his first walk through King Park and, from the summit of a curving terrace, beholds the lawns and gardens of the West, sees the lovely waters of Swan River, dotted with motor-boats and yachts;

Beautiful scarlet, white, and yellow-flowered eucalypti overhang red gravel roads, characteristic of Perth. Black oak, xanthorrhoea, stunted gums, give the dark native bush a generally sombre appearance. Where other growths find root in its fertile sands and clays they are invested with greater brightness by the contrast. The palm tree and the fig tree naturally flourish in a congenial climate. Western Australia's dark-looking sandy bush lands, cleared, cultivated, and planted undergo a magical transformation. Anywhere around Perth, one can study this wonderful process of assimilation. On the one side yellow sterile-looking sands carrying their curious native growths, on



The Swan River at Perth

the other side the same sands transformed into glossy lawns and gardens. Elsewhere similar results can be observed—the no-account sands are being converted into orchards and fields.

Ten acres of such soils are enough to support a family. The Department of Agriculture asserts that a settler worth £30 an acre, initial capital, is certain of a living on that area, which will give him abundant crops of apples, pears, plums, peaches, apricots, and grapes. The orchards of Western Australia are remarkably free from pests; the fruit produced is among the very best in this Commonwealth.

Perth and its suburbs find constant market for quantities of fruit. A large surplus of suitable varieties is now annually exported.

Within a radius of 20 miles from the capital the student of agriculture and settlement will secure enough practical example to convince him that Western Australia can support her millions too.

He need go no further than the village of Guildford to discover that the sombre South-West is really a land wherein Time has stored the productive powers of half-a-dozen geologic periods; where Nature has concentrated the germinating forces of a hundred epochs and covered them with coarse carpets for their better preservation—or disguise.

Guildford is an old settlement with many architectural relics of earlier Western days. It is the centre of a proved district, where farming and fruit-growing have been carried on for many years.

The author went over the wonderful vineyards of Mr. G. Barrett-Lennard, which are an illustration of what the West will do. It was the 16th of June when we visited this place. A second crop of grapes was ripening on some of the vines. The main crop—which is annually held back to reach the London market at the most profitable time—had been harvested.

This vineyard is irrigated by water pumped to a main storage and gravitated thence to the vines. It occupies some hundreds of acres, and represents thousands of pounds of invested capital and a life's work, but the proprietor has the satisfaction of receiving *the best prices paid for table grapes in the City of London*, where he stands in competition with the growers of the world.

Exhibit after exhibit from the Barrett-Lennard vineyard has brought an array of first prizes which stand to the joint credit of individual enterprise and the State.

Mr. Barrett-Lennard informed us that the demand was inexhaustible. Year by year he has added to the area under cultivation, investing his capital with perfect faith in the future of an industry which he has greatly pioneered in the West.

Rainfalls in this district are adequate. Soils of this vineyard generally, are of a friable character. What this experienced vigneron described as his most prolific and profitable section, was apparently no more than a patch of white sand.

Passing through Guildford and on towards Mundaring one sees the beginnings of settlement on small areas. The bush is still dark and sombre, covering soils of an unpromising appearance in eastern eyes. But their quality has been proved to the satisfaction of scores of small settlers who are busily clearing and planting orchard blocks. Their little weatherboard cabins are still surrounded by ringbarked or fired timber. Patches of trees have in some places been uprooted by explosives, leaving large holes in the ground. Whereas houses around the older settlements are beautified by orchards and ornamental trees, these places are still raw and crude, but all pregnant with the same fruitful possibilities. Yellow soils that to-day are thickly burdened by jarrah, xanthorrhoea, broad-leaved banksias and macrozamia, will in a few years be growing the finest of the world's fruits.

As the old houses along the Swan are surrounded by luxuriant foliage, these cabins will have given place to modern cottages and villas dozing happily among their groves of sunlit trees.

One notices that bananas flourish in the Chinese gardens along the Swan River, and a few miles further inland at Mundaring apples of the very finest quality are freely grown, so that there will be a wide range of trees from which the planter may select his stocks.

In another direction, but still not far from the capital, is a settlement called Lower Roleystone. Here the author inspected the holding of a settler named Butcher, who on a somewhat hilly section of typical south-western country has done exceedingly well with citrus fruits.

This settler came in here 24 years ago. He began, he tells you simply, by supplying timber to local mills. Gradually he became interested in fruit-growing. Twenty years gone he planted 57 orange trees. They are still there—two rows. He has taken from these two rows of trees 1,200 cases of fruit in a year, worth £500. Finding the orange pay he gradually increased his trees to 400. He has installed a simple and inexpensive irrigation scheme and waters his trees once every three weeks in the bearing season—from January to April.

His thorny mandarins, seedlings, have given him 15 cases to the tree, worth 15s. a case. His markets have been confined to Perth and the Goldfields. This excellent settler is a native of Western Australia and 47 years of age at the time of our interview. He told us candidly that he began with a borrowed five pound note. He was now the owner of 5,000 acres of land, had an increasing income from sheep, horses, and fruit, and was worth at least seven or eight thousand pounds. He had recently been offered £3,000 for his 15 acres of orangery, but declined to sell. What this man has achieved in the South-West, thousands of others may also do—thousands have already done.

Like the successful orange-grower of Roleystone, they started their careers from scratch.

They came, many of them, from the East with little or no money a few years back. To-day they, too, are landed proprietors, financiers, merchants, successful farmers, men of leisure and means.

One meets these hearty characters everywhere, none of them too proud to admit their humble beginnings; all of them enthusiastic about the Great West and her golden future. They may be a little too much inclined to conviviality, but they are proper men.



SOUTH TO LEEUWIN AND ROUND AGAIN

FREEDOM and good fellowship are in the air of the West. From Eucla to Wyndham the hand of hospitality is opened to the stranger unless he is a loafer or a rogue.

Destitution is unknown, poverty is rare and, under normal conditions, unemployment unusual. The men of the outposts make one very welcome. There is little formality, but great good nature and toleration. I was reminded of this by my first interview with the Hon. John Scaddan, the elected leader of a territory more than four times greater than that of Japan. I found the Premier's secretary far more difficult than his good humored chief, who not so long ago was a working miner, and had risen, by sheer quality and opportunity, to the first position in a free State.

His friends and followers know him with democratic affection as "Happy Jack."

We sat with a map of Western Australia before us for some time considering my itinerary. When I delicately suggested that Western Australia should be cut into three States the Premier smiled in a non-committal fashion. He said I had better go and see the South-West for a beginning. They had a strip of country down there as big as Victoria, which he believed was destined to be another Victoria for agricultural production. The Government fruit expert was going down there next week and we might travel together.

Then, as six other Australian Premiers have graciously done, he bade me draw freely on all sources of official information and sent me forth armed with an open authority to commandeer information for *Australia Unlimited*. Later on I met the ex-Premier, Mr. Frank Wilson—since restored to office—who also placed a mine of personal information at my disposal. It has been my good fortune to gain support and assistance for this volume from legislators and officials representing entirely different shades of political opinion.

Mr. J. F. Moody, the Government Fruit Commissioner, proved a good travelling companion. A native of New South Wales, with practical experience of fruit culture, he had no delusions about the West as a fruit-producing country. He said it was probably the best in the world. We travelled fully a thousand miles together, inspected a series

of districts, and went thoroughly into problems of settlement and agricultural treatment. As a result I became affected with the Fruit Commissioner's enthusiasm and returned to Perth with much broader views of Western resources. Chauffeur Adolf Geigor, and photographer, E. L. Mitchell, made up the party. The first stage of our motor journey took us to Brunswick State Farm. This Government farm and agricultural station is located on comparatively good lands; but they do not represent the best of the South-Western Division.

Still the enquirer need have gone no further to learn that Western Australia is a land of resources, the range and scope of which are yet unrealised. From Perth, in a morning's run, we passed through miles and miles of unoccupied bush nearly all of which could be turned to profitable account.



Land that will be Cleared for Cultivation



State Saw-Mill, Manjimup



A New Selector at Brunswick

These second-class lands changed to land of first quality; hundreds and hundreds of square miles of it, sparsely populated, is still for the most part available for settlement.

Brunswick State Farm showed what might be done, what *must* be done if one-third of a continent in area, but still in population only an outpost of three hundred thousand Europeans, is to be effectively occupied by the white races.

Let there be no delusions about this matter, no splitting of party straws, nothing of theoretical platitudes, mincing of facts! This book has been subsidised and supported by Labor and Liberal Governments, and much of its facts are subject to official verification. But its author reserves to himself the right to make whatever pronouncements he may consider to be in the interests of the Commonwealth and the Australian people. He affirms that all that part of Australia which lies west of meridian 141 will have to be seriously approached as a closer settlement proposition from now onward. A sufficient population *must* be established in the Northern Territory, in South Australia, and in Western Australia to ensure permanent, effective occupation, and a realisation of the White Australia policy. If the States con-

cerned cannot deal with this problem it must devolve on the Commonwealth. If the Commonwealth is unequal to the task the Imperial Government must respond to the call.

This is not a question of either Labor or Liberal policy, of profits or wages; it is a question of preserving the integrity of the British Empire. It is the one question on which, in the author's opinion, the Empire would be justified in dictating a course of action to the self-governing Australian people.

Brunswick State Farm in itself was a scientific demonstration that 300,000 people have no ethical or just right to monopolise enormous areas of food-producing territory unless they encourage the landless millions of Europeans to share their opportunities. To convert those wastes to productive account a vast increase of population is necessary. Western Australia, with the aid of the Commonwealth, should pursue the most liberal and persistent of immigration policies.

The management of this interesting Experimental Station is excellent. Milking sheds, pigsties, dairy pastures and orchards all testified to this fact.



On the Busselton Road

We inspected an area of 33 irrigated acres of lucerne which was yielding eight crops per annum. We saw the experiments which were being made with pasture grasses, and noted that paspalum and Berseem clover, Egyptian variety—were giving most satisfactory results. We saw green fodder crops along the banks of the creek, fat cattle, sleek hogs, splendid horses, and fine sheep. We were told that stock were entirely free from disease, and that what was being done there under Government management might be done well and profitably by hundreds of agriculturists over thousands of square miles in the South-West.

We left Brunswick State Farm with a comfortable feeling that the arid West was in reality a land of intense agricultural productiveness.

Running southward from Pinjarra this conclusion was rendered still more certain. The country seemed to get better and still better every mile we covered. Beautiful flats, fertile hills, volcanic slopes, an annual rainfall of 40 inches—it was indeed another Western District enjoying a climate more equable than that of Warrnambool or Koroit.

We passed through the prosperous port of Bunbury—centre of a rich agricultural and timber section—and on to Busselton, the capital of a still more fertile district. Our road to Busselton ran through a glorious forest of tuart, one of Western Australia's most valuable hardwoods, and an exceedingly beautiful tree.

The tuart (*E. gomphocephala*) is peculiar to the South-West. It is only found in a narrow coastal belt extending from Guildford to Busselton. It apparently achieves its greatest height and girth in limestone formations. The Western Railway Department uses the hard-grained, tensile, tuart extensively in the construction of rolling stock.

Busselton district is yet only on the fringes of its agricultural possibilities. Where the land had

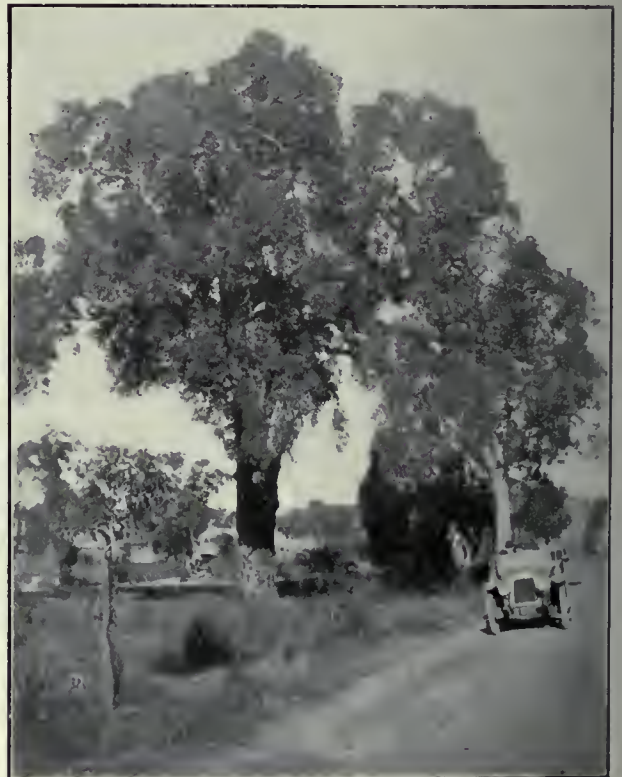
been cleared it was covered with green grass and clover. Frequent creeks and rivers, running clearly over beds of limestone, with abundant pasture will make this corner of the South-West highly profitable for dairying.

We entered Busselton by a natural avenue shaded by tuart trees, and left it en route to Yallingup and Margaret River Caves, by another shady avenue of peppermint trees.

The road to the caves is the best in Western Australia. In alternate red and white, it rises over hills covered with beautiful eucalypts, and dips into curves along the river.

It opens the way to the most wonderful and extensive cave region in the Commonwealth. From the shores of Geographe Bay to the Leeuwin, and probably right around into the Great Australian Bight, this cave district extends. It has only recently become known. A settler by Yallingup was out in the bush looking for his horses one day in 1899. A mallee hen flew up from what looked like a hole in the hillside and attracted the settler's attention to a cavity. Bushman-like he took off his bridle reins and stirrup leathers, buckled them together and lowered himself into the earth and went home with tales of wonder. Since then forty thousand visitors have visited Yallingup.

We found a comfortable cave house, under Government management, and plenty of accom-



Road near Brunswick



FOLDED SHAWL, VALLINGUP CAVE, W.A.



The Old Mill at Busselton

modation and amusement for tourists. From here we explored adjacent caves at our leisure.

The formations in these caves, particularly the "shawls," are of exceptional beauty. Stalactite of delicate semi-transparent texture and marvelous colouring has been woven by the spinners of Time into patterned fabrics such as one sees in the dim light of an Oriental bazaar. Subterranean looms, working in utter silence through incalculable Night, have turned out dazzling draperies, which hang in perfect folds from the roof of this bazaar. Mysterious potters and sculptors have labored through unthinkable periods to produce the fantastic, the majestic, the sublime. Marble-white pillars sparkling with the radiance of polished brilliants, organ pipes (whereon the guide sounds a perfect octave), mysteries, coats-of-arms, spread-eagles, statues, teddy-bears, and sticks of macaroni, are all part of their labors.

The finest cave in this Yallingup group yet explored has been called Bedford Hall. It is difficult of access and imperfectly ventilated, but it will repay the male visitor who, after wriggling and squeezing and crawling through heaven knows what labyrinths and tunnels of the underworld,

finds himself, grimy and half suffocated, within its mysterious walls.

Bedford Hall, 150 feet below the surface of the earth, is about the last word in underground wonders. The author is blasé regarding caves, but he would endure the same difficulties to visit that glittering cavern again.

The Government had opened up 82 chains of caves, grottos, and caverns at Yallingup. Not the least interesting among a series of interesting sights is the tap-root of a red gum, which hangs from roof to floor in one of these caves, no less than 120 feet below the surface where the tree itself begins to rear its lofty trunk towards the sky!

From Yallingup we went down to Karridale, through some of the finest agricultural lands in the Commonwealth.

The South-West is the home of the hardwood. Here forest after forest of karri and jarrah, springs from splendid soils. The white-barked wandoo, resembling spotted gum in appearance, and useful in the construction of railway carriages, red gums, swamp gums, all flourish.

After native timbers have been ringbarked on the loamy hillsides, mammoth native clover and burr-clover—often four feet in height—spring spontaneously from the soil. Where the clover seed comes from is one more mystery of Australian nature. With the application of phosphates these crops of pasture can be enormously increased. The red gum areas are particularly fertile.

Once cleared and ploughed they will grow anything.

Lime in any quantity is easily procurable, guano deposits are to be found along the coast. The South-West is destined to become an agricultural factor of the highest value.

Co-operative settlement, or the cutting up by syndicates of large areas into 200 or 500 acre

regions in the South and North-West are devoted to the purposes for which Nature intended them.

Meanwhile the forests of the South-West are yielding a valuable natural product and considerable revenue.

By the courtesy of Millar's Ltd., we were put up at Karridale for some days and given an opportunity to examine the methods of this powerful commercial organisation in dealing with timber.

One grey day some years ago a hundred hurried ladies came to Karridale. They had been landed from the wreck of the "Pericles," and were grateful for the cheerful welcome of the only bidding-place within a score of miles.

A few miles from Karridale the picturesque Blackwood River opens out over a sand bar into the Southern Ocean.



Millar's Mill, Karridale

blocks and preparing same for settlers, seems to be the solution of the problem. Individual enterprise will not overcome difficulties of pioneering or open a way for that rapid settlement which is so necessary if the Commonwealth is to be preserved.

A board of scientific experts should be appointed to classify the agricultural lands of Western areas. Once these have been determined, and while the work is going on, large areas could be settled on the group or community system, by the Government, or by private enterprise under fixed Government conditions.

If artesian water exists, as we may now conclude it does, all the way from Eucla to Broome, the inland districts can safely be left for pastoral development while those enormous fertile coast

Squat farm houses, with wide square stone chimneys and shingled roofs show that the Blackwood has been an early settlement. Hereabouts the remnant of the Dutch crew of 68 who landed from a wreck near the mouth of the Swan in 1656 are believed to have finished up. First settlers on the Blackwood River found traditions among the natives which gave colour to the theory. It is likely that the 68 survivors of the *Golden Dragon*, historically stated to have been left on the South-West coast in the year 1656, may have chosen to remain close to Cape Leeuwin where they would have some chance of sighting any Dutch vessels rounding the continent.

The Leeuwin itself is a little finger of land pointing inward to the Bight—worn-down reefs, the break of seas on rocky islets off shore, white



Young Australians, Jarrahdale

patches marking further shoals and reefs. It was through difficulties and dangers such as these that an intrepid Dutch navigator felt his way around this historic corner in 1622.

We came down to the Leeuwin, the first motor vehicle to bump its way right to the lighthouse, on a clear winter's afternoon. When we reached the point where it was impossible to proceed further west or south on Australian soil, we alighted somewhat reverentially. One felt inclined to take off one's hat to the memory of the hardy Dutchman of three hundred years ago.

They have justly mentioned his achievement on the base of the pillar 115 feet high, from which on these nights revolving catoptrics flash out a half-million candle-power warning to modern mariners of steam.

The lighthouse is a fine grey pillar built from local freestone and dedicated in 1895 to the world's mariners by Sir John Forrest. It faces two sides of the Australian continent. East and north the land falls away from it in sandy beaches and long low headlands. On a fine day the meeting oceans are all sapphire and pearl, with skipjack, herring, and snapper ready for the hook, but in wild winter weather, with mighty breakers smashing over numerous shoals and loud winds whistling round the corner of a continent, the light-keepers on Leeuwin sit by the fireside and smoke.

A few miles eastward of Leeuwin is Augusta, where, along the sea-margins moist with spin-

drift, noises of modern industry drown faint echoes of colonial days. Eighty-two years ago Colonel Molloy with a military party formed his settlement on the Blackwood. We saw what had been an enclosure in the forest where decaying wooden tablets marked the graves of some of these early settlers.

This extreme south-western corner of Australia will be suitable for dairy-farming, for the growth of lucerne and fruit, for pig-raising and mixed farming.

The Millar Company have 4,000 acres of freehold at the Leeuwin and 20,000 acres elsewhere in the district, which may be devoted to farming on the share system.

The large estates of the West will probably be forced into sub-division by heavy land and income taxes. Much good agricultural land is locked up in the South, while in the North-West some 300 million acres are at present depasturing no more than four millions of sheep.

Western Australia must get revenues to continue her development. She must have population. Her unoccupied spaces are a greater danger to the Commonwealth than those of the Northern Territory. She will not deserve the assistance of her sister States, if she allows any parochial or party considerations to stand between her and this national objective.



Unloading Jarrah Piles, Cossack



Young Jarrah Forest, The Warren

On the Margaret River we found excellent soils with slopes eminently suitable for the growth of citrus fruits. There is scope for an irrigation settlement here.

Returning to Busselton we crossed eastward through 40 miles of indifferent country to Nannup. This strip of white sandy plains, iron-stone ridges burnt out by bush fires, sere leaves, silent places, crooked timber, desolation and loneliness gradually changed to good country again.

First came occasional flats, some of which were occupied. A house (black or unpainted as a rule) ploughed ground, orange trees, water, greenness,

after all are Australia's waste places, how vast her profitable and productive domains.

Between Nannup and The Warren, in a pocket of the hills we found the interesting Dixon homestead, begun 50 years ago in the heart of an apparent wilderness by the father of the present family. A fine old brick and shingle residence, surrounded by cypress pines, stood among cleared paddocks and fields. Behind it was still primitive forest, sombre and tall.

Although the Dixons had established the fact that their land would grow anything, their subsistence has been largely by cattle-raising. In the



Hauling Jarrah Logs

tilth followed on stunted timbers and barren acres.

Nannup subsisted by reason of an adjoining timber mill. There were two stores, and a hotel at which we secured decent accommodation, and a few new frame houses and earlier dwellings roofed with shingles. The inhabitants were mostly timber people and those who attended to their wants—rough workers, but earning good money and enjoying good food and healthy conditions. With sap-stained hands, roughly clad, hardened with toil, browned by the sun, they were free men in a self-governing country, and enjoyed equal chances of fortune in a land where fortune has often fallen in the most unexpected places.

We left Nannup after early breakfast. A light fog was only lifting above the tree-tops, cool fresh airs blew over the dewy land, sunlit forests arched with bluest skies lay before us. The clouds of yesterday had fled, barren scenes had changed to scenes of fertility, and we realised how narrow

early days, when everything for household use had to be carted 60 miles, there was no other means of living, but they realised now, with a railway in reasonable distance, that their holding of 1,200 acres could be turned to more profitable uses.

Vines and roses, orchards in bearing, cleared paddocks planted with rye and potatoes, these showed the possibilities. There are millions of acres of Crown lands in the West where fruitful homesteads will profit by the experience of pioneers like these.

One left that lonely old gabled home amid its fruit trees, flowers, and fields feeling light-hearted and optimistic for the future of the West.

Leaving Dixon's we crossed a running brook and began to mount the opposite slope. Again the world changed. We were approaching the edges of the karri, tallest and finest of Westralian timbers. The traveller realises at once that nothing short of heavy rainfall on richest soil could have produced such forests.



New Settlers in the Forest

All one day we motored slowly through a winding avenue, under trees such as can be found nowhere else in this world. Imagine this titanic forest covering 1,200,000 acres of ground—miles on miles of perfectly straight, smooth trunks, towering like pillars in a temple averaging 200 feet in height, four feet in diameter, and 120 to 150 feet to the first branch! In some places stand kings among these regiments of giants, three hundred feet high, without a branch on the first 160 feet of their round, polished trunks.

Looking up through the lofty canopy of leaves one sees, as if from a deep shaft, distant patches of blue sky and hears the wind in the tree-tops a long way off!

In my varied impressions of Australian Nature there is none so vivid, so curious as that of the aeolian song of the wind in the branches of the karri, remotely overhead. Usually the wind talks to us as a near and familiar friend. In the karri its voice is heard in spiritual, mysterious echoes, like the music of muffled bells far up in an old cathedral tower.

The religious impression is heightened by one's surroundings. Patches of sunlight filter down as if through stained-glass windows, and amid the shadowed pillars one listens to the music of dis-

tant waterfalls rising and falling like the notes of an organ. Had the Greeks known a forest such as this, with what mythical shapes would they not have peopled it?

When the smooth grey trunks of the karri have been ringbarked in occasional clearings, one realises from the dead timber the incredible height of these trees.

When the soils in which they have found rootage is bared to the sunlight, after millions of years, it literally chokes with new growth. The problem is which will be more valuable, the grey timber or the red land that grows it?

Powellized karri is being used for sleepers on the Transcontinental Railway—to the apparent satisfaction of the Federal Government. It has been claimed officially that for superstructure, for wood-blocking, and for the construction of railway waggons it is equally useful.

On our way to The Warren, in the heart of the forest, we came upon two Yorkshire immigrants just landed. They had secured an area of 283 acres from the Government and were attacking it with typical British resolve. They had located close to the track with pups, goats, fowls, tubs, and a raffle of miscellaneous effects.



Karri

Their stretchers and blankets were spread under loose sheets of galvanised iron.

With broad axes and saws they were preparing to "make good."

They were pleased with the land, which they had secured at 16s. an acre, with 20 years to pay off, and they reckoned to go in for mixed farming and sheep.

A father, three brothers, and four farmer friends in Yorkshire were waiting to hear how they got on; if they saw success ahead the others would follow.

Men like these, for their courage alone, are an asset to any young country, and Western Australia should see that they are given a fair chance to succeed. The only danger with a resolute type like this is that the newcomer may be encouraged or allowed to take up land, even the best land, too remote from existing transport. Most of the failures among Australian settlers arise from their selecting in heavy country away from port or railway. When production does become possible, haulage and distance from market take away the profit. Men wait for railways, which, through no fault of governments constantly faced with

heavy expenditure on public works, are a long time coming, and they grow tired of waiting.

The future policy throughout Australia will be to build railways ahead of settlement, and not after it.

Along that 48 miles between Nannup and The Warren through the karri belt, there were fine alluvial flats, good red and chocolate soils, abundant streams—all the factors of primary production. Reserving the best of the timbers would still leave room for settlement.

The Warren is the home of the Brockman family, who have held this outpost singly for 50 years. Another quaint old brick house, convict-built; ancient pear trees—highly prolific—roses and vines have left a happy memory.

With bush hospitality the establishment provided lunch for a party of four utter strangers as a matter of course.

The next fifty miles, which we traversed towards Bridgetown, in an easterly bearing, gave us a still better impression.

This belt is composed entirely of good soils benefited by heavy rainfall.

Bridgetown is located in the fattest of fat lands. The districts surrounding are exceedingly prosperous and progressive—for Western Australia.

The winter climate of this corner is glorious; cool nights and clear days succeed one another for weeks. The land is ideal for lucerne and root crops. It grows fruit to perfection, is excellent for sheep-raising or dairying. The inhabitants are fresh-complexioned and moderately active; the young women resembling most in type those of Victoria. Production can be extended indefinitely in the South-West, and carried inland to the beginning of the great wheat belt.

From the tin-field of Greenbushes, across to Bunbury, we travelled through districts still largely awaiting occupants, which can be made capable of supporting thousands of families.

Our home journey was not devoid of interest. Owing to leakage in a petrol pipe two of us walked to Whitley Falls in the great calm of a Western Australian bush night. It was a dark and lonesome road; but at length we saw the dim light of a bush "pub," and heard the grunting of pigs. Mitchell said it was like the song of night-ingales.

There was to be a wedding at the "pub." the following day. Festoons of coloured paper had been stretched across the dining room. The establishment was heavy with preparation. We had difficulty in securing a late meal of cold beef. There was no bed for one visitor, let alone four, and none probably at Mundijong—the nearest place.

Towards midnight Adolf, who had remained at the Serpentine with Moody and the car,



Wheatley's Apple Store

cider and vinegar, jams and preserves of all kinds, fruit canning and drying (i.e., the curing of currants, raisins, apricots, apples, peaches, etc.).

District Inspectors are appointed for the suppression of orchard and garden pests, and to assist the Commissioner in his educational work. These officers are continually travelling their several districts from orchard to orchard.

Districts are safeguarded to prevent the transportation of pests to clean areas, and the use of second-hand fruit cases and bags is limited to guard against the dissemination of destructive insects and other pests.

Beneficial insects have been imported from abroad and liberated under the direction of the Government Entomologist.

Settlers in the South-West will have the advantage of an experienced department behind them. To cope with problems of clearing new country the Government has installed ten traction engines which are constantly at work in various parts of the State.

By the use of traction engines the cost of clearing is considerably reduced, and settlers are enabled to place their land under crop earlier than would be possible by the ordinary means. An engine is sent to any district from which a sufficient number of applications are received. The actual

succeeded in fishing the rubber or whatever it was out of the carburetter. We slid sleepily into Perth about daybreak, still convinced that when the Great South-West gets its due it will become one of the most closely-populated and highly productive territories in the Commonwealth.

The Government, realising this, has endeavoured to organise its development on scientific lines. Mr. J. M. B. Connor, State Agricultural Commissioner for the South-West, had done a great deal to realise this result.

The Commissioner for the South-West has the direction of the dairying division, and imparts information on questions concerning the cultivation of root and fodder crops, and the care, management, and breeding of stock. Many small herds are being accumulated throughout the dairying districts, where an abundant rainfall favours the production of the essential root and fodder crops.

Particular attention is being devoted by the Commissioner to raising suitable stock.

The Fruit Industries Commissioner—who accompanied us on this most interesting tour—gives advice to settlers on all questions connected with the planting of fruit trees and vines, their cultivation, pruning, manuring, spraying, the picking, packing and grading of fruit for export, making



A Pear Tree, Bridgetown

cost of performing the work is charged to the settler. This is at the rate of 16s. 8d. per hour during the time that the engine is actually employed. The owner of the land is required to provide sufficient water for the engine (approximately 200 gallons per day) for which purpose water carts are provided. The maximum term of repayment is 10 years in half-yearly instal-

ments, or for a lesser period, depending on the position of the applicant. Interest is charged at the rate of 5 per cent.

In order to enable settlers to clear mallee and scrub country at a minimum cost, special machinery is provided for the purpose, the cost being reduced by this means from 30s. to 10s. approximately.



Dixson's in the Jarrah Forest
On the Brunswick State Farm

Another View of Dixson's
"Brockman's," The Warren



Nuggets of Gold (actual size)
From Ruby Well, Peak Hill Goldfield

THE GLAMOR OF GOLD

FROM the year 1886 to date, over 600 tons of gold, valued at about 129 millions sterling, have been won in the State of Western Australia. No one with any knowledge of the subject doubts that wealth perhaps greater than this remains to be discovered.

Although the colony was established in 1829, and rewards were constantly offered for the discovery of a payable field, it was not until 1886 that a party of prospectors from the Northern Territory located the Kimberley goldfield.

With this event the romantic history of the great Western State really begins. The Kimberley "rush" was followed in 1888, and subsequently, by discoveries at Yilgarn, Golden Valley, Southern Cross, and Pilbara.

Tin, copper, antimony, and asbestos were coevally determined in the rich North-West and more tin at Greenbushes in the South.

In 1889 rich alluvial gold was found at Ashburton. In 1891 the Murchison was proclaimed

a goldfield. In 1892 Bayley and Ford discovered Coolgardie, and the subsequent history of gold-mining in Western Australia became sensational.

Bayley and Ford were Victorian miners. They left Perth in April, 1892, on an ordinary gold-finding journey, making a north-easterly track.

When about 250 miles out on this trail they lost their horses and were compelled to make for the bush village of Newcastle to secure others. Leaving Newcastle they crossed the Southern Cross district, went through the new Yilgarn fields and struck eastward, following the almost obliterated tracks of Hunt's exploring expedition of 1864-5.

The quest for water brought them to a native well, which the tribesmen knew as "Goldarda." There was good feed on a flat near the well for their horses, and the country being highly auriferous they set to prospecting. The result was that Bayley and Ford in less than a month had 200 ounces of gold in hand. From their first find this



Crowd of Miners Listening to Father Long

lucky twain worked on quietly in the great quietude of the bush, until their provisions began to run out. Then they made back to Southern Cross for further supplies. The day after their return they located what became known as Bayley's Reward, and hammered out of the lode before sunset *500 ounces of specimen gold!*

On the appearance of another couple of miners who had scented their find and followed up quickly on their tracks, Bayley rode back to Southern Cross and applied for a lease of his lode, from which the other two had quickly hammered off 200 ounces! In proof of his claim Bayley showed the Mining Warden 554 ounces of gold! Such was the opening chapter in this romantic story.

Three days after the news of Bayley's find, Southern Cross was deserted and a rush of gold-seekers from all over Australia, from all over the world, had begun.

By July, 1901, ten years later, Bayley's original claim had yielded gold valued at £529,454, and paid in dividends £183,600.

Followed "The Londonderry" and "Wealth of Nations," the first no more than a rich pocket which served to attract British investors; the latter a low-grade mine after its first sensational

yields of three pieces containing 1,144 ounces. This mine was located by an Indian camel driver, who received 10 shillings for his share. The Perth syndicate which owned the camel—part of their prospector's outfit—took out £23,000 in gold and then sold the mine for £140,000.

Coolgardie then became a centre from which various lines of discovery radiated into the mulga, Menzies, Broad Arrow, and Kanowna among these. Kanowna (first known as White Feather) proved the richest alluvial field in Western Australia. One day's record of gold sold to the banks is stated to have been no less than 20,000 ounces!

Lode mining followed alluvial in most cases. About nine months after Bayley and Ford reported their find at Coolgardie, Patrick Hannan, prospector, his mate Flannagan, and about 150 others were making for a reported new field somewhere out in these great dry central distances which had become lighted up by a magical glamor of gold.

They camped 25 miles from Coolgardie to await teams and water-carts which were following. In those exciting days the miners raced ahead to the finds and let the "grog," water, and provisions come after them. That night it rained. The



Announcing the Locality of the "Sacred Nugget," Kanowna, 1908

excited crowd, knowing the iguana holes and soaks would be full, pushed ahead. Hannan and Flannagan had lost a horse, the search for which delayed them. While looking for the strayed animal, Flannagan picked up some slugs of gold. They stayed permanently behind the rush and "specked" 100 ozs. in a few days. Then Hannan posted back to Coolgardie and put in an application for a reward area, which is now the north-eastern end of Hannan's Street in the city of Kalgoorlie. Hannan belonged to the dusty band of "dry-blowers," who prospected ahead of raucous civilisation. They formed the vanguard of an army of occupation, which has converted more than one arid, silent spot into a centre of industry.

The "dry-blower" carried his pick and shovel and dish, from which he blew (usually by means of a bellows worked by foot or hand) the lighter particles of his prospect instead of washing it.

The "dry-blower" or the "shaker" was a son of circumstance, a surface worker at best, who could not stay. Without him, nevertheless, the lode miner and the capitalist could not have been.

While I was on the fields, a small alluvial rush broke out at a place called Ora Banda. Cutbush, then Mayor of Kalgoorlie, and Johnson and

Friedman—all good fellows and excellent friends—were interested in a mine out there which they wanted me to see. I decided to go down to Broad Arrow, cross over through the mulga to Ora Banda, and meet the "dry-blower" at home.

Johnson went up with me. He and Friedman were working partners in the mine, both fine physical types, normal, intelligent, strong Australians, who had "made good" in the West. Johnson told me that he had come to Kalgoorlie 14 years before, run down, a physical wreck. The climate had re-converted him into a healthy and robust man.

Broad Arrow had been the scene of one of the sensational rushes of eighteen or twenty years back. The pepper trees sighed regrets for glories departed. In the railway refreshment rooms and on the platform coatless men in blue dungarees, soft shirts, and wideawake hats secured a leisurely meal. Most of these were miners or men carting firewood to the mines—which consume 600,000 tons a year.

In galvanised-iron buildings painted white, with air spaces under gabled roofs and wide verandahs, Government officials put in their day's work.

A notice board outside the Mining Warden's office carried information regarding prospecting areas, leases, exemptions, and summons notices to appear at the Warden's Court on dates fixed by authority under penalties, within the jurisdiction of the Mining Acts. Good ironstone-gravel tracks led off here and there to old workings or old fields, to the Great Beyond!

Once there were eight lively hotels in Broad Arrow, but now a solitary "pub" is sufficient for the business.

ence, never learned. In this case the hump-backed team was hauling a heavily-laden jinker under the guidance and advice of a sun-burned bushman with a bullock whip. By the way that bushman talked to those camels it was evident that he had neither love nor respect for them; but they worked with a docility, an humbleness, no Biblical camel ever knew. One could see by their demeanour that a new situation had arisen, one that offered no precedent, a situation sordid, unpoetic, and lowering to the traditional status of



Characteristic Quartz Outcrop

The glamor of the field has gone. A shaft in the distance, the little wooden cross of a tin church and memories of the "Golden Arrow" and "Hill-end" remain.

Waiting for Johnson's motor-car to come in for us—it had punctured somewhere out in the mulga—we whiled the time away watching a camel team hauling out water pipes from the railway yards. The Government was installing a pipe line to supply Ora Banda with salt water, which would have to be locally condensed.

The snarling of the camel is a fearsome sound to hear; the camel, so like an animated ant-hill, is a fearsome beast to handle, but the Australian bushman does things with the camel that Asia and Africa, with all their thousands of years' experi-

camelhood. But they did as the dusty person with the bullock whip decreed. For this is a country where precedent does not count, where the achievements of men and beasts are mightier than the heroes and animals of antiquity. Jason was fortunate in his Homer, but who will justly sing the accomplishment of Mercer, 70 years of age, who journeyed with two mates from Kalgoorlie to Tanami and back—2,000 miles—on a rumour of gold.

Platelayers going by on their trolley with Winchester ready to shoot the grey bustard, the wild turkey of the Australian plains, bicycle tracks radiating towards the horizon, goats tied to verandah posts of the railway station, red downs dotted with grey salt bushes and clumps of black



Coronation Day at Bamboo Creek

oaks, clay pans, gold-diggers' claims and workings, above all a sky blue beyond blue, and over all a delightful air that sets the blood tingling. All these told you that you had come closer to the heart of the Great West.

It was dry, but no desert; arid but not sterile. Yesterday the music of the stamper proclaimed that it had awakened from immemorial slumber; to-morrow, who knows? Its level expanses, filled with the nitrogenous riches of a million years, may echo the song of the traction plough?

At Ora Banda Hotel I found a friend, Garnet by name. We had never met before, but he was a great reader of mine, and he guessed that sooner or later I was pretty sure to turn up. Out in the bush a day or two later I met Paddy Mac, who also said he had been expecting me for some time.

Paddy belonged to the old dry-blowing brigade, the crowd that "Dryblower" Murphy, "Bluebush" Wethered, and "Peter Doubt" Spruhan have expressed in rugged verse and prose, the sun-baked, fly-bitten regiments who by camel-back, horse-back, and on foot have carried their water-bags, their half-hundreds of flour, their Colts and Winchesters and tobacco pipes, where even the bravest of our brave explorers might have hesitated to go. Paddy told me the only thing he had left on earth to love was the old she-camel that brought him out to the West. For 18 years he has hung on looking for a lode, such as Hannan and Bayley found, such as thousands like him have sought and hoped for. His first mate died, his second mate was starved out, but Paddy still hangs on in his little gonyah in the bush back of Ora Banda. Years ago he struck a bit of gold. Now and then he prospects out a little more—enough to replenish his store of provisions. He runs a few fowls who keep themselves and get fat on white ants, fossicks for his lode when the impulse moves him, and would rather go without a meal than miss his weekly number of the *Sydney Bulletin*. It is just possible that Paddy Mac may strike his

lode before he crosses the Last Divide. I examined a lode not three miles from his hut which shows how luck, rather than science, is of service to the gold-seeker in this country. The apex of this particular lode was just thirty-six inches from the surface, and its discovery came by merest accident. The surrounding country seemed on the surface to be more suitable for growing oranges or wheat than anything else—providing one could get enough water. There were no visible indications of mineral wealth, nothing more than salmon gum and saltbush to testify to its existence a few feet below the surface. Yet I offered that little mine to a Melbourne crowd for £50,000 a few days later, and subsequent events proved that they missed a good investment. I doubt if the exhaustive geological and petrological survey which they talk of in the lobbies of the Legislature in Perth would ever reveal the existence of "shows" such as these. Only the guiding hand of Providence is any help in the matter, and the ways of Providence are inscrutable, according to the best authorities.

Legislation may cheapen the cost of living in Western Australia, reduce cab fares, limit the public houses, establish many more government tanks to hold half-a-million gallons of water, erect State batteries and perform a thousand public functions, but it cannot reduce the vagaries of human fortune to a formula or establish the existence of payable gold in any given spot by mathematical calculation.

Any man in that dryblower's camp in the bush back of Ora Banda could tell you that—and more. An outpost of about 40 held that spot at the time I visited it. Some ages before the appointment of the first Government geologist, a river whose course will never be marked on a map swirled around ancient boulders and through channels in pre-historic rocks, depositing from time to time

Sulphide Dump (worth about £10,000)
At Gimblet Goldmine, Ora Banda



The First Westralian Goldmine (near Southern Cross)

specs and chunks of gold. Some of this gold was absolutely pure and some of it still carried quartz from its original matrices. Time—which, philosophically speaking, is only a method of consciousness—went on: the never-to-be-mapped river was diverted from its channel, or dried up or disappeared in some convulsion of the earth's crust. Its dry bed was covered over with soil gradually, or suddenly, to a depth of perhaps six feet. This served as a most effective cloak or veil for the gold below the surface. Saltbush grew out of the soil, which was exceedingly fertile, mulga, salmon gums and an occasional very beautiful currajong tree. Then a sun-shrivelled, hard-living son of human conditions arrived out of the quiet unpeopled plain, threw his belongings down in the shade of a bush, scraped a sample of earth into a tin dish and subjected it to special examination. He was satisfied with what he saw. He marked off a space of 75 feet for himself, put up a tent and went to work. By ones and twos, mostly twos, other skin-dried, tough-living sons of earthly desire drifted at intervals out of the still bush, marked off claims and set to work burrowing into and baring the bed of that Unmapped River. Each, meanwhile, eagerly and systematically sought to transfer to his own particular leather pouch, or pocket, those slugs, specks, and chunks of alluvial gold which had fallen by virtue of their higher specific gravity

into the crannies and pot holes and crevices over which the immemorial waters of the never-to-be-mapped river had poured and sung.

Among the claims, protected by a little barricade of stones and a little fence of sticks, a Cape gooseberry was growing, the miners' pet. They would go without a drink to keep that plant alive!

I wanted to see some alluvial gold. The secrecy with which this class of miner envelops a new find stood in my way at first. But before I left the little rush, an old Irish prospector produced from his trousers pocket a greasy rag wrapped around a little parcel made up of an equally greasy segment of newspaper. This he reverentially unrolled and showed two pieces of gold, with ironstone, worth about £30. Subsequently I read in the newspapers that a 40-ounce and 44-ounce nugget had been found at Ora Banda. The men engaged in road-making had thrown down tools and made for the field.

It was an interesting corner of the bush, with its camps and claims, and gritty figures of men at work in the wash. A perfume of burning sandalwood filled the air from fires lighted to dry the dirt before it was treated in the dry-blowing machines. When mining is slack the floating population occasionally devotes itself to collecting sandalwood for sale.

The rattle of the dry-blowers went out across rich saltbush flats, over red ironstone ridges, through beautiful drooping wilgas and groves of salmon gum and white boles of gimlet wood. Dry-blowers fitted with handles and an adjustable wheel, which can be trundled along barrow fashion, were among the "plants" of this primitive field. Some of these may have been brought 500 miles. Distances in the West are different. One or two of newer appearance had been wheeled

on. Huge "mullock" heaps were being put through the puddling mills, vats, and filter presses. From these the gold, in a solution like clear water, is poured out over zinc shavings—where galvanic action is set up—and precipitated, a somewhat more complicated and scientific process than the wasteful methods of early mining days.

The mullock heaps here were worth 11s. a ton. One little mine has £17,000 in its heap; and in



Alluvial Miners, Ora Banda

over from Broad Arrow, about 40 miles. In one camp I noticed a new hide bucket. These are made in Kalgoorlie, and appertain to deeper sinking. And there were long-handled shovels, dishes, blucher boots, tinned meats, "fifties" of flour, tinned beans and peas, and fish, wire meat safes, stretcher beds, water-bags, and all the usual belongings of a mining camp.

At Ora Banda I found the Alford family, who had driven overland with cattle from South Australia—father, wife, and daughter. They took two years on the journey. Ora Banda has long been known as a good lode-bearing field. At the time of my visit there were several mines in operation and considerable cyaniding was going

the house where the final process was going on £50 a day was being silently deposited in little tanks chemically set like traps to catch the same metal which that wrinkled old Irishman unrolled with reverence from a greasy rag!

The men who are interested in gold finding, or gold treatment—and these make up a majority of Westerners—have no time for agriculture or any other industry.

Talking with a mine manager out here, I happened to mention that the surrounding saltbush was one of our most valuable Australian fodder plants.

"D—n the saltbush," he replied; "it's no good for mining timber."



Wild Flowers at Murrumbidgee

Which led to a discussion on the qualities of local woods for these purposes. The mining man asserted emphatically that salmon gum was the finest wood in the world.

The only attempt at agriculture out there was that of a despised citizen who had taken a log, studded it with iron spikes, scratched over an acre of the free red loam and thrown in wheat. Great local surprise was expressed at the appearance of what I found in the month of June to be a nice green crop. It confirmed my belief in a future for this country which most mining men of to-day cannot appreciate.

When dry-blowers and cyanide plants have filled their respective functions, when steel-lined rooms and galvanised roofs have given place to an architecture more suitable for hot climates; when the number of 10,000 gallon tanks has been multiplied, the storages generally increased, when the "flute players," i.e., the "talkers," are all gone and the "doers" come into their own, this land will enter upon another and more lasting phase of production.

When my father marched from Fort Laramie to Benicia with General Harney's regiments there was little thought that Nevada and Utah and Wyoming would be over-run by farmers within the next generation.

Where Johnson and Martin and I pulled up our American car to examine that green crop, which had been sown broadcast after scratching the primitive soil with a pre-historic plough, there is no thought to-day that another generation may see the land glowing with wheat and vine.

Yet if our rulers are wise, it will be so. And if they are not wise, then the fate of Belgium will have been no example and no warning for the people of this Commonwealth.

The closer settlement of Western Australia presents to-day far less difficulties than the settlement of the Hawkesbury Valley did a hundred years ago. There are no great mountain chains to cross and roads are easy of construction, roads suitable

to the petrol carriage, which eats up the miles after a fashion our fathers never dreamed of. The road from Broad Arrow to Ora Banda, for instance—running in a bee-line for miles—had been cleared and made by camels who do not cut up the soft loamy soils with their flat feet. The saltbush and wilga had been grubbed out, and the top soil scraped aside. A hundred miles west is no more than ten east. With a team of 24 camels they were laying the water-pipes between those two places at the rate of $2\frac{1}{2}$ miles a day. This included the opening and filling of the trenches. They would need to do this when the lowest wages paid by the Water Supply Board at the time was 12s. a day. The trench was opened with a special steel mould board plough (a wheel appliance gauging the depth exactly), and ingeniously filled by a simple mechanical contrivance after the pipes (Australian patent pirated by the Americans) were rapidly laid down.

In days to come, when hydraulic engineers and dry-farmers have changed the face of the West, stories of gold and gold-seekers will make good reading.

The gnamma holes, those primitive storages, said to have been made by aborigines in the past, will remain as curiosities. The gnamma hole is usually about 8 feet deep. It is located in the granite outcrop in a kind of natural cement and retains a limited amount of good water, which has saved many a traveller's life.

Other natural features of the country will partially change. The human characters who have invested it with added interest will pass away.

With them will disappear another phase of pioneering, full of type and incident. The men



A Gnamma Hole



Sandstone, East Murchison Goldfield

who followed the little "leads" and "shoots" on to payable gold, who celebrated their discoveries with roaring sprees, who paid in "dust" and called no man master, will have gone for ever.

Prendergast, "Shandygaff," Taffy Wilson, Dunn the Fighting Man—the prospector and his peculiar parasites—will have vanished from the fringes of civilisation. Thieves who were hunted out of remotest camps under a modified lynch law, to take their chances in wastes unknown, honest men who crowded 200 strong around the condenser on a new "rush" to pay 2s. 6d. a gallon for a bag of *hot* water, half of which would be pressed out before they got away from the crowd—new chums and old hands, will all alike have joined the Great Majority.

That hardy breed which was lured into the West by the glamor of gold will perhaps leave worthy successors behind, but the free, wild life will be gone. The chances of fortune will also be laid on more mathematical lines. How uncertain these have proved is instanced by many a romantic story. There was the case of the new chum Englishman who arrived at a far out "rush" and proceeded to make a nuisance of himself by asking experienced claim-holders for advice. At last, wearied of foolish questions someone told him to "peg out there and be d—d."

"There" was a piece of unlikely-looking ground which no experienced miner would touch. The new chum pegged out, to the joy of the whole field. But the laugh went the other way when inside of an hour the new chum brought up a 30-ounce nugget in his amateur dish of wash.

There was the story of the boomster (told me by himself), who earned £5,000 one morning before breakfast, pegging out claims for London investors. Of the other man who came to Kalgoorlie selling hot pies and went away worth £80,000. Men who chased the "goose" into the unexplored on the strength of "mulga wires" and gulls who listened to promoters at the other end of the cable were actuated by the same motive, but the actual followers of the wild goose got the most excitement. They saw the West and tasted its joys. Some of them went right down to elemental conditions.

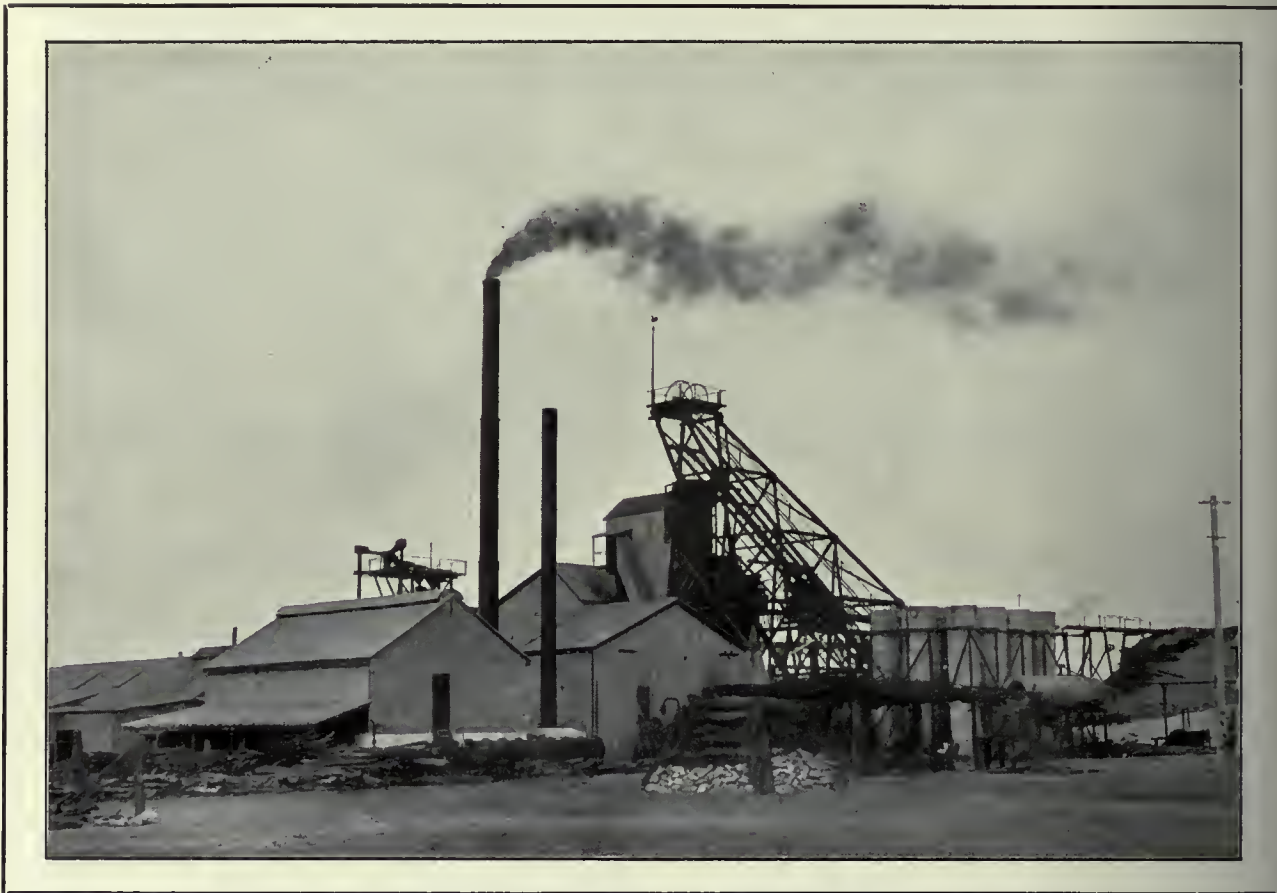
There was a little man—Edwards was his name—a "Cockney," who sat with me in the hotel at Kalgoorlie all one Saturday evening and talked. As every writer knows, the great majority of those who get good experiences have no sense of literary values. But there is an occasional man with a "seeing eye," and Edwards was one of those men.

He had followed the "water dog," the man who goes to find water for diggers, and he had gone alone. He knew Kimberley, The Cross, Pilbarra, Murchison, in their pre-Coolgardie days, and he knew the fields from the start. He had lived among the cannibalistic natives of the North-West, who had eaten his Italian mate "all but his heels." He knew the straight tracks of an emu with zig-zag cross tracks indicate that the bird has gone

He described the crowd in spotless moles who rode into Cue after having found gold.

He told how, after seven months in the saddle, his principal desire was for crystal sugar which somehow represented refinement, luxury, the smoothness and sweetness of civilisation to him at the time.

I learned from him that the finest crop of empty bottles on this Continent can be harvested at



Oroya Goldmine, Black Range, East Murchison

to water *and come back feeding!* Knowledge such as this is worth more than gold. In the wide arid stretches of the interior it is just such knowledge which saves men from disaster and death. He knew the mistakes of some early explorers, and had a quiet contempt for "pot-house prospectors" and "flute players." In the early days of Cue he had walked with his mates to Millie Camp, 10 miles for water, before breakfast, to come back with full bags and find their claims jumped. One man lost three claims in a week this way, going out to get water for a sick mate.

He could tell you the difference between the "Nor'-Westers" and the "Pack-Saddle Men," the men in inevitable flannels and moleskins, and the men who wore waistcoats.

Cossack if one could only find a profitable way to get them out.

This item was reverently added to the "Resources of Western Australia" in my note-book.

I learned from him that, when it is a case of life or death, tying a handkerchief filled with salt over a blackfellow's mouth *may* induce him to disclose the existence of a water hole, but rarely of a sacred well. Being absolutely without water from mid-day, Thursday, until late on Saturday night, was his most poignant experience.

His mate, Charlie, was an outlaw from Queensland, who had not, to his constant regret, seen a Melbourne Cup for 17 years, but he knew all horses, pedigrees, and performances from the beginning of things.

So without a drop of water left, under the cloudless, day-long heat of a mid-summer sun, away in the remote North-West, these two rode on "pushing" the pack horse in front of them, all day, every day from noon on that best-remembered Thursday of their lives until the indistinct Saturday of their deliverance from death.

"I tried a stone in my mouth," said Edwards. "It brought away part of the roof of my mouth when I took it out. We came to a dry creek

down the bank. We smelled the ground, it was damp. We scratched away the sand near a big stone, dipped our faces in and drank. Charlie ladled out a dishful for his horse. The horse wouldn't drink, so he threw the dish at him and swore. We seemed to tumble over then and go to sleep. Next morning Charlie wakened up. It was the day after Derby Day in England. He sat up and wondered what horse won. Then he wondered why *his* horse had refused to drink



Frazer's Mine, Southern Cross

bed and began sinking a hole; left that without getting any water and pushed on. All day Saturday we didn't speak to one another. All day Saturday I thought I was travelling in a train from the docks to Fenchurch Street. At the foot of the steps leading down to Fish Street Hill, I thought there was a little 'pub' I knew 20 years ago, where they sold cool, delicious, bitter ale. That kept me up. I wasn't tired. I wasn't hungry. I wasn't thirsty. I was just expectant and kind of glad.

"It came dark, but we kept on. No use stopping now. We kept right on. By and by coming out of a dream like, we felt the ground going away from us. Charlie was leading his horse. He went

after two days without a taste. Then he looked over at me and sang out. 'Good God! look at your face!' I was only half awake, but I opened my eyes wide and looked at him, and I said, 'Great Scott, look at your own!'

"We faced one another, sitting up on the moist sand. Our faces were caked with scum where we had dipped them in to drink the night before. No wonder Charlie's horse refused it. It took us two hours to clean out that hole before we had another drink of it."

Charlie was lost at last and never seen again. Edwards often wondered what had become of him. He was minus an eye, so his old mate told me. I fancied I could see this one-eyed Charlie,

hatless, in moleskin pants, and flannel shirt, at a bush race meeting, betting his mates five ounces to one, and setting up the whisky and rum at a sovereign a bottle.

He went out duck shooting in Kimberley on one occasion. His gun burst and shattered part of his hand. Being outside the region of doctors, Charlie, one-eyed Charlie, took a tomahawk and cut the dismembered part off himself. He recovered.

"Between Sandy Creek and Taylor's" this one-eyed, one-handed figure of the grim North-West, went out with two horses and disappeared. We can bet he died game.



A Currajong Tree

Coming down Barrack Hill, Paddington, which is a suburb of Sydney, in December of 1914, a knot of brown fellows in khaki got into my compartment in the tram.

Curiously, the story about that one-eyed man drifted into my mind. I could not help thinking, although the Germans had shown no lack of personal courage, the German Empire with all its resources could not produce just that type; the type from which Charlie was recruited, and which I saw reflected in the khaki-clad gentlemen opposite. I felt sure those gentlemen would acquit themselves with valor and resource.

They are filled with quaint superstitions; they pay their tributes to Bacchus, believing that the

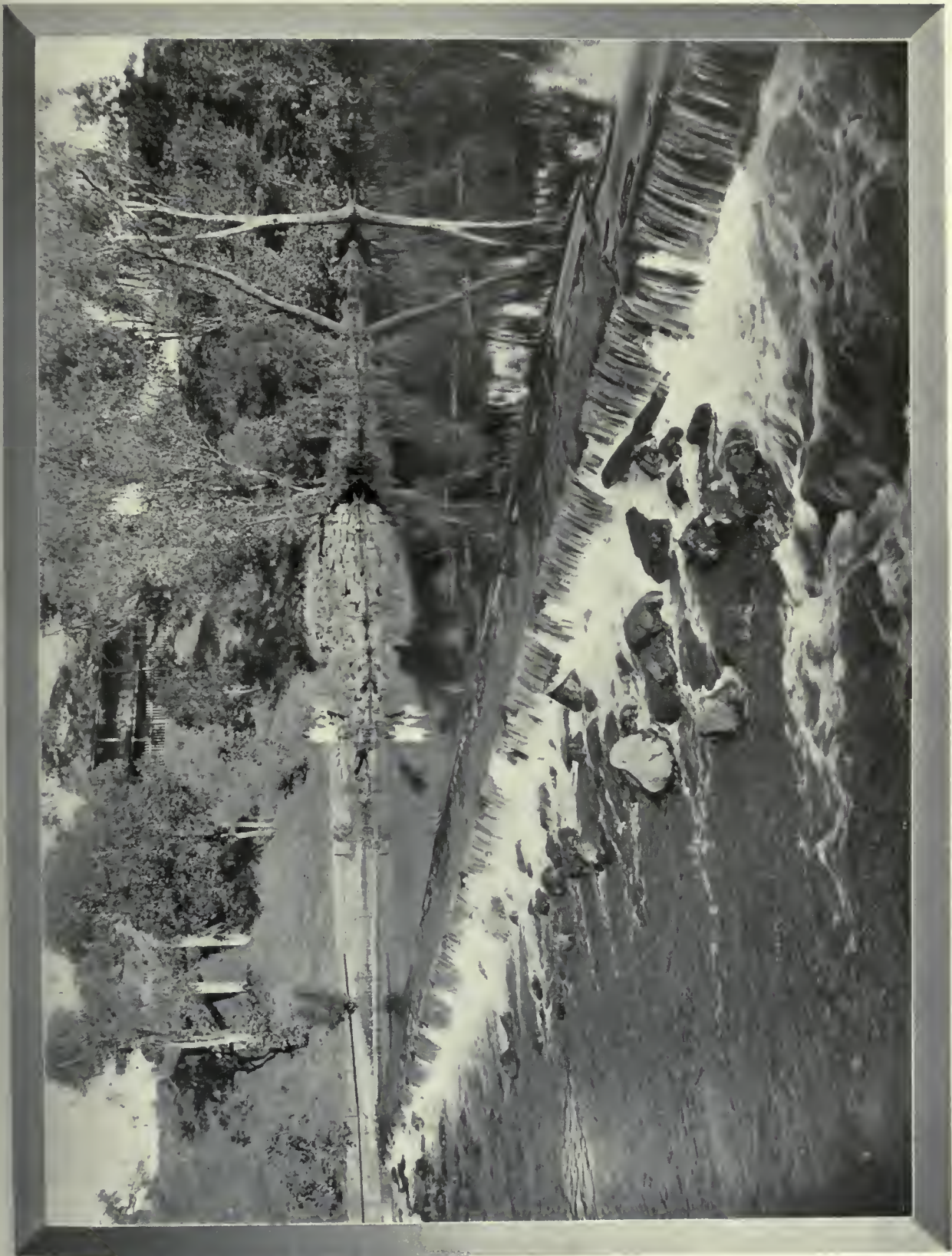
gods of luck favored the feckless; but this Legion of the Long Track is nowise unintelligent, or unafraid. From the expert prospector who can "dry dish" 70 dishes a day to the English new chum, they are all children of chance, prepared to take the "duffers" with the finds. The knowing old hands will strip in the afternoon and get the morning breezes to blow, the new chum will shed his sweat with less economy.

They earn their dust hardly, and scatter it freely. Too often the "pack-horse storekeeper," and the publican skim the cream of a rush—trading bad liquor for a pound a bottle; nails, three for sixpence, and horse-shoes and flour at a shilling a pound.

One hears of thirsting men who bought a shilling's worth of brandy and received a "nobbler" of water with it; how processions of diggers went out to new rushes; how the unprovided, inexperienced, sometimes died on the track; how the most enduring and wisest won through, sucking the water through a bit of cloth in the salt clay pans, staggering on from rock hole to rock hole, and finally staking out claims that brought them riches, or nothing at all.

They are a combination of bushman and miner, men who could pick out the tracks of a special horse in a mob of 500, who had as keen an eye for indications of gold in a landscape of a hundred miles radius. They say among themselves that a man who cannot stand a stroke of lightning is no good for that country. In point of fact, where men like Edwards, sometime of London, can survive, harden, and become entirely competent, the average man can also live and enjoy life as it would be impossible for him to do under gentler conditions. The harder days are done. At the last "Bullfinch" rush men who could command motor-cars got in first. Tube skirts reached Kalgoorlie before they became fashionable in Sydney, and the lady who took to champagne drinking because she was always christening new batteries (the custom being to break a case over the machinery and go on a three days' drunk) is dead. But the glamor of gold still clings to Western Australia. The sun of the fortune-hunter has not set. Beyond the farthest-out fields, there are yet vast regions unexplored. Within the radius of known fields there are golden possibilities yet unexploited, lodes and nuggets which have eluded the gold-seeker's grasp. Kalgoorlie will not be the last of the great mines, nor Nullagine the final word.

The Government geologist kindly presented me with forty-two volumes of reports. I have not read them all, but I have read enough to convince me—with what I know—that only a moiety of the mineral wealth of the Mighty West has yet been seen.



The Weir, Murray River, Pinjarra

When Coolgardie and Kalgoorlie had called the fortune-seekers of the world to them, the disappointed went away often poorer than they came. Having missed expected riches they had no good reports of the land that disappointed them. It was to them and to their followers, the "Waterless West," a waste in which gold might be found, but hardships and perils outbalanced all possible gains. The first and last charge against Western Australia which calls for investigation is that of aridity.

Even these discursive pages prove that the dryness of the State is partial, not general. The goldfields happened to be within the dry zone. To make life and labor possible the young State was faced with the problem of a goldfields water supply. She replied with Mundaring Weir and the biggest hydraulic pumping scheme in the history of engineering.

The concrete face of Mundaring is not more solid than the national spirit which undertook this task and completed it within five years. These three hundred thousand people of the West have

already spent five millions sterling on water conservation. The goldfields scheme, whereby water for cities, mines, and gardens is carried a distance of 350 miles, is responsible for over three and a quarter millions of this. The number of towns supplied now approaches 30, and extensions of 116 miles have been made to serve agricultural areas. The average daily consumption of water is about three million gallons. The maximum delivery per day is five million gallons. From a strictly-actuarial viewpoint the scheme has proved unprofitable, the annual revenues being inadequate to cover working expenses and interest, and leave a proportionate contribution to sinking fund. But if shortages in sinking fund do occur, the gains to the State in other directions will more than compensate for them. The total public debt of Western Australia is over thirty-four millions. Its assets, including revenue-producing works, such as this Goldfields Water Supply, keep good the national credit. Under-production, under-population, are far greater dangers than borrowing money for such necessary national undertakings.



Helena River, Mundaring



Hannan Street, Kalgoorlie

KALGOORLIE

EIGHTEEN years before I landed in Perth, two of us tossed up a coin in a wine saloon in Rowe Street, Sydney, to see whether we would join the expectant bands who were then daily packing the steamers for Fremantle, or stay in our billets. We were both well placed at the time. Neither felt particularly sorry when the toss went against us. But I know that I have missed the best experience this Continent had to offer in my lifetime. It would have been worth more to a young journalist of 24 than six or seven hundred a year.

As I went up the Kalgoorlie track in 1912 the moon was shining brightly. Every now and then one caught the glitter of a bottle or a tin that had been emptied by those early pilgrims to the fields. The man who sat in the railway carriage opposite me had a fine business in Hay Street, Perth, but he sighed when he spoke of the boom days at Coolgardie, where his original fortune had been made.

He looked out of the window, and the moonlight on his silvery hair made him venerable.

"Young man," said he, "the finest lot of horses and barmaids went up that road that ever travelled anywhere in this world."

I believe him. No doubt there went up that track also some of the worst and best the world held at that period. They came from all over; such men as only great wars and great discoveries will bring together. They came with large hope and little money. Some went back in a few months with their fortunes made. Others left with empty pockets and full curses.

As the trenches of the army converted clerks into heroes, so the fields brought out latent qualities in some characters, and exposed hidden meanness in others.

Men got chances which could not possibly come to them under ordinary circumstances. Just as the rapidly-changing fortunes of a battlefield reduce colonels to honorable dust and elevate subalterns to colonels, so the rapidly-rolling wheels of fortune presented different faces to different individuals on the fields. Opportunity came and the wise man seized it. One man made

half-a-million in railway construction. He took a contract to build the line at £1,000 a mile. People said he was insane. But there was a clause in his contract which enabled him to levy interim tolls on passengers and goods. After the first 20 miles of road had been constructed this particular wise man cleared £20,000 a week. For him Western Australia was the finest country in the world.

The foolish man bought champagne in Coolgardie at £15 a case, drank half of it with his friends, passed the half-emptied case back to the publican, and bought another at the same price. The glory of the moment departed, and the foolish man found no good in the West.

Nothing changes more rapidly than values on a goldfield.

The Council Hall at Coolgardie was sold while I was in that decayed city, for £250. Yet it cost £13,000 to build; £700 was spent on champagne at the opening ceremony.

Some oldest inhabitants looked back on those opening ceremonies—which must have been paralyzingly frequent—as the best part of the boom days.

They remembered particularly the festivities which took place when the great goldfields pumping scheme was completed, how a camel escort of principal citizens went out to meet Sir John Forrest and got astray, and some of the party did not return for two days. How the banquet terminated with an inspired humorist walking round the table with his foot in an oyster pie. Then De Baun turned out the lights. And somebody asked De Baun, who was the caterer, next day how he kept account of the crockery and cutlery for that colossal feed: "Did you count it in?"

"Yes," he counted it in.

"Did you count it out?"

"No," said De Baun, "I swept it out."

The West is wide-hearted, jovial, prodigal still. I had to tell my friends in Perth that even the temperance drinks I have confined myself to for many years cannot be taken as if through a tube.

At Kalgoorlie, although all drinks were still a shilling, one found the frequent invitation to "liquor up" embarrassing. The bar-maidens of Kalgoorlie are still the most beautiful and exemplary in the world, but a busy literary man does not necessarily gain information suitable for a somewhat staid publication from Junoesque divinities in frequent temples of Bacchus. Kalgoorlie preserves most of the traditions and many of the habits of boom days. It is still, perhaps, the most interesting city in Australia.

Every mining machinery agency on earth seems to be represented there. The old claims appeal instantly to the stranger's imagination. Here



School of Mines, Coolgardie

fortunes were actually lost and won. Here gold-seekers of all nationalities shovelled and scraped under Australian suns, waiting that chance which was to bring each of them his heart's desire.

The old claims look like red anthills now. The earth has been burrowed and sieved for miles. One sees the last marks of picks in long-abandoned claims where the owners finished up eighteen or twenty years ago. One sees also fresh workings of fossickers—chiefly ancient miners who will not take the old-age pension. They make a living, and sometimes a little rise, by pawing over old ground.

On the quiet Sunday of my arrival in Kalgoorlie I went up on a hillock overlooking the city. It gave me a fine commanding view of the greatest goldfield on earth. Everywhere I saw shafts, poppetheads, machinery, and paddocks of iron-stone gravel pockmarked, burrowed, tunnelled, pitted and torn. Great heaps of yellow clay, gravel, and stone; smaller heaps of red clay, gravel, and stone. The stones at my feet were quartz, but the gold of Kalgoorlie does not all lie in quartz. Its famous telluride ores faced mining experts with a problem which the genius of Australia finally solved on the spot. Along the Golden Mile mullock heaps became tall hills; for there lies the rich core of the field. The turning

over of the immediate landscape has been general. In his rage for wealth, Man creates ugliness. Here a chaos of holes and hillocks defaces creation. In his passion for order man re-creates beauty. There lie patches of green cultivation, parks, gardens, ornamental trees. A line of low blue-black hills on the horizon shows what

ing away from the mineral area; soils which Mr. Foster Fraser erroneously classed as "desert" from information gathered, presumably on his one hurried journey to Mundaring Weir.

With an average rainfall of 10 inches, dry-farming experts of to-day will readily agree that such soils are by no means outside the wheat area.



Intersection of Hannan and Maritana Streets, Kalgoorlie

Kalgoorlie was like before the eyes of human discovery were attracted by a glitter of gold. Nearer to view are the little white houses of working miners, with an occasional vine, a rare fence, an infrequent effort to make a real garden within a real enclosure which would be a barrier to predatory goats—inseparable from mining claims in this country.

A cool breeze was blowing from the south-west. It is the prevailing wind, which has helped to wear the mountains of the interior down to their golden roots, to alternately disclose and hide their riches. There was absolutely not a handbreadth of cloud in the whole blue expanse of sky. The air was like wine that glorious June morning when I surveyed the great field from my commanding hill-top above the Golden Mile. One saw blood-red soils instinct with fertility spread-

What they will do under irrigation, wherever irrigation can be made possible, we can gather from local examples.

Just below my range of vision is a miner's shack and claim. Three iron pipes have been lashed together for poppet-heads. A wire rope and whim make the winding gear. This miner is married—a pair of woman's stockings flutter from a rope outside the shack, which with a shirt, a towel, and a pair of socks seem to constitute a family washing. One cannot help thinking that men like these would live infinitely more comfortable and productive lives as small irrigationists or dry-farmers.

The present Western Australian wheat belt extends from Northampton to Albany, a distance of 600 miles. Its average width is about 60 miles, and its approximate area 60 million acres. With



Oranges Grown at Kalgoorlie

an average crop of ten bushels to the acre, there would be a production of six hundred million bushels of grain per year from this strip alone. But the wheat belt will not be contained within these theoretical boundaries; in time it will be extended, one feels sure, as far as Kalgoorlie, and farther. Men laugh when one speaks of Kalgoorlie as an agricultural district. Men would have laughed a few years ago if Temora were talked of as a future wheat-growing area. Laughter is cheap. Ridicule may impede, but it will never prevent progress. No one knows how long Western mines will last, but wealth of Western soils is eternal. With irrigation their true productive qualities are brought out.

In Ayr Street, Kalgoorlie, an old Mildura settler, L. C. Noland, has a quarter-acre garden under irrigation from the goldfields water supply. His water rates amounted to two shillings and sixpence a week. This quarter-acre interested me quite as much as the Golden Mile. It displayed an even more valuable and permanent asset. No quarter-acre on Yanco or Mildura showed heavier yields or greater variety of production. The quality of both fruit and vegetables was superb. Lisbon lemons and Mediterranean orange trees, five years of age, I found in magnificent bearing, carrying crops of the choicest quality. They were worth 4d. a lb. in Kalgoorlie at the time. With 160lbs. of fruit to a tree there was some profit in the proposition. San Michael of Azores oranges displaying their great golden balls among glossy

leaves—Joppas in heavy clusters, prolific mandarins, all testified that soil and climate were eminently suitable for growing high-class citrus fruits.

Red Prince sultanas, Gordo Blancos, Zante currants proclaimed them equally suitable for the growing of grapes. Nectarines, peaches, Japanese plums, figs, mulberries, apricots, Mr. Noland was growing them all, and his garden contained, moreover, one hundred varieties of beautiful roses. In his neat little bachelor house, electric lit, with poultry, books, and garden, giving him both pleasure and profit, L. C. Noland appealed to me as a good Australian citizen. His example is one that the congenial Westerner might more often follow; decreasing, perhaps, the profits from public-house and picture show, but increasing national and individual wealth, and increasing ultimate happiness to an incalculable degree.

Down at Kalgoorlie Racecourse one saw again what water and good gardening can do in the heart of the West. But it was the subtle difference between the painted lady and the pretty housewife. The quarter-acre in Ayr Street remains the kinder memory. They had 150 varieties of geraniums at the racecourse and 650 hybrids, and a plant-house full of asparagus ferns, palms, and ornamental plants of great variety. The lawns and grounds are as green and smart as those of Flemington.

Water is the secret. In early days condenser water cost 2s. a gallon. The difficulties of getting a bath were incredible. Personal discomfort incidental to passing conditions made dusty exiles regard the place as unfit for habitation. Now Kalgoorlie householders going in for an irrigated garden get their first 5,000 gallons for £1. After that, up to 20,000 gallons, the charge is 2s. a thousand. From 20,000 it increases to 2s. 6d. Mr. Noland's meter reading from 21st December to 1st of April, the driest months, gave a consumption of 18,000 gallons. Under these circumstances there is no excuse for that consumption of bottled beverages, which begins before breakfast with a certain unsober section of Westerners, who evidently aspire to perpetuate earlier bad habits of the fields.

The Government Health Officer at Kalgoorlie informed the author that "the consumption of alcohol is still beyond all reason, and is the cause of a higher mortality."

Normal life in the city of Kalgoorlie is undoubtedly healthy. A number of weak-lunged people from the coast go thither for change. There is no hygienic necessity for white women to take an annual holiday. The change from heat of day to evening coolness is sudden, but in an atmosphere as dry as the interior not harmful. Frost in winter is unexpectedly frequent on the fields.

Living can also be made pleasant. An abundance of fresh fruit and vegetables—much of the latter locally grown—plenty of fine gardens, shade trees, flowers, the city has a great deal to make it attractive.

After its mineral era is over it may look forward, like Gympie and Ballarat, to a continuation of its prosperity in other realms of production.

The tropical inland cities of Australia should be greater hives of industry in another hundred years than our coastal cities are to-day. When ladies of adventure, who retired on fortunes

Sydney. One of these girls had gone to work in Kalgoorlie at the age of 14. She had been 14 years in the same place, with little or no change, except a holiday to Perth.

The other girl had had 12 years continuous service. They were both plump, robust, clear-complexioned, and indisputably healthy, a condition and appearance which applies to a majority of the women in Kalgoorlie and Boulder City.

The winters are perfect, clear sunlit days, golden sunsets full of colour, white stars and silver moonlight, air so pure that it makes mere living



A Garden in Kalgoorlie

won, barmaids who married millionaires, "swampers" (the fellows who rushed the rushes), promoters of crazy companies are no more than memories, other generations of Westerners will draw new wealth from lands that lured their sires with the glamor of gold.

Let it be thoroughly understood that this part of Western Australia, at least, is unequivocally a white man's country. In summer, local thermometers may register 110 degrees, but the nights are cool. White women can live comfortably and attend to their domestic duties. In the hotel where I stayed were two waitresses, natives of

an exhilaration—these are among the blessings that population enjoy.

Men who go away from Kalgoorlie for a holiday tell you they are glad to get back again. Handsome, red-checked girls, and rosy children tread the wide streets of Kalgoorlie and Boulder City. There is no poverty and few unemployed.

The visitor hardly expects to find such fine stores, fruit and fish shops, smart cafes, frequent if costly electric car service, green lawns, shady avenues, bright gardens, nor such civic patriotism and well-managed public institutions.



Goldfields Girls

Among other things I inspected the Municipal Electric Lighting and Power Plant at Kalgoorlie. They generate here a 650 kilowatt power, in addition to an accumulator giving another 500 kilos per hour. The longest service is $1\frac{1}{2}$ miles; lighting rate, 6d. net; power, 4d. to 2d.; heaters, $1\frac{1}{2}$ d. This plant has shown a profit of £80,000 since its inception 14 years ago.

The street service is conducted by private enterprise. Its debenture holders are getting the profits.

As another example of the unusual in Australian conditions, which has taxed our inventive faculties and made us resourceful, may be instanced the fact that in the Municipal power house, all the accumulator's plant is carefully covered to prevent the ironstone dust of Kalgoorlie destroying the cells. Iron, as the electrician knows, is deadly to cells.

This accumulator plant is capable of 1,000 amperes for an hour, or 500 for three hours, and does away with two shifts. Its economy and reliability are established.

The local fuel being entirely wood, the management has installed a hot-air plant which saves them £500 a year.

Kalgoorlie takes some pride in its public institutions, and boasts that their locally-made granolithic track on the electric-lit recreation ground is the fastest in the Commonwealth.

It is by the wonderful machinery of the mines that more serious-minded citizens wish the stranger to be most impressed, for this represents the Kalgoorlie of to-day, the modern city that

in one respect resembles a great manufacturing centre rather than a goldfield.

Paddy Hannan's miner's right is framed in the Town Hall. Hannan first discovered alluvial gold at Kalgoorlie—a fact which entitles him to a pension and perpetual fame. Kalgoorlie was known as Hannan's, away back in 1896. Hannan's right hangs there upon civic walls, but it represents no more than a passing phase in the history of Kalgoorlie. Up on the Golden Mile stand the mills which slowly grind the heart of a low range of Australian hills to impalpable dust.

Local engineers complain of having to import all their machinery. On vacant blocks throughout the town, one sees boilers, engines, fly-wheel—a raffle of steel and iron gone to "scrap." They too, represent a passing phase, defunct mines bones of dead floats, out-of-date processes. Up at the Golden Mile there is no rust on their boiler—yet.

The story of the Golden Mile is more thrilling than a chapter from *Monte-Cristo*.

In 1893, after the exciting find of Coolgardie, two brothers, George and William Brookman, jam makers and grocers in Adelaide, decided that they, too, would make a bid for fortune in the West. So they formed the Coolgardie Mining and Prospecting Company with a capital of £15 in ten shares, £5 paid up and five shares reckoned as paid to £5. The preliminary capital was organised to despatch three men to the fields who were to do their best for the syndicate and themselves. A practical miner named Pearce, accompanied the enterprising grocer, W. G. Brookman to the West. Coolgardie was just petering out

when Brookman gathered together his famous syndicate of fifteen. Ada Crossley, the Australian singer, is said to be one of the bunch. The northern end of the little range had given the first gold—Hannan's Reward. Brookman couldn't get near it. It had been pegged out to the last inch. So he went away south-east three miles, as a good company promoter might do, took a 404 acre lease, saw the warden and claimed exemption!

back in Albany he got the surprise of his life when he learned that Brookman had accidentally pegged off the richest mines of Kalgoorlie.

This is the popular story. On the other hand, it is well to remember that Zebina Lane was the son of a Californian pioneer, that he was born in Bendigo with the thump of the stampers for his cradle song, that he was familiar with all matters appertaining to mining from boyhood, that he had been manager of Block 14 Mine at Broken Hill



A Native of the Goldfields

They called it derisively "Brookman's Farm." The claims yet retain their original symmetry, shape, and size. It was so far away from the line of lodes, so remote, such an obvious impossibility, a "wild cat," a "side show," that the whole field treated it with derision. But Fortune is a great jokist. Brookman got to work and found a little "leader." Zeb Lane, the already famous Zeb Lane, paragon of promoters, came along and had a look at it. Report said, and still says, that the Great Zeb didn't think much of it, but went to England to float a company. It was boom time and the British public "sprang" to the tune of £175,000. They say that when Zeb Lane arrived

and paid a quarter of a million in dividends out of this mine to its shareholders before he saw Hannan's or the Great Boulder. He probably knew a Golconda when he saw it.

He went to Western Australia in 1893 to inspect the goldfields. The Great Boulder was then owned by the original (Adelaide) syndicate. He got the offer of this and other properties, so the old records say, and taking a trip to London floated the Great Boulder and two other companies.

Practical work on the Great Boulder began when Lane returned from England in 1894. The capital of the company, as we have seen, was



Early Days on the Golden Mile

£175,000 in £1 shares. By the end of 1895 six shillings per share had been paid in dividends, and up to that time 4,291 ozs treated, yielding 26.817 ounces of gold, worth £4 2s. 6d. an ounce. Some British investors had good reason to congratulate themselves on an Australian speculation.

In 1898 the Adelaide syndicate was wound up.

The disbanding company voted its original capital, £150, to its secretary as a bonus. The chairman (G. Brookman) stated, for the benefit of the public, that the capital value of the shares in the companies promoted from their holdings at the Golden Mile ("Brookman's Farm") was then £7,275,000. Those companies had produced *at that date* gold weighing 17 tons and worth £24,000,000. The money distributed to the Adelaide shareholders was £950,000 in cash and £3,421,000 in shares.

The visitor to "Brookman's Farm" to-day finds machinery and process worthy of the richest group of gold mines in the world. The London agent, the champagne-drinking manager, and the gorgeous promoter have disappeared. Sober mining engineers and metallurgical chemists have taken their places. Twenty years' experience stands behind the mining managers of Kalgoorlie.

In 1893 the only machinery on the field for treating surface alluvial and quartz were the "shaker" and "dolly pot." In 1894 a unit mill was erected on Kalgoorlie Mine, tailings from which have assayed £40 a ton. In 1895 an Austral Otis ball mill was erected, to be replaced by a ten-stamper battery in a gully between the Lake View Consols and Great Boulder Proprietary Mines. The ore was hand-fed, amalgamated in the boxes and copper plates, passed over blanket tables into pits, and the slimes run off into dams. The sand in the pits was stacked for future treatment.

When I visited Kalgoorlie in 1912 an enterprising engineer named Truman, who had invented a new method of treating slimes, was doing exceed-

ingly well. He had bought up a number of dumps (the residue of mines, consisting of ore which has already been subjected to one or other of the old-fashioned methods of extraction) and was running the charcoal out of them, into which gold had been precipitated. The charcoal had been put into trucks to prevent contents sticking to the sides. Those clinkers were worth £300 a ton. The little mulga sticks which had got into the slimes in solution and picked up fine gold were worth £50 a ton. The by-products of modern mining have often proved more profitable than original reductions.

The oxidised ores at Kalgoorlie cut out at relatively shallow depths, and gave place to sulphides—which brought another metallurgical problem for solution. Soon after sulphides were met with, telluride of gold was identified on Block 45 Lease, and subsequently in all the other mines, in exceedingly rich ore bodies. At that time the fields possessed no means of reducing telluride, which had to be shipped to smelters at Fremantle, Dapto, and Wallaroo.

Freight and smelting charges took a good slice of the profits. Constant experiments and frequent installations of new processes went on at most of the big mines for years. Finally the Merton and the Edwards types of furnaces for the dry-crushing mills were introduced from Victoria. The treatment resolved itself into a breaking of the ore in Gale or Blake crushers, milling in Krupp or Griffin mills, roasting in Merton or Edwards furnaces, cooling the ore, or not, and mixing with weak cyanide solution.

In classification the sand was ground in pans and the coarse gold amalgamated, the slimes from all sources thickened and run into agitators, treated with cyanide, and finally filter-pressed. The residue is disposed of in various ways.

In the wet-crushing mills Wifley tables have been generally installed to separate the pyrites from the ore. The concentrates are roasted in Merton or Edwards furnaces, ground fine, and amalgamated in pans, agitated with cyanide, and filter-pressed.

The first tube mill used in gold reduction was introduced at Hannan's Star.

The fall in costs caused by local improvements in treatment has been considerable. When the ores of Kalgoorlie were being shipped to smelters costs went up to £6 a ton. Nowadays 10s. 6d. a ton for wet and dry-crushing mills may be given as a fair average.

In 1909-10 The Golden Mile—13 mines—was treating a grand total of 73,000 tons of crude ore each month, and 5,900 tons of concentrates. This is a world's record. Taking into calculation the prices of labor and material, the costs of extraction were lower than that of any other mining

field. This happy condition still prevails, a high tribute to the efficiency of Western Australian mining management.

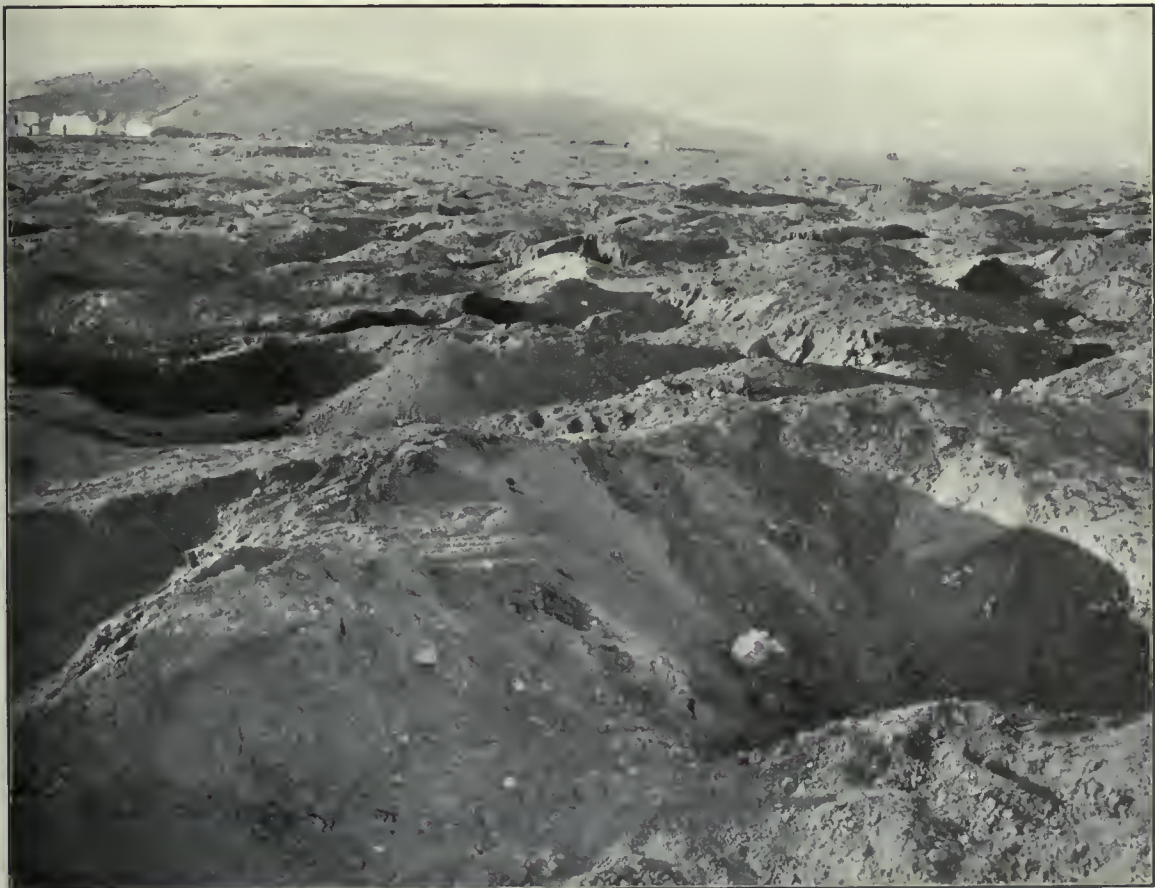
The surface of the Marvellous Mile is to-day a line of colossal factories with high chimneys, where, under high roofs, ore bodies automatically elevated from underground workings are subjected to enormous forces which grind them as wheat is ground in a mill. The fine floury dust is subjected to chemical process and the last possible atom of metal extracted.

In gigantic vats with revolving spindles, the floury heart of the hills is chemically treated. Ball mills, crushers, and roasters slowly and deliberately perform their functions. Within these weird revolving merry-go-rounds one gets a vision of Hades. Enormous heat, enormous power, irresistible acids have all been harnessed to the

will of science. The capital value of this machinery of the fields is calculated in millions, but investors may rest assured that the element of waste has been practically eliminated and profits are being made on the smallest margins of payable product.

After producing 50 million pounds worth of gold in eighteen years, ore to the value of ten millions was still blocked out in the workings of eleven principal Kalgoorlie mines. And Paddy Hannan, the Irish prospector, who discovered the field in 1893, is a pensioner of the State.

There is still in Kalgoorlie a business man who was offered Lake Views at 6d.—they went to £38; Boulders at 1s. 6d.—they went to £18; and Ivanhoes at 2s. 6d.—they went to £17. He told me with a self-pitying twinkle in his eye, that he "turned them all down."



Deserted Alluvial Diggings.





On the Sheep Hills, Newmarracarra

THE SIX DIVISIONS

THE products of Western Australia are: Sheep, cattle, wheat, and all cereals, fruit, and wine, timber, pearls and pearl shells, gold, coal, and other minerals.

Western Australia needs: Farmers, orchardists, vignerons, agricultural labourers, and industrious men of all kinds who are able and willing to work on the land.

Western Australia claims: That no other State has a better or more healthy climate than is found in her agricultural areas, or has so excellent a market for all agricultural produce and fruit. Nor is there any State which does more, if so much, to give practical encouragement to settlers on her lands.

Western Australia gives evident proof of the value she places upon land settlement and of her *bona fide* desire to increase her agricultural expansion by the unique concessions she grants.

—Official Bulletin.

At the risk of repetition, I must insist upon the fact that the sub-division of Western Australia into three States or Territories is necessary. The Government at Perth is faced with a task beyond the range of human possibility. The time has gone

—it went early in August, 1914—when Australians can afford to shelve racial problems, or postpone national tasks. To-day is red enough, but to-morrow may be redder still. Had it not been for Britain's naval expenditure during the last five years—an expenditure which a large number of representative Britons opposed tooth and nail—the Governments at Perth and in Melbourne would ere this have been relieved of their responsibilities. The salaries of legislators would also have automatically ceased. In order to face with some degree of equanimity a situation which may be even blacker than that of August, 1914, Australia must begin now a policy of immigration and land settlement which will convert the potentialities of her waste places into actual product and ensure perpetual tenure of this continent to a white race, living according to the freest and most liberal European standards.

We can, while pursuing this policy, if our legislators see fit, offer our friends and allies commercial compensations.

Unless we are prepared to frame such laws and create such conditions as will lead within the next generation to the occupation and development of our vast wealth-producing domains, we

will have neither title nor justification to offer in support of our exclusive policy. Nor will we, perhaps, have the necessary strength to enforce it. The theory that we can call upon Britain always to defend us is a confession of unfilial cowardice and helplessness. It is a mistaken patriotism at best, as dangerous to the Motherland as to our own. That pre-war delusion cherished by some fatuous Australians, that in the event of trouble in the Pacific the United States would come to the assistance of the Commonwealth, has no material substance behind it.

over an area of 975,920 square miles, representative government is hardly possible, rapid colonisation not to be hoped for, and continuation of present ownership extremely doubtful. I have listened vainly for an answer to many riddles in the West. The East is busy with its own local affairs, and greatly ignorant of the facts. One solution of the difficulty came from a German professor about five years ago. He suggested that the unoccupied but fruitful spaces of Western Australia should be given over to Germany on the grounds (ethically substantial) that Britons



Pearling Luggers at Broome

Therefore, it behoves every public man, every patriot throughout the length and breadth of Australia, to strive for the laws and conditions which will bring our ship to havens of national security, prosperity, and the peace which results from an entire preparedness for war.

This occupation of Western Australia is one of those vital national problems which must be attacked. The country to the south of the 28th parallel could be more readily settled if it were not handicapped by the burden of the great north-west and eastern divisions. The Kimberleys, all that fine tropical territory north of the 20th parallel, would work out its destiny much better with a government at Derby or Broome.

But with a population of 107,000 in Perth and suburbs, and a balance of perhaps 220,000 spread

were making no use of them, while Germany was badly in need of colonies for her crowded people. It was, no doubt, part of the German programme of 1914 to carry this theory into fact. Because Germany—thank heaven—has failed in this attempt, Australia must not consider the ledger closed. The first balance-sheet only has been struck.

There are people in Sydney and Melbourne who still regard Western Australia as an arid land producing gold in large quantities, but generally unsuited for agriculture and of indifferent value for pastoral purposes. These people would be surprised to learn that those sands of Western Australia which early explorers classed as deserts are among the richest soils in the world. Each year the truth is being manifested that vast inland



Whim Well Copper Mine

districts of the West which have been regarded as doubtful, even by better-informed Australians, are really of immense future value.

* * * *

On maps of Western Australia since 1907 a red line has been drawn connecting Hall's Creek, in Kimberley Division, with Leonora in the Central Division.

This is marked "Stock Route, A. W. Canning, 1906-7." It runs from near the 18th deg. of S. Latitude to the 29th, in a south-westerly trend, for about 1,050 miles. Between Hall's Creek and Wiluna, half across a continent, there is not yet a single hamlet! I sat in the vestibule of the Palace Hotel one evening thinking what uninhabited distances spread away into the darkness beyond the circle of the lights of Perth. As I sat there I noticed among a group of lean, brown Westerners, a man I was looking for. A large proportion of the men who passed through that lamp-lit vestibule towards dining saloon or bar were of this type. One often wondered what back-bush history these spare, sun-browned fellows had written.

The man I wanted to see was Canning. He had promised to come in and have a yarn. I noticed as we sat in the dining room together later on that he had a grey-blue eye, the long-distance eye one might call it, which seems typical of these explorers and back-bushmen.

He told me in a quiet, modest way all about the highway he had built through the West. Before he undertook to make a new line across the

map of Australia he believed that water existed throughout the eastern division from the fact that the aborigines, of which there have been considerable numbers, never migrated.

His equipment for the survey included 21 camels, none of which he lost, and a herd of goats which kept the party in milk and fresh meat. After survey the construction of the route—marking a track and making wells—occupied two years. This time he took out 62 camels, 400 goats, and no tinned meats. He moved like a Biblical patriarch, halting with his expedition from time to time to labor or rest. The equipment included windlasses and troughing for 54 wells.

At each well he established a depot. For 830 miles of the stock route there are wells averaging 14 miles apart. Native names have been given to these. Looking at the map one would think that they were places of habitation, but there are no houses between Hall's Creek and Wiluna.

Mr. Canning says that his route lies through patches of fair, good, dry country, through country which is sometimes good, and in good seasons among the best. In dry lakes covered over with soil there was always succulent pasturage. He was agreeably surprised to find such a large area of fair, pastoral country, and particularly pleased by discovering that everywhere there was an abundance of water to be had by shallow sinking. It was gratifying to get an inflow of 4,300 gallons an hour at a depth of 9 feet, as Mr. Canning did in the heart of what was once believed to be a waterless desert. At a depth of twenty feet it was usual to get a flow of 2,000 gallons an hour. We can better understand now why the interior of



Westralian Natives.

Australia is crossed by so few flowing rivers; practically all the rainfall of an enormous watershed is retained by a vast underground storage system, which will prove of incalculable value to future settlers. If the establishment of wells at an average distance of 14 miles for 850 miles on Canning's stock route is possible, the interior of Western Australia will nearly all be turned to profitable account by pastoralists. Immense areas are still open to pastoral occupation. Canning's route traverses also some hundreds of miles of sand hills and spinifex. The prevailing wind is south-east, and these hills all run in the same direction. This is only a central belt, which constitutes about all the actual desert of the continent. Explorer Wells believes much of it will some day be converted. The northern end of Canning's route lies along Sturt's Creek, which once a year may flow through all its course and carries fine pools of permanent water on which wildfowl are plentiful. In flood time, like other rivers of the interior, its waters submerge the surrounding country for miles. Several profitable cattle stations have been established in this region. Farther south the natives have been troublesome, and cattle-spearing has been one of the drawbacks to pastoral settlement.

South of the 20th parallel there are great areas of good country, then comes the sandy belt and more good country from about the 23rd parallel south. None of this has yet been taken up, so far as the writer knows.

Since the Canning route was made possible mobs of cattle have been driven down from Kimberley to Lake Way station, thence to Perth, arriving in good condition at their long journey's end. Their drovers also arrived as healthy and fit as men could be. The men of Canning's expedition returned without a touch of fever. They were free from illness of any kind during their two years' exile. With goats' meat, wild turkeys, pigeons, and kangaroos they enjoyed a change of diet which doubtless helped them to avoid those physical disabilities which some of the explorers suffered from.

East Kimberley graziers have, says an official report published since the opening of Canning's stock route, been deeply interested to see a demonstration made of the practicability of overlanding mobs of 200 to 400 head of cattle along this newly opened route to the Eastern Goldfields market. Although wells have been put down at intervals of about 14 miles along a stretch of 800 miles

erroneously called "desert" country, yet a practical demonstration alone of the capabilities of these wells to water good sized mobs of travelling cattle and of the pastures to support them, has been anxiously looked forward to. This demonstration has since been successfully carried out, and this season a mob of horses—over 100—and three mobs of bullocks—250 to 350 strong—were overlanded. One of these mobs, under the care of two experienced drovers, James Thomson and Geo. Shoesmith, was attacked by wild blacks and the drovers were murdered. The others reached Wiluna in splendid order, the loss being only 3 per cent., while the bullocks are reported to have gained weight on the track. The opening of this stock route offers, therefore, an important outlet to a good market for cattle which until then had to be driven down the Ord Valley to Wyndham and had to face losses sometimes of 25 per cent., due to tick fever, irrespective of other losses at sea and depreciation whilst on board ship. This new outlet will also enable cattle owners to market within the State large quantities of stock, which in previous years had to be overlanded to the Queensland meat works. I am told that, in 1909, 16,000 head of cattle were overlanded to the Eastern States.

The journey from Hall's Creek to Wiluna along this new route takes four to five months, and all those who have used it speak highly of the watering facilities provided.

* * * *

A few days after my interview with A. W. Canning, there happened in to the Palace Hotel, another lean, hard man with a penetrating brown eye, an eye that I would not care to see looking at me in hostility behind the sights of a rifle. This was Sergeant Pilmer, of the Western Australian Mounted Police, just returned from a punitive expedition in the North-West. This expedition had been sent out in charge of Sergeant Pilmer by the Government to bring the murderers of the droving party to justice. The hostile natives came in contact with the police at Libral Well, a little south of where Canning's stock route crosses the 22nd parallel. The Sergeant gravely said that "he did not think they would do it again." They found and buried the remains of the party which had been murdered.

It was Pilmer who hunted down the notorious native bandit, "Pigeon," and his gang. He had had fourteen years' service on the North-West coast, and his firm belief in the future of that hinterland was based on a first-hand knowledge.

The Pilmer expedition crossed from Weld Springs, discovered by Sir John Forrest in 1874, to Goodah on the Sturt, better known as "Gregory's Salt Sea." This country, Sergeant Pilmer states,

is capable of supporting a very large population. There is abundance of water at shallow sinking. The prevailing soil is a rich loamy sand adapted, he believes, for the growth of rice and wheat. The expedition found plenty of native wells and surface water as pure as rain water, conserved by a wise providence—or beneficent nature—making provision over a period of ages for the establishment of future population.

They went through after a three years' drought and found in places, where there had been local thunderstorms, patches of the most succulent vegetation.

Present difficulties in the way of occupation are that this good territory lies 300 miles from the nearest rail-head at Nannine, and 200 to 300 miles of bad country intervene.

One can go down into it by way of Ashburton or by the Gascoigne and Burton stock routes.

The southern end of this Eastern Division, although lacking surface water, will, it is believed, prove profitable.

David Lindsay, Frank Hann, L. A. Wells, Sergt. Pilmer, and Surveyor Canning know the interior of Western Australia as well as any men living. I have discussed the subject with them all, excepting Hann, and none are pessimistic regarding the future uses of this vast hinterland.



Waiting for Kangaroos.

The opinions of the Forrests corroborate theirs; although these belonged to a previous and perhaps less hopeful generation. The early knowledge which Sir John Forrest gained of his native State doubtless helped to confirm his faith and inspire his good works.

The maps of Sir John Forrest's famous expedition from Champion Bay to the overland tele-



A Prospector

graph line in 1874 are marked in alternate good and bad. "Grassy country," with frequent water, prevails to the Robinson Ranges. Here at the head of the Murchison, the Forrest party found "most magnificent country, beautifully grassed and thinly wooded." Towards the Kimberley Ranges the lands crossed deteriorated in quality for a short distance and then changed again to "fine, open, extensive flats, richly grassed, many clumps of immense white gums studded over the plain." Weld Springs is described as a "beautiful oasis." In the Warburton Ranges there are grassy flats which compensate the expedition for a bad stretch crossed, in an easterly direction from Weld Springs. So the interior presents smiles or frowns through the Warburton, Cavanagh, Tomkinson, Mann, and Musgrave Ranges onward to the Alberga River and the overland telegraph line.

I met many prospectors in the West who had penetrated these unoccupied spaces marked as yet only by the hands of discovery or exploration. These men belong to the "Dry Belt;" they are a part of its loneliness, its mystery, its immensity. When the women, the parsons, and the goats arrive they go farther back. Their feet have strayed into unknown regions; their eyes have

beheld unknown places. As a rule they are quiet, grave men, but not pessimists. Ask them what they think of the interior and they will tell you—"some day." Some day the vast hinterland, through whose solitudes the dusky native flits noiselessly in his spinifex sandals, will pour out treasures of gold and wool.

The manners of this brigade may not be perfect, but their knowledge is first hand. They have been out into the solitudes, and seen!

One dry-belt prospector told me how the warden of the furthest field ordered all the people back because of a coming water famine. He and his mates "took the back-country back for it," i.e., disobeyed the warden's injunction and travelled farther into the unknown. Away out in the hot hinterland they discovered a lake of beautiful fresh water covered with wildfowl. The fellows 100 miles in were perishing for water.

Their camels were uneasy as they sat with their noses to the camp-fire that night. In the morning they found themselves surrounded by hostile natives. My friend did not pursue the subject further. He said "they came through all right." From which I concluded that the natives forced matters to an issue.

Alleged ill-treatment of aborigines by explorers and surveyors in Western Australia has made men take risks rather than chance an indictment. The Central Australian native is treacherous; but he has a marvellous intimacy with the land over which he roams. His knowledge of the whereabouts of water he sometimes desires to keep to himself. In order to preserve their own lives, white men have, and do commandeer tribesmen to ask as guides. If the ironwork of Canning's wells has sometimes come in handy for native chisels



Salt Formation in a Mine

and spear-heads, it is some payment for information reluctantly or willingly given by the blacks.

This hinterland, all Central Australia in fact, is far better watered than was ever expected. Surveyors of the Canning expedition located water on plans made from native maps drawn in the sand. By getting the blacks to tell them what growths prevailed thereabouts they could judge what a distant soak or well was like. The native wells were found, as a rule, in sandstone. They were usually filled with detritus and had to be

reservoir, and were in the habit of visiting it for a supply.

Canning, who had surveyed the line for the rabbit-proof fence, one of the Government's big public undertakings, spoke pleasantly of that cold, clear underground pool in the heart of the continent. He said he had walked 80 miles without a drink once, when the sun was bordering on 150 in the shade, with a poisoned camel behind him and very uncertain prospects ahead. Another time he claimed to have done 210 miles with



Natives Fishing in the De Grey River

cleared and deepened. After putting some of these wells down ten feet the survey party got a flow of 400 gallons an hour. One of the best supplies of water on the route the chief discovered by following a runaway native down a natural tunnel in the rock. Crawling after his dusky chase he caught him by the foot about 20 feet underground and held on. Fifteen feet farther the tunnel opened out into a spacious arched chamber 100 feet in length, which contained a pool of clear, cold water, six feet deep. The party were able to enjoy a swim, subsequently, under the high roof of this cavern in the heart of Australia! Fire-sticks of the natives showed that they knew of the existence of this subterranean

camels in five days with water only once en route.

Despite hardships incidental to the penetration of new lands, his faith in Western Australia was intense. Dry though the climate of some districts might be, he had found the heat healthy and bearable. Men who would be dead in an hour in India could work without a hat in 120 degrees of heat in the West. . . .

Sitting on a bench in King Park next day, with the beautiful Swan River at my feet, I tried to picture mentally that great Canning trail, 1,050 miles in length, which began off there, hundreds of miles beyond Coolgardie, and ended away out in Kimberley, where grass five and six feet waved over hundred-mile stretches of glorious country.



A Westralian Aboriginal

On the coast of Kimberley they found European fruits growing wild, and signs of early Dutch occupation. East and south from Kimberley, somewhere, are the tracks of a waggon, 58 years old.

Canning thinks Leichhardt reached the lower part of the Northern Territory—the blacks of the interior have a legend to the effect that the party quarrelled among themselves and that the tribesmen slew the remnant. This, as I have said before, is a current theory among bushmen of the Dry Belt.

Rock pictures of Kimberley aborigines indicate early contact with Europeans. I examined some reproductions done by the Fathers of the mission station at Drysdale River, wherein the figure of a man is depicted wearing sabots, trousers, and jersey—all very evidently Dutch of the sixteenth or seventeenth century. Crosses carved in stone are frequent, and rock figures, undoubtedly European, including the model of a boat, 44 feet long, have been recently discovered.

Kimberley is still terra incognita, where a few fortunate pastoralists have established cattle stations; where occasional pearling luggers dare the 40-foot tides of Collier Bay and Cambridge Gulf; where daring spirits, white and black, face overland by long-blazed trails, and equally daring

spirits, white and brown, make landings at the mouths of bays and rivers of which Australians hardly know the names, or pursue their quiet ways among islands over which the flag of the Commonwealth has never more than theoretically waved.

Terra Incognita also, is much more of that tropical North. Who knows of the Throssell Ranges at the head of the Oakover, where the blacks, if they catch you, will strangle you with a rope made of reeds?

That is the way they found John Pickering, who had left his mate Colreavy to make over to Nallagine. That is the way other wanderers have finished up. Constable Fogarty, of Onslow, a Limerick lad with a blue eye, could tell you some weird stories of that hinterland—Constable Fogarty, whose next mate is stationed 150 miles from him, who goes out cheerfully 300 miles into the back-country to arrest a native.

But the Throssell Ranges are good, with plenty of grass and water, and promising with gold. So, like the Leopold, this fastness a hundred miles long and 16 miles wide is destined soon to yield its secrets. Perhaps more than one mysterious



Curious Aboriginal Marking



Murray River, Ravenswood



Coppin's Gap near Marble Bar

stream, like the Ruddle, will be found running away from it to lose itself in the sand.

Sitting on my bench in the park I tried to picture Canning's wells, timbered with straight desert oak—impervious to white ants—which has been carted sometimes a hundred miles on camel back. I watched in fancy lonely drovers with their herds of fat cattle stringing southward from soak to soak, keeping careful lookout at night for marauding blacks or stampeding steers. I saw the deep water holes of Sturt's Creek covered with duck and teal; the flat-topped Central Australian hills, the long grassy plains, the belts of spinifex and sand.

The vegetation of the park included bottle trees, palms, figs, cedars, scarlet eucalypts, silver-leaved banksia, acacias, and oleanders—varied growths of the world's gardens. Over there on dark blue hillsides, the oldest vegetation of a planet shaded its oldest and richest soils. Out there, beyond there, the wonders and wealth of that planet's oldest terrain awaited exploitation at the hands of modern science and industry.

The houses facing the Park and overlooking Swan River, occupying perhaps the finest city sites in Australia, gave the lie to drunken Dutch Captain Vlaming, who derided the surrounding land on his flying visit in 1696. A red road dip-

ped downward under shady trees, a broad expanse of distant roofs, some red-tiled and some of galvanised iron, the smoke of many chimneys, the exquisite greenness of the Park itself, the bluest sky, the purest air, a still, delightful atmosphere, a glorious panoramic view of Perth bounded by its hills—all this tended to delight one with the West. A recurring charm beyond all was the feeling that one had entered a land of surprises, of the unexpected, of vast distances pregnant with possibilities, nebulous yet, but destined to take on definite shapes; to give forth secret riches and open treasure chests which were filled before the mountains of Europe had risen upon their foundations.

Without doubt, these enormous domains to east and north and south, would support their prosperous millions. Any policy daring to oppose their occupation would be a policy of madness. There was only one policy for a nation possessing so many millions of food-producing acres—to ensure their peaceable settlement by people of the white race before they were settled at the instance of armed force.

Still sitting on my bench I reviewed some of the facts I had collected. First there was the Eucla Division reaching from the South Australian border to Esperance, along the shores of

the Great Bight, an undoubted land of promise of which I have already spoken.

Esperance, especially, seemed ripe for settlement. Here on thousand and two thousand acre blocks farmers can do well. In the light soils of this district one man with a team and a set of implements can readily put in a crop of from 200 to 300 acres. With the assistance of an extra hand he can take his crop off. The policy of such holdings will be 250 acres in crop, 250 acres fallow, 250 for sheep, and 250 to come and go on. It is, so far, a non-artesian district, but with

sheep stations contain as much as two million acres; there five-year-old sheep, bred on milk bush, have never drunk water, and waistcoats are infrequent and linen collars rare.

The Eastern Division crossed by Canning's stock route we have just had under review, and found to possess a most promising future.

The last division of the Western State, Kimberley, we know to be a tropical hinterland of tremendous productive powers.

While I was in Perth, Conigrave, the explorer, had just returned from an eighteen months' trip



its 15- to 25-inch annual rainfall, wells and surface conservation will be adequate. Esperance is worthy of port improvement and a railway. The quality of Premier Downs and the territory crossed by the Trans-Continental Railway is considered elsewhere.

Next there was the South-Western Division, taking in Albany, Perth, Busselton, Bunbury, and all those valuable forest and agricultural tracts over which we glanced in a preceding chapter.

Then the Central Division, containing Kalgoorlie and those great mineral areas, whose riches have astounded the world.

Then the North-West, where, in another chapter, we follow and disprove Master Dampier, our first English critic. In the wide North-West

“out back of Wyndham.” He had been living in No Man's Land on kangaroo meat, and he was hard and fit. If I were to print all the enthusiastic statements made to me by this scientifically-trained traveller, the most conservative-minded people would cease to doubt the future of the Far North. Mr. Conigrave—latest but not least intrepid Australian explorer, had examined territory previously unvisited by Europeans and found it entirely good.

Within these six great divisions is the whole State of Western Australia contained. Each in turn displays resources of the richest kind. Each division has its particular advantages, but *all* labor under the disadvantage of scanty population and, for the north-west and Kimberley, a distance far



A Date Palm, with Fruit

too great from the seat of government. Again, Western Australia should be three States instead of one.

Between Geraldton and Wyndham (with the exception of a short line from Port Hedland to Marble Bar) *there is not yet a single mile of railway*. This vast sweep includes *all* the North-West, Kimberley and the Eastern Division—an area greater than the whole of Queensland. It cannot be said that effective white occupation exists here!

Owing to climatic conditions and regularity of rainfall in the wheat belt, the average yield for ten years in Western Australia has been the highest, except Queensland, where the area cultivated for wheat is by far the smallest in the States.

In the five years preceding 1914 the State had opened 954 miles of new railways into the wheat belt. In 1914 632 miles further had been authorised and were under construction. Altogether, Western Australia had 2,854 miles of railway builded.

The area considered necessary for wheat farms is of not less than 1,000 acres. Clearing in the Wheat Belt costs 20s. to 25s. per acre. A settler with £300 initial capital is morally certain of success.

A progressive Government policy of constructing light agricultural railways, combined with a vigorous system of inducing immigration, is proving a speedy means of increasing the acreage under cultivation.

A Commissioner for the Wheat Belt has been appointed to ensure the observance of the best and most up-to-date methods of this important branch of agriculture. His advice is available, and he is anxious to be consulted on questions of tillage, fertilisation, the varieties of crops to be grown, etc. A considerable amount of his time is employed in touring the country, imparting information to settlers on the spot, and in lecturing at various centres. By this means local conditions are best served.

Pamphlets are published for free distribution on matters pertaining to cereal culture, the fertility of the soil, etc.

Special legislation exists for the protection of settlers by the registration of fertilisers, which are required to contain the stipulated fertilising constituents, according to the brand or name under which they are sold. Samples are taken and proven by analysis, and any attempt in the direction of misrepresentation on the part of the vendors is promptly followed by prosecution.

Three State farms are under the control of the Commissioner, Nangeenan, Chapman, and Narrogin. These afford practical demonstrations of



Irrigated Garden, near Carnarvon



Avon River, York



McGibbon's Estate, Bruce Rock

the methods to be observed in the cultivation of cereal crops. Experiments are undertaken for determining the best varieties suited to the different parts of the State. Seed, well graded and true to name, is also distributed from these sources.

Intending immigrants are officially promised:—
First quality land at moderate prices.

Financial assistance by the Agricultural Bank in the form of loans from £25 to £2,000 maximum.

Assisted passages from Great Britain for farmers and farm laborers.

Special reductions in rent for the *first three years* of occupancy. Expert advice on farming, grazing, wheat-growing, fruit-growing, intense culture, stock, and all agronomic subjects. Main roads cleared in advance of settlement. Water supply in the wheat country. Railways existing and projected to all agricultural land centres within reasonable distance. Freezing works, cool storage facilities. Shipping. Abattoirs. Regular rainfall seasons. Glorious climate. Practically only two seasons—spring and summer. No long, cold, dreary winter months.

The lands of the State are departmentally classified as follows:—

	Approx. Area. Sq. Miles.
1. Dairying, fruit, grazing, intense culture for vegetables, including potatoes, &c., in suitable places, the latter particularly in the coastal swamps	8,500
2. Sheep, oats, fruit	18,700
3. Cattle, horses, &c.	6,500
4. Wheat and other cereals, sheep, some cattle	68,500
5. Larger grazing farms, wheat in variable seasons	48,500
6. Sheep, cattle, horses, &c.	647,220
7. Sheep and cattle chiefly. A large area is suited for the growth of cotton and tropical fruits	178,000
Total	975,920

Outside of her gold and mineral fields, which cover an area equal to $6\frac{1}{2}$ times that of England and Wales, the sunny West has sources of wealth



Bullock Wool-Team, Carnarvon

beyond computation. While the population equals one to every three square miles, this wealth must remain for the most part unrealised.

"Western Australia's greatest and most pressing need" says the Lands Department, "is more population, more particularly settlers on the land, and it is her boast at the present time that she can

country is in the interior and on the North and North-West coast. Here are to be found, particularly in the North, millions of acres which carry nutritious indigenous grasses and scrubs on which stock thrive. These northern pastoral areas possess a good climate, and are practically free from stock diseases. The country has also



Felling a Karri Tree.

offer the best inducements for the orchardist, viticulturist, gardener, farmer or grazier. The wonderful climatic advantages, the enormous vacant areas practically drought-proof, the excellent wheat, fruit, and grazing lands, are calling for thousands of settlers and laborers. . . .

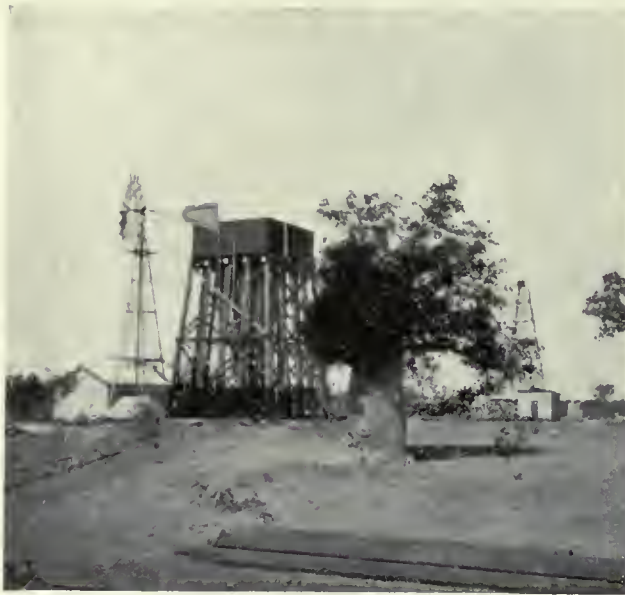
"Although at present practically confined to the coastal fringe, the pastoral industry has immense capabilities of expansion. The truly pastoral

wonderful recuperative powers, for though the rainfall is light as one proceeds inland, the edible shrubs are remarkably hardy and provide sustenance through long periods of dry weather, and the soil, being rich, responds immediately to the slightest fall of rain with a strong growth of grass.

"On the cattle stations of the North, fencing is largely dispensed with, the cattle being allowed to



A Camel Wool Team



Town Water Supply, Derby

room at will except for periodical musters for branding. But in the sheep country, all the runs are divided by sheep-proof wire fences into paddocks varying in area.

"Systematic water conservation during recent years has done wonders in improving the carrying capacity of the country. By well-sinking, water is obtained at shallow depths and raised by windmills or other motive-power. The most important development in this direction, however, has been the successful tapping of the artesian basin. Throughout the North-Western Division, boring has resulted in immense flows of water from subterranean reservoirs, and a great enhancement of values. Country previously considered impracticable is now being stocked up, and as the artesian basin is known to be of vast extent, the most sanguine hopes are justified of water from this source similarly enriching other areas now regarded as almost worthless."



A Wheat Waggon drawn by Donkeys

TASMANIA



Llanceston



NORTHERN TASMANIA:

LAUNCESTON AND THE TAMAR.

FOR many years one entertained a mental picture of Tasmania in which barren stones and bitter snows loomed through sub-Antarctic mists. That heart-shaped island to the southward of the Australian continent held no appeal for a native of the mainland with sunlit views of life.

When Tasmania joined the Commonwealth, Australia began to regard its smallest State with more interest.

Shortly after Federation, a commercial proposition took me to the northern part of Tasmania. It was winter time. My Tasmanian friends said I would see the Island at its very worst. I shipped at Melbourne with an almost Antarctic outfit, in which I was half inclined to include a pair of snow shoes, to aid my progress about Burnie and Launceston.

I found the Scotch mate of the ship suffering from sciatica, which I mentally attributed to his being in the Tasmanian trade.

My first view of the Island was off the Nut of Stanley, when I ventured up on deck in a chilly morning. This dark headland lay like a couchant lion to guard the southern stronghold of a white race. A sharp wind came over grey seas, blowing from that lone mysterious South where the planet turned noiselessly on its axis—where seal and penguin had their habitat, and weird volcanic lights reddened eternal snows.

Sunrise came with a slowness noticeable to one who was more used to the swift movements of the tropics; one thought how differently the morning danced in at Cairns.

The Scotch mate stumped off the bridge, and said, "It's a nice mornin' again."

I ventured to remark that it was rather cold. "Mon," said he, "ye dinna ken cow'd. Ye should hae a wunther in the North Sea." I learned from him later that he had contracted sciatica in Glasgow, and had really taken a berth in the Tasmanian trade in order to enjoy a congenial climate.

As the sunlight grew, one noticed that the land was of a most vivid and refreshing greenness.

By the time our ship was laid alongside the pier at Stanley, I had revised some of my preconceptions of Tasmania. Pale sunlight on the hills took on a warmer glow, tall, attenuated trees on their summits seemed less like shabby-genteel ladies; and the snows and stones of early imagination dispersed with the mists.

Our Scotch mate limped up to the skipper, and announced "eight hundra' bags of potatoes and a hundra' an' fifty tons of ore," as that little port's contribution to our freight.

While vulgar winches were rattling this into the holds of the Melbourne SS. Company's "Sydney," some of us went ashore and climbed on to the "Nut" to get a more extended view of the Island.

I remember that climb from the fact that an argument which had begun between two of my fellow-passengers in Melbourne was reaching a critical stage.

One of them was a hotelkeeper from Williamstown, who had shipped on a sailing brig as a

boy, and acquired experiences. He was in the Straits of Sunda during the eruption of Krakatoa. He had been smuggling gas-pipe guns to abet rebellions in the South Seas. He possessed a pair of clear steel-blue eyes, and drank much whisky.

The other was a garrulous, semi-sober drummer, who touted for a shady business concern in Brisbane. He boasted of convivial hours spent with Henry Lawson at the Civic Club, of which he swore that wayward literary genius was a life member.

ately one saw that the Tasmania of reality was an exceedingly beautiful and fertile country.

The day had grown warm and sunny. Beneath us, running eastwards towards Burnie and Devonport, was a coastline of alternating beach and foreland. Inland were patches of tall timber, interspersed with clearings.

Just across the neck, joining the Nut to the mainland, was a stretch of coastal plain of apparently indifferent quality. From the edge of this strip began the volcanic downs of Northern Tasmania—among the greenest, fairest, and most fertile lands on earth.



The Nut, Stanley

Five minutes' conversation with the drummer had convinced the hotelkeeper that his fellow-passenger was a liar; so he made a point of contradicting his every statement. The discussion was interminable. It covered almost everything within the range of passengerdom. When the drummer made excursions into wider domains, the hotelkeeper followed him like a hunter, and brought him down. He potted at him sitting, and when he essayed a flight into higher regions of mendacity, he was peppered on the wing.

A hundred yards from the summit of the Nut the combatants succumbed breathless. Through this fortunate accident we were enabled to enjoy an undisturbed view over the district. Immedi-

Since I first viewed this scene, that apparently worthless strip of coastal flat, about a thousand acres in area, has been cleared, drained, and planted as an apple orchard by the Van Diemen's Land Company. It was a part of their original concession, regarded for half a century as of no agricultural value. My friend Leslie Evans, of the Government Agricultural Department at Hobart, took a keen interest in this proposition. When we were approaching Stanley on our official journey in the summer of 1914 we went over this area together.

I found it to be in appearance no more than a thousand acres of typical peaty sand located on a sea margin, with patches of whiter sand inter-



North Coast Railway, near Burnie

spersed, growing in its primitive state clumps of tea-tree, sword-grass, and rushes. There are at least five hundred thousand similar despised acres along the eastern coast of Australia.

As Mr. Evans was interested in the enterprise, he was curious to hear my judgment, rather, I think, for its comparative than scientific value.

I told him candidly, "If this will grow apples *there is no waste land in the Commonwealth.*"

Presumably the experienced Van Diemen's Land Company is not investing fifty or a hundred thousand of its capital in agricultural duffers. The Stanley apple proposition should be a success, though the locality suffers from exposure to heavy winds, and breakwinds may be found necessary.

Looking down coast from the Nut one saw that the cold, bleak island of early fancy was in reality a land of forest, farm, and orchard, all pleasantly fertile and green, or rich with promises of future fertility and greenness.

With our potatoes and ore safely stowed, we steamed along over placid seas to Burnie. Square ploughed fields of chocolate ground on the hill-sides looked like brown patches on a green dress.

An Irish passenger maintained that there was only one island within the circle of the Seven Seas to compare with Tasmania for beauty, for climate, and for richness of soils. He said Tasmania would be another Ireland, capable of supporting a population greater than that of his own green motherland before the migration of the Irish began.

Ireland was a western segment broken off the European Continent, Tasmania a southern seg-

ment broken away from the Australian Continent—his Celtic imagination saw something significant in this comparison.

For the rest, he was a prosperous orchardist in the Tamar Valley, going back home after a holiday on the mainland.

A Scotchman for business, an Englishman for philosophy, and an Irishman for propaganda. His eyes filled with tears, his voice quivered with emotion, as he fondly compared the island of his adoption with that of his birth.

"Young man," he exclaimed, leaning over the steamer rail and pointing to the shoreline, "yondher lies the finest potato land outside the County Cavan, and beyant it is the sweetest apple country, barrin' me own parish, in the whole wide wurld."

As our coastal voyage continued, the Tamar apple-grower handed out facts concerning Tasmania, all gathered from practical experience. He told us how the finest fruit-growing lands of the Island were those which the two first generations classed as worthless, how settlers had rushed the heavily-timbered red volcanic country, and borne all the burdens and costs of clearing it when they might have secured the lightly-timbered greyer soils, which, as orchards in full bearing, are now worth £100 an acre. But of course there were no swift oversea steamers, no cold storages, no foreign markets for Tasmanian fruit in earlier days.

Night fell as we steamed along that smiling coast. Lamps of little towns twinkled through the darkness to starboard; finally, with red lights of Devonport in line, we slipped slowly into

smooth waters of the River Mersey—and tied up at our wharf. Devonport seemed very grave and still under a clouded moon; electric arcs flickered over deserted pavements—my first Tasmanian town had gone to bed.

In the morning Devonport, unrolling leisurely from a blanket of mist, proved an entirely prosperous place, compactly built and conveniently laid out.

A narrow-gauge railway runs along the coast from Burnie down the valley of the Mersey and

lish another on the shores of the Tasmanian Derwent. . . .

Early in 1914, while at work on this compilation, I met in Sydney the late Hon. A. E. Solomon, then Premier of Tasmania.

Mr. Solomon courteously invited me to accompany him on his return, and see more of the Island State than previous flying visits had enabled me to do.

A few weeks later we crossed the Strait, and landed in Launceston together, where I was im-



Hartnett Falls, Upper Mersey River

junctions with the main line from Launceston to Hobart.

The Mersey is a strong, rapid stream, bordered by acacias, willows, and poplars.

Misty hills, green rain-wet fields, tea-tree hedges, boxthorn and cypress, figure in my first mid-winter impressions of Northern Tasmania.

Black basaltic pebbles, and heptagons of rock, tall timber—dead along the hillsides where the young farms are—red-cheeked people, and general prosperity are also in the picture.

I found the climate milder than the air of Melbourne at that time of year. I returned to Victoria with a feeling that, after all, some excuse might be found for Lieut.-Colonel David Collins, who, early in the nineteenth century, abandoned a settlement at Sorrento, on Port Phillip, to estab-

mediately put in touch with sources of official and general information.

Launceston is among the most modern and commercially-active cities of the Commonwealth. In civic service it is much ahead of Melbourne. The generation of cheap, hydro-electric power for municipal purposes on the outskirts of the town is partly responsible for the progress of the city. Hydraulic generation of electrical force can be greatly extended in Tasmania—the land of lakes and rivers. It will aid the rapid development of her great natural resources. With her cool climate and cheap power, the Island State may aspire to become a great manufacturing base for the Commonwealth.

The electric light and power station located on the South Esk River is worth a visit—for its scenic surroundings, if for nothing else.



Electric Power Station, Launceston

With 110 feet head of water the engineers, modern magicians, have secured a direct result of 1360 h.p. The system is alternating, and 3-phase—50 cycle giving 5200 volts.

The waters of the Esk have been diverted by a tunnel, 2762 feet in length, to feed with inherent force four giant dynamos in the gorge below.

France's spiral turbines communicate with each dynamo. The generators are of 300 kilowatts, and from this power station in the hills overlooking the city, Launceston, with its 24,000 population, is enriched with light and power. Over 30 miles of public streets are thus lighted, and 4000 private consumers supplied. A most efficient and payable municipal street car service is also maintained.

The municipality controls the whole light and power services, charging for lighting 7d. per unit for the first 10 units per half-year per 8-c.p. lamp, and 1 $\frac{3}{4}$ d. per unit for all over this quantity, subject to a discount of 1d. and $\frac{1}{4}$ d. per unit respectively if paid within 14 days.

For power and heating, charges are 2 $\frac{1}{4}$ d. per unit for the first 200 units per quarter per brake horse-power or kilowatt, $\frac{5}{8}$ d. per unit for all over this quantity, subject to a discount of $\frac{1}{4}$ d. and $\frac{1}{8}$ d. per unit respectively if paid within 14 days. Alternative sliding scale for large power consumers up to 80-h.p. Discount, 12 $\frac{1}{2}$ per cent.

The Council wires premises, and customers may pay for their wiring in cash or on the deferred payment system, the payments extending

over a period not exceeding 10 years, with interest at the rate of 6 per cent. on the unpaid balance. Motors are supplied on rental, 15 per cent. per annum being charged, or sold on very liberal terms. Payments may be extended over a period of three years, with interest at the rate of 10 per cent. per annum on the unpaid balances.

A word on the Island's hydro-electric resources may be inserted here.

In 1909 the Tasmanian Parliament granted concessions to the Complex Ores Company, which opened the way for a development of latent hydro-electric power.

Five years later the Government acquired the works from that company and proceeded to complete what is known as the Great Lake Scheme.

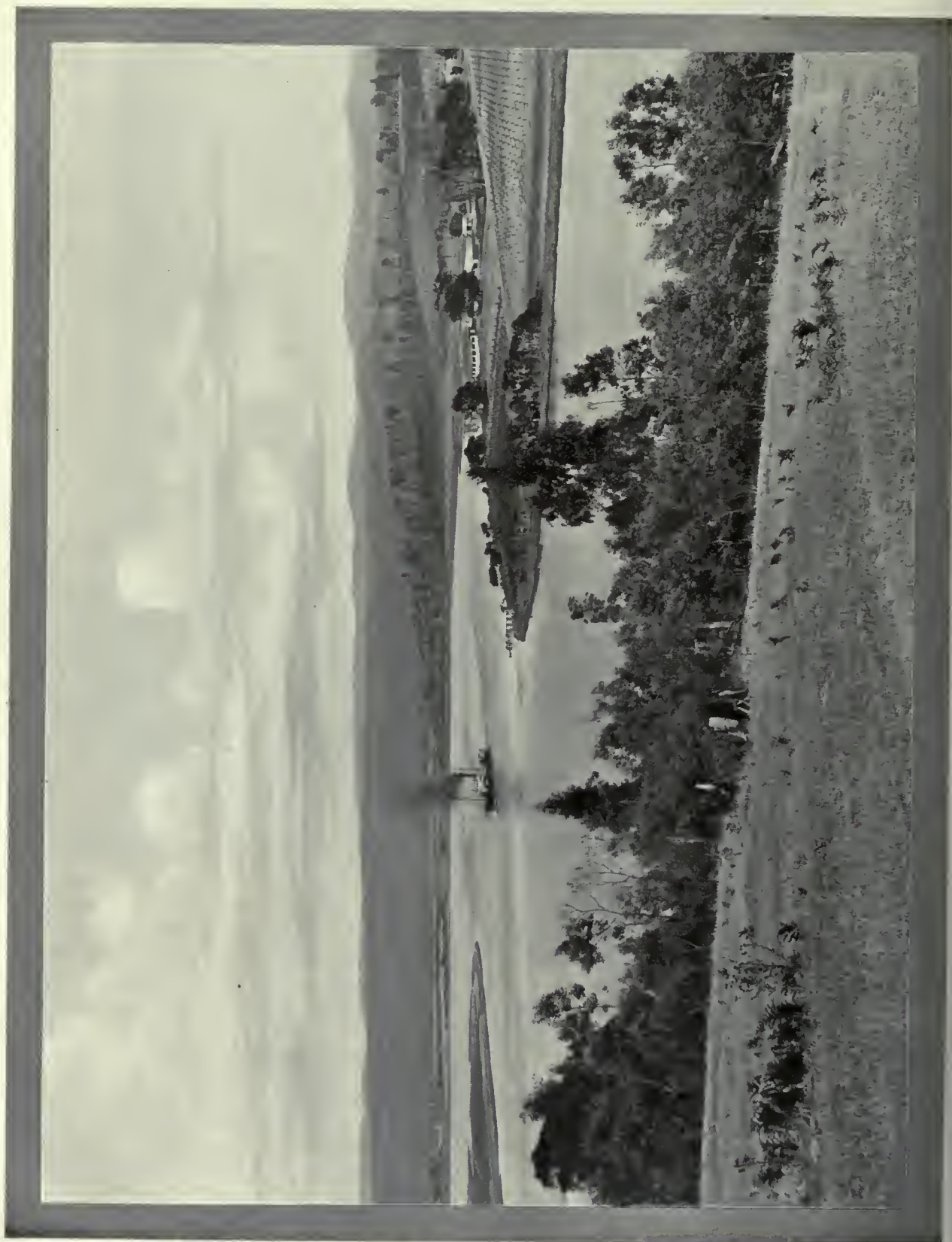
Under this system cheap force is supplied to Hobart and intervening stations.

The Great Lake is the most extensive of many fine natural reservoirs scattered over Tasmanian highlands.

It has an area of 42 square miles, is 3250 feet above sea level, and receives the rainfall of over two hundred square miles.

By the erection of a dam, 700,000,000 cubic yards of water have been added to the original contents.

From the outlet of the Great Lake the water runs down the River Shannon for four miles, and then a canal three and a half miles long carries the water into a lagoon, with an area of 300 acres, which acts as a regulating and settling reservoir. From this lagoon a mile of wooden pipe,



Freshwater Point, River Tamar

four feet in internal diameter, and three-fourths of a mile of double steel pipe take the water down to the power station on the bank of the River Ouse. The total fall in the mile and three-quarters is 1132 feet. Allowing for losses, this gives a net head of 1050 feet at the turbines.

In the power-house is installed plant with a capacity of 9000 electric horse-power. The plant can be increased, as the demand requires it, to 30,000 horse-power, and eventually to considerably more than that. The next link in bringing the power to the place where it will be used is the transmission line, 63 miles long, from the remote upland valley of the Ouse to Hobart. Along this line, 700 steel towers, each 70 feet high, carry three copper wires, with a capacity of 20,000 horse-power delivery. A second set of three can be added at any time. The station near Hobart breaks down the transmission line voltage of 88,000 to connect it with the city. There are two sub-stations, with which a complete system of distributing mains is connected. The mineral output of Tasmania will be greatly facilitated in future by the extension of cheap electrical power.

The island stands first among the States as a producer of tin, second in silver-lead, and fourth for copper.

Her coal production is smaller than any of the States except South Australia. Her savings in coal alone should quickly reimburse her for outlay on the Great Lake Scheme.

This new power will be utilized for the making of munitions of war, the production of nitrates and carbide of calcium, and for the treatment of complex mineral ores.

It will be generally applied for lighting purposes, for tramways, and for manufactures.

Hobart, with the finest harbor in Australia, must benefit enormously. One can safely forecast a vigorous future for this southern city, particularly in the manufacture of woollens from the superb fleeces of Tasmania.

Launceston is only a 16 hours' steam journey from the mainland. Vessels enter the mouth of the River Tamar at Low Head early in the morning, and reach Launceston, 40 miles, before lunch-time. The banks of the Tamar are beautified by extensive apple orchards and picturesque homes.

Many retired Anglo-Indians have established themselves here. These orchard lands—until recent years valued at no more than ten shillings an acre—are bringing their owners good annual incomes, and their capital values, when cleared and planted, have increased two hundred fold.

The waters of the Tamar, home of the succulent flounder, are clear and sparkling. This winding water-journey of forty miles takes the traveller through a halcyon land of meadow and slope which spring smothers under blossoms and autumn reddens with ripened fruit.



Woollen Mills, Launceston



Trevallyn and the River Tamar, Launceston

At the end of an idyllic passage comes Launceston, which beyond the progress already noted, is one of the cleanest, best governed cities in Australasia.

From a publication issued by the Town Hall we learn that—"If a gentleman desires to reside in Launceston and to build, the Corporation will supply the building stone, execute the sewerage and sanitary work, cement his pathways, asphalt his tennis court, lay on and supply his house with water, instal and supply it with electric current to light his rooms, heat his radiators and clothes iron, and work his sewing machine and lift. His children can be educated at the State schools, of which the members of the Council form the Board of Advice. They can learn to swim in the Corporation Baths, while those desiring it may luxuriate in a Turkish bath in the same building. The Corporation Museum and Art Gallery are open for their education and pleasure. In the Corporation reserves, parks, and Cliff Grounds they can take part in games, and often enjoy excellent music supplied by bands subsidised by the Corporation. They can attend literary and

musical competitions, and participate in tourist drives organised by the Tourist Association, both similarly assisted. They will be able to travel about the city in the Corporation's up-to-date electric tramways, which are considered by competent judges to be equal to any similar systems in the Australian States. He will know that the Public Health and Sale of Food and Drugs Acts are administered by the Council, and that the Corporation owns and controls the only abattoirs and fish market in the city. If unfortunately his house catches fire a municipally subsidised fire brigade, in whose management the Council participates, will hasten to stay the conflagration. Should illness overtake him he can be treated at the General Hospital, on whose board of management the Council is represented, and finally, when he 'rests with the blest,' he will have the solace of knowing that his body will be interred in the Corporation Cemetery."

This is municipal socialism; but the city fathers make no profession of being socialists. On the other hand, Broken Hill, ruled by rankest socialists, cannot compare with Launceston at all.

Beyond the cleanly streets of Launceston lies a rich, basaltic country, good for dairying and general agriculture. Black soils, benefited by ample rainfall, make Tasmania famous for root crops. The climate of Northern Tasmania is similar to that of the south of England, with winters less severe. In springtime, hedges of gorse, hawthorn, and briar remind English people still more of their motherland.

But there is no poverty here. Everybody earns

fashioned. This may have been the case some years ago, but Launceston, Burnie, Devonport, Hobart are modern cities, with modern conveniences and plenty of commercial activity.

Although Tasmania is as great in area as Scotland, its whole population is little more than 200,000 people.

Along the main line of railway between Launceston and Hobart the traveller sees how little



In Denison Gorge, Scottsdale, near Launceston

good wages, enjoys good food, wears good clothing, and is housed in at least moderate comfort.

Launceston is a city of parks and gardens, enterprise and progress.

Southern womanhood probably finds its highest physical expression in Tasmania.

In Launceston and Hobart the women are dowered with much beauty and refinement. All through the Island one sees the type of Shelley's Devonshire Maid—the rosy healthy rural maiden of older English poetry and fiction.

There is a delusion on the mainland that the cities of Tasmania are slow-going and old-

has been done to develop this rich and beautiful island, well capable of carrying the millions who subsist on rugged Scottish soils. There is no intensive cultivation here, no farming on narrow acreages, no rigid agricultural economies, no scientific effort to make the land yield all it can. One sees rich black soil and flats, capable, no doubt, of growing lucerne, given over to the grazing of a few sheep on native grasses. Dairying as it is carried on in the State of Victoria is rare in Tasmania.

Lands such as these are worth, on average, £15 an acre. They will yield, under present

methods of cultivation, 25 bushels of wheat or 35 bushels of oats to the acre.

The Tasmanian winter climate is not as cold as mainlanders believe. It is not nearly as cold as in Denmark, where modern dairying has attained probably its highest results. As Tasmania corresponds in hemispheric position with Southern France and Northern Italy, it is better suited for dairying than Denmark or Sweden.

Tasmanians are even more credulous than Australians. They have been told that they are slow-going and behind the times. They believed it. Launceston natives regard themselves as provincials in comparison with folks of Melbourne. They imagine that Melbourne, having twice the population of all Tasmania, is twice as progressive. When I informed them that, at that time, Melbourne had no electric street traction, that mails in that city were not delivered on motor-cycles, that electric ironers, fans, and radiators in private houses were not then general, they seemed surprised, these things being all part of their daily lives. It is a long way from Launceston to Thursday Island, and much misunderstanding exists between.

When (at a cost of £400,000) Launceston completes its harbor scheme now under way, and gains a low-water depth at Bell Bay of 36 feet, production in Northern Tasmania should be greatly stimulated. Direct deep-sea carriage will be established with valuable agricultural, orchard, and timber-growing country.

Leaving the volcanic soils of Northern Tasmania for the moment, we find through the central or midland section broken country, country with fertile valleys rejoicing in black soil slopes suitable for fruit and flats from which successful hop-growers have in the past netted £50 an acre profit per annum.

By sharp curves a narrow-gauge railway rounds these hills and crosses the flats. Old colonial houses surrounded by hawthorn hedges occur now and then, and a few solidly-built villages at long intervals. The rest is mostly forest and sheepwalk. There are still nearly ten and a half million acres of unalienated Crown lands in the Island out of a total of 16,778,000 acres.



Devonport



Mount Wellington, showing part of Hobart

SOUTHERN TASMANIA: HOBART AND THE DERWENT.

COMING out of good sheep and potato land, the approach to Hobart is delightful. Hobart is without doubt the most picturesque of all our capitals.

The overland line enters the Derwent Valley some distance from the city, running through orchards which slope towards the waterside, orchards laden in late summer with ripened apples and pears.

Mountain shadows are reflected in the deep waters of Derwent, which in winter time are capped by lingering shadow-snows.

Black swans float gracefully over these submerged peaks; motor-boats break their contours with busy propellers; occasionally a white sail detaches itself from some sheltered haven and fares forth towards the breezy south.

Hobart is located on hills which slope steeply to the shores of the best harbor in the Commonwealth, a harbor sheltered from all weathers, and capable of floating the leviathan fleets of the twentieth century. Behind the city Mount Wellington climbs skyward, sheltering, and sometimes chilling, the city of red brick and stone at its feet. The 40,000 or so who make up the resident population of city and suburbs can gather from the formation of clouds on their paternal mountain-top some indication of coming weather.

I have found no fairer place than peaceful Hobart Town of a sunny Sunday morning, with all her church bells chiming and the skies clear save for a white cap of cloud on the summit of Mount Wellington.

Cobblestone gullies, narrow streets, old stone prisons, warehouses, and public buildings tell of colonial beginnings.

The architecture of Hobart in 1915 will remind old colonists of Sydney forty or fifty years ago. We see in Hobart the terraced houses, the solid masonry and shingles of our grandfathers' period. Bluestone and sandstone predominate as building materials. Solid masonry everywhere shows that labor was cheap in those early days. Hobart has the steepest streets of all the Commonwealth cities.

From sheltered corners, buttressed by walls of solid masonry, one gets glimpses of the harbor. These appear like pictures in stone frames, with blue water in their further distances, and beyond

the sloping shingled roofs in the foreground are smooth spars and gaudy funnels of ships at anchor.

Virginia creepers, beeches, oaks, and pines, with flower gardens laid out in the English fashion give the town an air of old-worldness which is rare in Australia. This savor of old-fashion mellows the island for the literary and artistic palate.

From attic windows under gabled roofs eyes now dimmed by age or closed in death looked out over these narrow streets as Sir John Franklin went by.

Down at the Hobart Museum they have Sir John Franklin's gun, a fine old double-barrelled fowling-piece, and some relics of the ill-fated Arctic expedition, including a tattered fragment of a boat's ensign left at Cape Felix in 1847, and discovered in 1859. The same institution possesses a schiedam bottle left by Pelsart on the Abrolhos, and the full skeleton in a glass case of Truganini, the last Tasmanian aboriginal.

To the anthropologist, Truganini is the most interesting thing in Hobart. As the last of a neolithic race whose origin and history are fascinating subjects for scientific investigation, Truganini is famed and remembered while the most important people of early Hobart sleep in neglected cemeteries, forgotten and unsought.

Great men have come from afar to visit Truganini at the Museum, to make exact measurements of her skull and compare its brain capacity with that of *pithecanthropus erectus* and the Pithdown ape-man.

In the year 1876 Truganini, the last remnant of Tasmanian tribes, passed over to the hunting-grounds of the aboriginal elect. She lived to 70 years, and saw her native island take its first toddling steps on the path of civilisation. In her piccaninny days Tasmania was a settlement in swaddling clothes. Before her death had closed a last chapter in the history of a race far older than the Briton, her native island had become an autonomous colony, with a Governor, Houses of Parliament, and all the complicated paraphernalia of administration on which the Australian loves to lavish his surplusage of levies, fines and taxes.



Carnarvon (Port Arthur)

Simple life of Tasmanian savagery, naked, unashamed, elementary, had given place to the over-complex, over-clothed, and over-strenuous civilisation of the nineteenth century. Hobart, from a collection of queer huts and buildings—such as one sees in fascinating old color-plates of the period—had grown to the size of a respectable English town.

Much of its architectural quaintness it still retained, and keeps to this day. It would be a pity for the snug little town under Mount Wellington to enter into competition with those ugly toadstools of cities which have grown up from hotbeds of progress in a night. She must, to be in keeping with herself, preserve her high sloping roofs of shingle, her thick stone walls and narrow streets, whose steepness is a pleasant change from the dead levels of avenues elsewhere laid out according to diagram and faced on either side by parallelograms in concrete and steel.

For a long summer holiday go to Tasmania, at least once in a lifetime, and spend a week of it in Hobart. Having sampled all the climates of the Commonwealth, I can commend that of Hobart in midsummer. The eastern coast of Tasmania and Eastern Gippsland, in Victoria, I pronounce to be, as far as climatic conditions are concerned, the two perfect dwelling-places of the world.

A week in Hobart will be little time enough for the tourist. If he is wise he will keep away from all the relics, mementoes, and literature of the convict period (including among the latter the morbid inspirations of that melancholy genius Marcus Clarke), and take Hobart and its beauties as they are to-day.

Visitors with gruesome imaginations are welcome to gloat over the ruins of Port Arthur and soak themselves in the comparatively brief but lamentable history of convict settlement, just as other people are at liberty to spend their bank holidays at the cemetery; but for those who love sunlight and scenic beauty, the eternal glory of mountain path and riverside, the delight of motion and the call of the Day that is Ours, there will be less of interest in the Days which were Theirs and Done With.

Hobart has a Tourist Bureau to tell people where to go, and most people want to be told where to go. Both being blessed with interesting and attractive surroundings, competition for tourists between Launceston and Hobart is rather keen, but Hobart probably secures the greater number. Within its ranges are Tasman Peninsula, D'Entrecasteaux Channel, Huon River, and the silver reaches of the River Derwent. To a descriptive writer these would yield sufficient matter for a pleasant little volume. At the southern end

of Tasman Peninsula lie the ruins of Port Arthur penal settlement, known nowadays as Carnarvon. Apart from its convict memories it is one of the most attractive of Tasmanian townlets. From its ancient oaks and elms, its fallen roofs and crumbling walls englamoured by a ghostly past, its buildings of solid freestone, its shores honey-combed with caves and blowholes, brooding mountains, winding driveways, ancient grave-

is one of the most beautiful valleys in the world. Coromandel Valley in South Australia, the valley of Burragorang in New South Wales, and the valley of the Derwent are among the glories of the Commonwealth, but of these the Derwent is fairest. When its hop-fields are in flower Derwent is a dream, when its apple orchards are reddening it is a desire. At all times it is good for the eyes of artists. Its moods will some day



Bushy Park, Derwent Valley

yards, and darkly enfoliated paths, the visitor will bring away impressions mysterious and unfamiliar.

Excursions into the beautiful Derwent Valley make less impressive but brighter memories. As far upstream as Bridgewater the waters of Derwent are more lake-like. Above Bridgewater the river really begins. The waters, grown clearer, reflect in sensitive detail mountains and trees. Tasmania, being for the most part a rugged volcanic country with a high rainfall, there is no monotony in its landscapes. The valley of the Derwent presents alternating pictures of primitive forest and cultivated flat. It

be the theme of poets. If a tired man goes to New Norfolk he will find himself in an atmosphere of absolute rest. In this little elysium—25 miles by rail from Hobart—sweetened by scent of apples and hops, where the hotels are good, the trout fishing excellent, he can perhaps forget for a season that there is war in the world.

At Plenty, a little farther on, are hatcheries where the Tasmanian Fisheries Commission breed the various species of trout and salmon with which the splendid streams of the Island are stocked. These fish ponds are shaded by ornamental trees and bordered by green lawns—



The River Derwent at New Norfolk

Tasmania's infant fishes revel in artistic surroundings.

Between Plenty and Russell, its present terminus, the narrow-gauge railway follows the Derwent, crossing and recrossing the river at several points, an engineering necessity which greatly adds to the interest of a most delightful journey.

From this point the beautiful Russell Falls are available. Seven miles from Russell the rustic delights of Ellendale will attract lovers of the simple life. Lakes in which speckled trout are reported plentiful, caves, gorges, waterfalls, and all the tumbled glories of this glorious island have their expressions here.

For a young man there should be nothing better than a tramp along the Derwent Valley in summer time.

For the more rapid cyclist or motor man, the aesthetic tourist, for all to whom the cool, invigorating south appeals, there is no pleasanter resort at all times. When days of war have given place to years of industry and peace such districts as these, and Tasmania is rich in them, will attract not only visitors and tourists but per-

manent settlers who are seeking to establish homes amid healthful, beautiful, and fertile surroundings.

The Huon, accessible from Hobart by road or by the winding strait named after a French navigator, is one of Tasmania's earliest settled districts. Much of this most picturesque voyage lies over smooth, blue, southern water sparkling between Bruni Island and the mainland. The channel varies in width from two to ten miles, and the steamers' regular course brings the traveler to many delightful little Tasmanian townlets nestling amidst orchards and gardens. Some of these are popular holiday places for the people of Hobart. Over Dover Bay, land-locked and glorious—south of the Huon—looms Adamson's Peak (4017ft.), snow-capped for most part of the year. Beyond it, at the extremity of the range, stand Mount Hartz, with Lake Hartz, a broad sheet of silver water, forest-fringed, at its feet. Sea fishing and oystering are good here. The Huon Company's tramway takes one, by permission, into the heart of a hardwood forest, which has already yielded an enormous quantity of highest-grade commercial

timber. Geeveston, Franklin, and Huonville, the head of navigation, are all more or less centres of the apple industry. By road, and the roads of Tasmania are good, Huonville is only 23 miles from Hobart. The overland journey is charming, and the round trip one of the most popular on the itinerary of that excellent institution, the Hobart Tourist Bureau.

Port Cygnet is a saltwater indentation of Huon River, on the opposite shore from Geeveston. It, too, depends for its prosperity on apples, timber, and tourists. Tasmania may be deliberate in matters industrial and mayhap political, but the little island has for some time awakened to the value of its natural attractions. The Tourist Bureaus, both in Launceston and Hobart, are highly developed institutions, endeavoring, I fancy, to achieve a maximum of result from a minimum of outlay. There is no visible extravagance in Tasmania, but more attention might be given to investors and less to invalids. Tasmania, from a scenic point of view, is wondrously beautiful and attractive, but the country possesses agricultural and industrial possibilities as great as, and in some respects greater than, any State in the Commonwealth. No other 26,000 square miles under the six-starred flag can equal it for the variety and wealth of its natural resources, which, like Australian resources elsewhere, remain greatly undeveloped.

Hobart is the most beautiful of southern cities. It may yet be the most important. It is the best naval base in the Commonwealth; it could become great in manufacture and shipping.

The capital of one of the earliest Australian colonies, it assumes the dignity of comparative age. The southern island was discovered by stout old Abel Jans Tasman on the 24th of November, 1642. On 4th March, 1772, Marion du Fresne cast anchor in Marion Bay, on the eastern coast of the shores which Tasman had seen and called Van Diemen's Land a hundred and thirty years previously. A year later Furneaux visited and named Adventure Bay, at the junction of North and South Brunel Islands. These historical places are both within easy distance of modern Hobart. In 1777, four years afterwards, Cook, on his third voyage, landed from the *Adventure* and *Discovery* at the same spot. Bligh, in 1789, put in twelve days here on his way to Tahiti. In 1792, on the occasion of his second voyage, which ended in the most picturesque mutiny on record, the brave, bad-tempered Bligh again visited the southern part of Van Diemen's Land.

In 1793 D'Entrecasteaux completed a nautical survey of the channel which bears his name.

In 1794 Captain Hayes entered and named the Derwent. It was not until 1803 that Lieutenant John Bowen, of the historical *Lady Nelson*,

hoisted the flag over the first British settlement at Risdon, on the eastern banks of the Derwent, opposite the present city of Hobart. Governor Collins was the father of Hobart. Arriving at what was then known as Sullivan Cove on the 15th February, 1804, he chose the present site for his settlement.

Thereafter, until the Federation, in 1900, the story of Hobart is one of colonial governors and colonial days. Sixty years after Collins dropped anchor in the Derwent the Duke of Edinburgh turned the sod of the first railway, and the following year the island was connected to the mainland by cable. During its hundred and odd years the old town has grown slowly. It is still insular in habit, but its orchards and gardens are divine. There be some restless spirits who proclaim that the town and the State in general require new blood and fresh enterprise, that the national population should not be less than a million, that the richest sheep lands and potato lands, mixed farming lands, orchard lands are awaiting development. They say, these restless spirits, that minerals, timbers, and soils of untold wealth are still untouched.

Doubtless they are right, and ultimately they will have their way; but one still hopes that if progress comes Hobart will not be modernized out of recognition. The high-decked street cars, built apparently on the model of Abel Tasman's ship, although they do not make such leeway, enable one to see more of the shingled roofs than those rapid electric cars which, with frightful jarring noises, whirl the eager citizens of Sydney to business or pleasure.

These tramways are the property of the municipality, which was incorporated in 1857, and is responsible for an exceedingly clean and well-kept city, blessed with fish markets, abattoirs, and other civic conveniences, and a supply of excellent water derived from sources at Mount Wellington.

One judges from the fact of officiating clergymen being asked to pay only half fees at the Tasmanian Club that the society of Hobart is somewhat ecclesiastical in tone. One understands that mid-Victorian proprieties are rarely outraged by a native population remarkably reverential by comparison with the citizens of Townsville or Mackay.

At Hobart one feels naturally the inclination to go to church on Sunday mornings. At Townsville, alas, the temptation is to go fishing instead.

On the occasion of my visit to Hobart, Synod was electing a new bishop. Never before in any Australian town had I seen such public interest taken in any ecclesiastical event.

Though dignity and propriety in Hobart be as high as the street cars, though important per-

sonages are as strictly guarded by their inferiors as the antiques in a museum, though convention be as implacable as a Prussian colonel, there is something gentle and homely about the old town, the gentleness of a kind-hearted spinster lady in old-fashioned silks breathing of lavender.

I find in my Tasmanian notebook a malicious parody, "Send no poet to Hobart, send flowers." I think the flowers I would send would be frangi-panni, and port wine magnolias; but then I am a child of Australian suns, and it may be that the morning on which I made that malicious entry was cold.

color and design, but others solidly builded in the knowledge of winter, are laid out and furnished after the manner of modern Europe in its temperate latitudes.

The public buildings of brown freestone, so largely used in early Sydney, have the stern solidity of pre-Commonwealth days. Hobart is like the Sydney of earlier recollection, and its steep, narrow streets are similarly named. Melbourne and Adelaide have broken away from the early Sydney tradition. Perth and Brisbane show distinct traces of it, but in Hobart it becomes a replica.



Fern Tree Bower, near Hobart

The next entry says:—"But side by side with this ancient city of formulas, ghosts, shingle roofs, and grim old public buildings is a new town, of the 20th century, and the laughter of gay tourist girls re-echoes from the corridors of those ancient colonial buildings which are now mere relics of the past."

The suburbs of Hobart are built on sloping hillsides. Virginia creeper, ivy, cypress, the growths of old English gardens, surround most of their villas. Some of these are still saddened by ancient furniture, horsehair chairs and couches, heavy cedar sideboards, and carpets of Victorian

The waterside by Hobart is fascinating. Old-fashioned characters are to be met who live completely out of the modern world of shipping and trade. Little sailing vessels and fishing smacks lie by the wharves. One among a knot of idlers, I spent the whole morning on the pier-head watching a fisherman driving a direct retail trade with a constant stream of customers. He had a stout well-boat, capable, no doubt, of weathering all the rough and tumble of Lower Derwent and the adjoining straits. With a scoop he brought up each flapping prize, knocked it on the head with a wooden mallet, passed a con-

venient loop of wire through the gills, and handed it up to his purchaser on the wharf. For a householder of leisure, I can imagine, next to catching it himself, no surer way of securing a fresh-fish dinner. There was a friendliness and cleanliness about the method which lifted it above the ordinary sordid ways of fish hawking.

Little ketches and cutters laden with bags of grain or lengths of sawn timber made an appropriate foreground for this breezy picture.

The waters of the harbour were deep and clear, unpolluted by the usual debris which finds its way into crowded ports. Behind us rose the town in a series of gradually ascending tiers, and over us was a very blue Tasmanian sky. The fisherman and his well-boat interested me more than the pictures in the Tasmanian Art Gallery, which contained, as far as I could see, little work of either Tasmanian or Australian artists, saving some examples of Heysen, presented by subscribers. The Tasmanian Library houses a good supply of decorous fiction. It is sustained by small annual grants from Government and Municipal Council, plus the revenue from lectures.

Any judge of national character can see by a Friday night crowd in Hobart that returns from the latter source are likely to be small.

The pale student is conspicuously absent. There is no lack of vitality in this crowd, more active in its movements than crowds of the north. Matrons and girls alike are robust and rosy, and there are apparently no striking extremes of poverty and wealth.

If not aesthetic, these natures are at least cradled in delightful natural surroundings. Hobart, seen from the hills, with its dark shingle and bright red roofs, its gardens, its vegetation, its blue land-locked bay surrounded by mountains, its splendid roads, running out through suburbs where patches of orchard and cultivation fringe the town, is easily the prettiest city in the Commonwealth. Stone walls and hawthorn hedges, deep distant gorges, cleared hillsides, and hills still covered by ancient forests, white sails on far-off bays, dark pines and green willows, make a frame for the picture. Hobart, as I visualize it one blissful Sabbath morning—gone into the *ewigkeit*—is almost a prayer.

Church bells are tolling, tolling. Bands of children in uniform are marching to service. A bishop, in black apron and ecclesiastical putties, walks soberly along. Behind him, in irreverent proximity, strolls a tourist whose Norfolk suit

and rolled-top stockings betoken that pleasure, like piety, has its distinctive vestments.

Pausing among the inscriptions in a very old cemetery hardly a stone's-throw from the business and official heart of the city, I hear the wind from Mount Wellington whispering, among the leaves of lordly elms and beeches and through the cypress, stories of old Hobart Town. Some of them are laments, but some are glad, with drums and fifes and marching redcoats, and laughter of gentlemen in pumps and knee-breeches going a-courting.

I tell myself that I will come back to Tasmania some day to rent one of these delightful villas perched up on a hillside, and write a book about old times; a cheerful, joyous book, full of the vigor of young settlement and the wine of adventure in new lands.

The children will attend a Tasmanian seminary to receive a stiffening in propriety as an antidote to that recklessness born of beaches on the Australian mainland which leads young soldiers into surfing in the face of Turkish shrapnel.

Their mother will gratify a long-deferred ambition to read Meredith's novels (a task which cannot be undertaken amid the distractions of life), and between trout-fishing expeditions to the rivers and lakes of the Island, I will write my historical novel. Yes, truly, Tasmania is the place for leisured literary composition.

Being on the sea coast, Hobart, with an annual average temperature of about 55 deg. F., possesses only one among the six well-marked climates which Tasmania boasts, but although the climates of the little island *do* vary in a most unexpected manner, the summers are nowhere unbearably hot, nor the winters unendurably cold. The mountain plateaux of the interior and the southern ranges have the coldest winter in the Commonwealth, distinct from the mild winters of the east coast, which, owing to warm sea currents, resemble those of the Mediterranean. In summer the Midlands days remind one of western New South Wales, but the nights are cooler.

The west coast is a land of enormous rainfall. One should have a winter in Hobart to get the true taste of the south, and see the Tasmanian mountains capped with constant snow.

One should ascend Mount Wellington in summer when the famous Fern Tree Bower offers its greenest attractions, and also in winter, when the journey savors of an Alpine adventure.



A Tamar River Orchard

SETTLEMENT AND DEVELOPMENT.

TO Mr. Leslie Evans, of the Department of Agriculture at Hobart, I owe much particular knowledge of Tasmania. With a literary mind, his outlook was enlightened and unprovincial. When the late Hon. A. E. Solomon, a gentle and courteous politician whom Tasmania could ill spare, arranged for Mr. Leslie Evans to accompany me on an official tour, he knew evidently that he was matching one enthusiastic spirit with another. At the outset of our journey my faith in the States of the mainland was equalled by Evans' faith in his native island.

At the end of it my belief in the industrial and agricultural possibilities of that island was as firm as his own.

There were two other members of our party whom one seems to have forgotten, but to the energetic Evans, for the time being guide, philosopher and friend, I shall not only remain under lasting obligation but remember as an affinity.

On a sunlit Monday morning, well aired, we left "Highfield," acar together, crossed the Derwent by the powerful "Kangaroo" punt to picturesque Bellerive, and glided out towards Sorell.

The way was brightened by small orchards of apricots and apples, healthy and well kept, as the majority of Tasmanian orchards are.

Tasmania has learned that clean, scientific orcharding pays. The slipshod methods which one frequently sees on the mainland are practically unknown. Southern fruitgrowers are in the business to make it return the biggest profits possible from suitable soils and acceptable varieties.

We crossed stone causeways which proclaimed that labor for road making and bridge building had once been cheap in Tasmania. Our roads throughout a long motor journey around and across the island were superb, a fact for which we had primarily to thank unwilling immigrants of long ago.

Sorell proved a grain-producing country of limited area. We crossed over hills of barren seeming and ran down to Orford, a little port on the east coast. Across a blue-water strait we saw Maria Island, its northern end rising into conspicuously high hills.

Over this blue-water channel, fringed with golden sands, two topsail schooners were pounding—their tall white cloths full-bellied, and the spray flashing like flung diamonds at their bows.

It was as fine a picture as one might see in southern seas. Instinctively it brought to mind brave Abel Janszoon Tasman beating up the same coast two hundred and seventy odd years before. From his vessel's heavy Dutch bows the spray also fell in sunlit jewels, and, full-bellied with the wind, her lone sails stood whitely against that same background of cobalt blue.

A few miles farther we found our first lunching place at Spring Bay. It was a hearty Tasmanian lunch, with plenty of good roast beef and pudding to it, served in an old hostel with mid-Victorian appointments.

Hard by Spring Bay the enterprising Tasmanian firm of H. Jones and Co.—producers and exporters, as every Australian housewife knows, of most excellent jams and preserves—have planted a magnificent orchard of apples and pears 310 acres in area. Local conditions seem especially adapted for the growth of pears. These soils to Australians elsewhere would appear incapable of such results.

On either side of this block of 310 acres, capital value of which can hardly be less than £30,000, are thousands of acres just as good and suitable for orchard purposes. Throughout Tasmania hundreds of similar acres await occupation and treatment. No State in the Commonwealth needs a bolder policy of immigration and settlement; no State is more immediately suitable for unacclimatized settlers from Northern Europe. Australia herself must decide whether the future civilization of the continent is to be Asiatic or European. Australian statesmen henceforward must be judged by their outlook on this question. One thing is certain, we are no longer justified in our political attitude towards the people of the Orient. We have no moral right to exclude natives of India and Japan while we continue to follow our present haphazard policy of settlement and immigration. The waste acres of Tasmania, like those of the mainland, proclaim these facts with tongues pregnant of destiny and disaster.

Australian heroes of the Dardanelles have won enduring fame. It is open for Australian statesmen to win, without personal risk, honors as enduring as those that are now inscribed upon the banners of the bush brigades who fought by Gallipoli.

Southern statesmen who can grapple with this problem of settlement and development, boldly, fearlessly, apart from petty influences of party, undisturbed by the hooting or hand-claps of crowds, will earn monuments as high as those America owes to Washington and Lincoln, or England to Hampden and Pitt.

Who would not be patriotic with the East Coast of Tasmania unfolding a blue and golden

tapestry before him, the softest of summer winds blowing and the clearest of skies overhead?

The wide reaches of Oyster Bay glittered, with picturesque Schouten Island and Freycinet Peninsula—the names tell of early French and Dutch voyages to our shores—shielding them with a protective arm extended towards the boisterous south.

Tucked comfortably away in a sheltered corner of this wide blue bay is Swansea, a little gem of a marine village, where black wattle freights the winds in flower-time with incense from golden censurs swung by invisible acolytes before the altars of Nature.

Good Tasmanian wools are grown in this district, which, were our southern industries better developed, might locally be made into tweeds for tourists. Like most accessible Tasmanian places, Swansea puts out a welcoming hand to visitors. All over the island a visitor will find his inns comfortable, tables good, sheets well aired, and charges low. What more can any traveller ask? He will find, moreover, about them a certain air which will remind him of those inns which Dickens describes with his most exquisite touches. In sooth, some of them were established during the period of which he loved to write, and doubtless were modelled originally upon their English contemporaries. They too had their ladies in dimity, snuff-taking guests, and gentlemen of the road. To their front doors once drove top-hatted celebrities with champing teams and resplendent coaches. Romance has not passed them by, nor tragedy neither.

At sunny Swansea there is a nine-mile beach fringed by casuarina and banksia. In summer occasional groups in "Continental" bathing attire make a modern foreground for that ancient village with its old houses, old gardens, old barns, and convict-built public buildings, solid, dark and stern.

By ever-splendid motor roads, almost as carefully maintained as the high roads of Java, over stone causeways and stone bridges, we came to this blue resort of quaint and olden seeming. Its three-storey brick gaol was now a store. Its iron-barred windows told of lawless days. We left it there to dream amidst a perfume of wall-flower from gardens with hedges of clipt yew, gardens wherein grew blue larkspur, daisies, rosemary and thyme. It recalled to mind far-back dreams and impressions of childhood, revived mayhap by perfumes wafted from its old-fashioned flowers.

Throughout Tasmania, for one traveller at least, this has been the recurring impression, filled with all the delightful sadness it evokes.

One understands how early British colonists hungered for home, and how they endeavored to

re-create the England of memory in an island like this.

From Great Swanport, a place of lagoons and waterfowl, we turned north-west past shining, deep Lake Leake, and on to Campbelltown by nightfall.

This township lies in the heart of the Tasmanian midlands, home of famous merino sheep and much historical tradition. The main road

At one of the great fireplaces of the inn, built to accommodate generous logs—for winters of the midlands are passing cold—his Victorian Highness may even have toasted his ducal toes! One remembers Campbelltown by these things, and by the sun, setting behind the Western Tiers, that plateau of 3000 feet high, on which the great lakes of Tasmania are located and in which many of her rivers have their birthplaces.



At Devonport Station

and railway from Launceston to Hobart run through it. We bedded at a comfortable inn which pre-dated the railway period. Hunting pictures of the thirties hung on its walls. Its stables were built of solid stone. The candlesticks, the carved mantels, low ceilings and broad stairways spoke of days that are gone, days of more leisurely habit, of slow transport, crudity, credulity, but strong in prim, quiet acceptance of colonizing duties and difficulties, heroic in effort and rich in achievement.

In the "parlor" of this early hostel were cedar-framed chairs and sofas graced by decorative carvings of forgotten wood-workers. On one of these couches—a coat of arms proudly figured upon its back—tradition held, the Duke of Edinburgh reclined, when a Tasmanian visitor in 1868.

From Campbelltown we ran north by west along Macquarie River to the delightful town of Cressy, through some of the best pastoral lands in Tasmania. This country reminds one greatly of far western New South Wales. There are possible sub-divisions within this area.

Cressy is a business centre for a large fertile district wherein grain is largely grown. It lies on the edges of the dairying and potato-growing areas of Northern Tasmania—a fragrant, charming old place, with well-trimmed gorse hedges around its fat farm lands, stout country homes, and every sign of prosperity and production.

From here down to Westbury, through Glenore, Oaks, Hagley, and other villages, there is no sweeter highway in the world.

If I had to live in any Australian village, I think I would choose Westbury. Everything



The Devil's Gullet, Western Tiers

about it, from the clock in the church tower to the doctor's garden, wherein I once ate inordinate quantities of ripe plums, is part of a pleasing picture. A serenity and a rustic beauty hover over Westbury which would calm the most strenuous soul and bring contentment even to a member of the Stock Exchange, despite himself.

Weeping willows gracefully overhang the brook that meanders around the town; beautiful Monterey pines remove last traces of harshness from visiting winds; leafy streets, green fields and gardens, beauty and serenity—it has all the qualities that go to make an ideal village. Apples in its orchards were no redder than cheeks of the maiden who bore smiles and substantial helpings to our lunch table. The cream of Westbury still flows richly over the apple pie of memory. It is one of those thousand places on a traveller's memory-road to which he turns when rest longings are upon him.

The blue hydrangea, the Golden Bride Lily of Japan, bloom at the doorsteps of its cottages. Beyond it, far off across a dozing landscape of field and farm, stand the Western Tiers—azure walls of mountain shimmering through a haze.

Through far-spreading lands such as these, rich as any in the Commonwealth, we glided, smoothly as the rhythm of a Swinburnian lyric, to Deloraine, a considerable place on the Meander River.

Deloraine is among the fairest and most prosperous of Tasmanian towns. It lies just between

cereal-growing lands and rich, red, volcanic potato lands of the north-west Coast.

From Deloraine to Devonport, through Elizabeth Town and Sassafras, the road runs directly across these magnificent basaltic hill lands, devoted largely to the growing of root crops at present, but destined no doubt to become dairy farms later on. The average potato crop is five tons to the acre, giving usually a value of about £4/10/- a ton. At times the yield is as great as twelve tons per acre. The holdings are of about 200 acres, and the potato fields, which form a small proportion of this area, have in some instances been cropped continuously without renewals for twenty-five years.

The present capital value of this land can be set down at £30 an acre. The soil is rich, velvety-looking. It will produce anything that can be grown in the temperate zone.

After a hundred years of settlement there are yet only half a million acres of Tasmania's sixteen millions under cultivation. But there is no reason why this compact little country, so universally fertile and productive, should not under the newer order of things progress much more rapidly. The wider angle of view upon Imperial expansion which must result from the greatest war in human history will make her legislators extend their horizon. That ridiculous assumption of age, which is as appropriate to the case as the filling an infant's feeding bottle with whisky instead of

milk, must be given no place in future considerations of an island State yet in its childhood; nor must Tasmania expect to lean helplessly on her ampler sisters of the Commonwealth. Ireland is geographically a small unit in the total of a British Empire; but Ireland, despite her ancient grievances, still lives in the favorite imagery of her poets as Kathleen na Houlahan, very young and very fair. She has her established manufactures, her expanding industries, her shipyards, her intensive agriculture. Tasmania can grow as good flax and as fine potatoes, as solid bacon, as rich milk and cream. She has better minerals, timbers, clays, and wools.

She can turn out blankets, woollen goods, and oatmeal, butter, fruit, and a thousand things. When the organisation of Australian industries is completed Tasmania will get her share.

"The best of the world lies between latitudes 40 and 50," say patriotic Tasmanians. Men from Scotland speak of oatmeal, and men from Bradford tell you that the good water and the good wool of the island ought to ensure the best blankets. Some day there will be mills in plenty.

Down by Latrobe, on the banks of the Mersey, our expedition came again into apple country. As Jones and Co.'s great orchard on the East Coast showed what one side of the island will do in the production of pears and apples, these apple gardens of the Mersey demonstrated that Northern Tasmania is also profitable fruit country.

The industry can be vastly extended. Bush land is still available for £1 an acre freehold, quite as good as that which has been converted into orchards. The whole island abounds in perennial streams. Agricultural settlement is not subject to drought, seasons are even and do not run to extremes.

In Northern Tasmania we spent several pleasant days traversing rich and profitable potato lands which lie around Ringarooma, Scottsdale, Branxholm, and Springfield; crossing round in due course to Sheffield, a prosperous township in basaltic hills south-west of Devonport.

From here we ran down to the foothills of Mt. Roland, which marks the end of the Western Tier, a fine bold mountain 3000 feet high, along the blue wall of which it is an outward sentinel.

These districts remind one greatly of Gippsland. One sees the same intense greenness of the cleared land, the same patches of tall dead trees, the same background of dark-looking forests and hazy hills. The farmhouse and the roses are also there, older and more English-looking, but resembling the Gippsland hillside farms. But there is a mighty difference in the roads. Before the advent of the Victorian Country Roads Board gave one at least hope for the future, a journey through Gippsland occasioned as many grave con-



The Alum Cliffs, Mersey River

siderations as a journey through Russian Poland. But the beautiful, well-kept, macadamized roads of Tasmania held no such terrors for travellers. To this day it is almost impossible to motor through Eastern Gippsland, but one can car in perfect comfort and perfect safety, from one end of Tasmania to the other. By the connecting of Orbost in Victoria with Eden in N.S.W. an alternate road route between Sydney and Melbourne would be opened. After a century and a quarter of settlement there is only one road between these two great capitals!

For strategic reasons alone one would expect the New South Wales Government to extend the good coastal road which practically ends at Two-fold Bay to the Victorian border, and the Victorian Government to construct a good road between Orbost and that point. The whole expenditure necessary is so small that one wonders at the statecraft which has been responsible for such neglect.

Climbing by a splendid Tasmanian road from Sheffield to Staverton, one realized more fully the advantages which Tasmanian settlers had over Gippslanders in this respect.

Rising out of the clearings into ringbarked areas new to occupation, the strenuous task of these Tasmanian pioneers grew more apparent.

Here was being waged a heroic struggle between man and nature.

Enormous trees towered skyward—trees whose peers can only be found in the hearts of Gippsland forests or in the kharri country of Western Australia.

Into the steep basaltic hills ran straggling lines of stone and log fences. Fallen logs of unbelievable girth and length cumbered the earth. In one place I saw where an ingenious settler had felled four trees in the form of a square to make a small paddock—the breaks in this little field were closed with stones.

Were it not for the fact that here we have twenty feet depth of the richest chocolate soil and a forty inch annual rainfall, settlement would not pay. No wonder such soils raise those tall spires, reaching to incredible heights, in sapless, leafless witness of its growing qualities. One Tasmanian blue gum (*Eucalyptus globulus*) showed a height of 350 feet, theodolite measurement.

A 90-ton schooner was built entirely from another Tasmanian tree.

Into this wilderness of logs and dead timber we penetrated as far as our car could go. We examined a wayside schoolroom, crowded with healthy children, and reflected that, despite their difficulties, these settlers possessed many compensating advantages. They had splendid roads, good schools, good horses, high prices, good prospects, health and liberty. No country in the world could offer them better chances than those which lay before them.

On older lands below, shingle-roofed barns were plentifully filled every year, and snug homesteads surrounded by flower gardens showed what the labors of their predecessors in settlement had achieved.

From Devonport to Ulverstone is a dimpled land. Here fecund soils, richly red and chocolate, annually produce bountiful crops of potatoes. One meets waggon-loads of this floury product along the road. In nooks that seem like bits of English downs flocks of Shropshire sheep rest and graze.

Pigs, in carts a-journeying, proclaim it market day in Ulverstone. Men in gaiters, barking dogs, blue-eyed schoolgirls, blackwoods left to spread their shade in cleared fields, brawling creeks and clear-watered rivers, sparkling hill-sides, winding roads, make picture-subjects for Australian artists. There is no sweeter pastoral in all the world. Beauty, fertility and fragrance make all the miles of travel along this idyllic coast glorious and memorable.

Between Ulverstone and Penguin railway and road run side by side. One hears the waves of Bass Strait breaking; one hears the magpie carolling; soft airs, blue bays, white beaches, green

fields and perfect roads keep travelling pleasant. Around Penguin there are wide stretches of good basaltic land.

Fine Monterey pines and hedges of green fat-leaved boobyalla feature Penguin, which is also a holiday place and centre of an agricultural district. One sees more pigs, cows, and sheep being driven to market—sheepmen and dogs all reddened by the fertile dust of Northern Tasmania.

Little narrow-gauge trains puff along, laden with potatoes and timber. These things make productive contrasts to merely aesthetic assets of sweeping coast, headland, beach and bay, monotonously musical with incessant lapping of waves and pungent with salt smell of seaweed and marine growths.

From a business viewpoint the best of these Bass Strait towns is Burnie, the natural capital of a potato-growing and dairying district which cannot be surpassed. There are good hotels in Burnie, and I know of few watering-places in the south where one could better spend a summer holiday. Burnie, Rockhampton, and Port Augusta are three widely-separated Australian towns with a big future. But if I were called upon to reside permanently in any of them, I should choose Burnie without a second's hesitation.

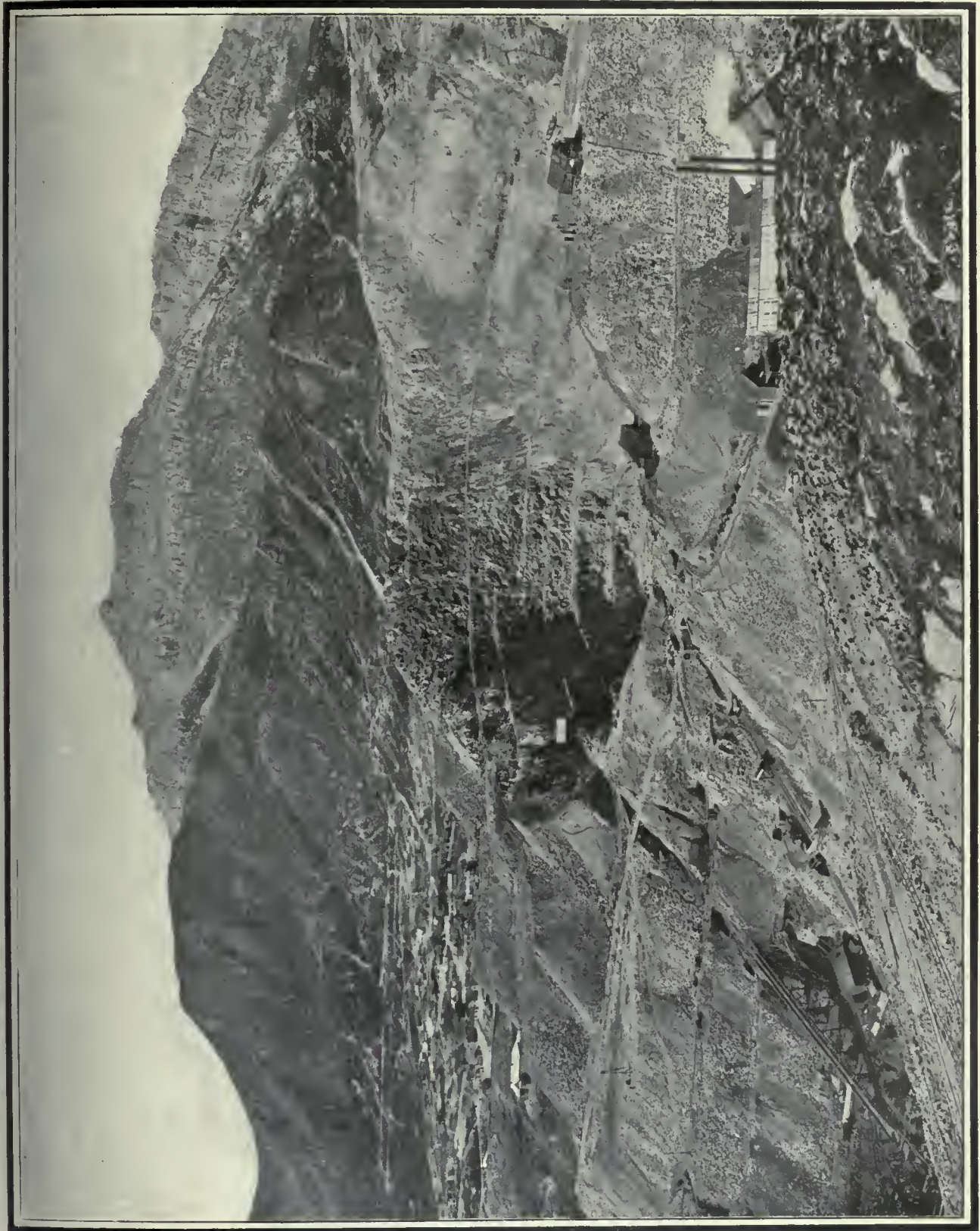
I group these three places because they have been conspicuously marked for progress. Port Augusta will be the terminus of two great railway systems; Rockhampton and Burnie each have a great developing background. They are ports with rich agricultural districts behind them.

Chocolate soils, heavily timbered, but each year coming more and more into cultivation, extend in thousands of acres around and beyond Burnie to Waratah in the West Coast Division.

The railway to Zeehan runs through much unoccupied land of high agricultural value. It is heavily timbered, like the land which has been converted into potato areas, but it can also be turned into farms. There are at least a million acres here awaiting settlers.

Zeehan is 90 miles from Burnie and the centre of active mining industry. Tasmanian agricultural authorities assert that the future of the West Coast lies in dairy farming. Its mineral history, in which Mount Lyell figures so prominently, holds many brilliant chapters of production. Mount Lyell is asserted to be the richest and most scientifically developed copper proposition in the world.

The West Coast has an astounding rainfall, possesses many fine streams, and is believed to hold mineral resources far beyond anything developed. Much of it is still unmapped and unexplored.



Mount Lyell Copper Mine, Gormanston

Burnie is a terminus, also, for Blythe River ironworks. Making provision for its future, some £150,000 have been expended in harbor works. An investor might do worse than lay by a few good building allotments in this thriving Tasmanian town.

From Burnie to Stanley we had blue ocean on one hand and lovely hillside farms on the other. Stubble fields stood here and there, but the greater part of this land is cropped for potatoes. The farmers plough their tubers in and plough them out. They do not desire the strenuous life of the dairyman. Rolling softly through the most idyllic country I have ever traversed, I could sympathize with this outlook. It was such a sweet and lazy land: so rich, so responsive. Why live laborious days when one might crop ample acres easily, thereby obtaining a sure living, and for the rest enjoy the music of those clear creeks, the glamor of gentle slopes nursing happy hillside farms on their rounded shoulders, inhale the breath of blackwood and fern, sweet briar, hawthorn, dandelion, and pine carried on ocean breezes blowing ever softly from the sea?

The blue and balm of that coast can never be forgotten. Orchards laden with ripened fruit, gardens full of flowers, rivers purling over sand and pebbles, wind in the bracken, kine in the yards, a white sail in the offing—the coast road from Burnie to Stanley, bounded by log fences, or wire, sometimes stone walls, winding and curving over hills and dales, has left an impression as beautiful as a child's dream of heaven.

Tall timbers stand darkly dead on the hills, but the sun shines bright on ploughshares along the slopes. Beyond the coastal belt one sees the vanguard of settlement working slowly inland. Stumps in the fields—the feet of giants long converted into smoke—tell us that once this beautiful country was densely forested. Regrets for the destruction of timber need not trouble us. Fields are worth more than trees; a fact which self-constituted forestry authorities are loath to admit.

Right across this fertile littoral, a barren sandstone or limestone range—The Sisters—has been thrown. It rises to a thousand feet in height, is bare of anything except grass-tree, and makes a narrow wall between two immense gardens. Nature seems to have feared that the universal beauty and richness of the country would become monotonous without a contrast, so she laid The Sisters down like a seam between two strips of exquisite carpet.

Within sight of the Nut of Stanley there are some fine dairies, averaging 37s. 6d. to £2 a cow per month returns for five months of the year on natural feed.

The Van Diemen's Land Company, whose concession embraced some of the best agricultural lands in the world, are selling now at £30 an acre.

Buyers are not far to seek, and one heard of a transaction in broad acres between the Company and a sometime tenant-farmer amounting to £17,000.

From Stanley we returned by a back road through Mount Hicks, Yolla, and Henrietta, practically all the way through splendid chocolate soils, encumbered by millions of myrtle logs felled by the settlers' axes, and rapidly decaying on the ground. These farms in-the-making will be just as good as those nearer the coastline.

Tasmania has no definite immigration policy, but her Crown lands can be readily acquired, and she has room for thousands of settlers.

In this remarkably pleasant journey from Hobart around and across the Island one saw that there were openings everywhere for industrious people.

Beyond those green places, where of ancient forests only a few shady blackwoods remained, beyond the logs and dead trees of newer lands half cleared, in blue hazes one beheld where the farms of the future would in their turn slowly evolve from distances yet virgin, but full of promise as those already won from Nature by the settler's hand.





Ringtail Gully, Waratah



A Young Orchard.

AGRICULTURE AND PRODUCTION.

THE soils of Tasmania are deficient in lime, but they show a larger percentage of nitrogen than those of Australia. As there are unlimited deposits of limestone available in various parts of the State, this deficiency need not be taken into account.

Good limestone unroasted can be put on the railway trucks at a cost of £1 a ton, with a carriage of one halfpenny a ton per mile. The standard quality applied is one ton per acre for agricultural purposes and a half-ton broadcast for pastures.

When the writer last visited Tasmania, there were only thirty butter factories throughout the Island. There might have been many more were it not for the disadvantages. Butter was not frozen solid on the road to Melbourne, where the Island's product was largely shipped. Obviously Burnie, the port which serves those splendid dairy districts of Northern Tasmania, will become a shipping depot for export overseas.

There are no pleuro, no ticks, no anthrax, and very little contagious disease among cattle in Tas-

mania, which is rendered additionally immune by the fact that the sea forms its sole borderline.

Scab in sheep has been eradicated. For longwools and merinoes Tasmania holds first place. Its climate gives the sheep a strong constitution and the finest quality wool.

The best of blood stock has been exported to the mainland. That strain of heavy horses for which Victoria is celebrated owes its stamina to stock supplied by the Van Diemen's Land Company, who possess also the finest examples of milk Shorthorns in the Commonwealth. From one of these cows the yield has been 64lbs. of milk per day, giving 21lbs. of butter a week.

If Abel Janszoon Tasman had only known it he was the discoverer of a land far more prolific than Holland, with a better winter climate and all advantages for the production of the cheeses and butter which have made prosperity for the Dutch.

Like all the other States, Tasmania will in the future require as many suitable settlers as she can obtain.



Table Cape, North-West Coast

In an agricultural sense the only partially-settled parts of the Island in 1916 were the north and north-west. The districts served by the main railway line were mostly devoted to sheep raising. The lake country suited summer pasturages, and on the southern portions of the Island fruit-growing was an increasing industry.

The south-west was still practically untouched. It is known to be exceedingly rich in minerals, and contains large sections of undoubtedly good agricultural lands.

First-class Crown lands were available somewhat away from the railway radius, and heavily timbered, at £1 per acre. Land suitable for fruit-growing—as our chapter dealing with Crown Lands of the Commonwealth sets forth fully—could be obtained for ten shillings an acre.

Several subdivisions of freehold estates in older-settled districts have been successfully carried out. The Van Diemen's Land Company disposed of small farms—cut from some of their vast holdings in the north—at £30 an acre.

On the Tamar many orchards have been cleared and planted for retiring Anglo-Indians, who find the climate most congenial. An Indian official with, say, five remaining years of service before him, can thus have a productive home prepared for himself and his family, and take possession upon his retirement from the arduous services of the tropics.

Since cold storage became an established fact, the area under apples has steadily increased. The markets of the world were open, and Tasmania as a grower of apples became famous abroad. This crop was well on the way to half a million annual value before the war.

With increased purchasing power of foreign consumers and cheaper freights, Tasmanian apples can be made a staple fruit throughout the northern hemisphere. They can be on the market when the local product is not available. For quality and flavor they equal, and often excel, the best varieties grown in Europe.

Scientific orcharding is quite as necessary in the southern hemisphere as any other part of the world, and settlers who will secure the greatest returns are those who keep this fact constantly before them.

Orcharding is methodical work, but it requires a certain amount of discretion and energy. With proper treatment results are higher than from almost any other form of agricultural production. Forty pounds per acre has been about the average yield in Tasmania.

For small capitalists with families it offers good openings. A man can go on with the production of small fruits while his trees are coming into bearing, he is sure of an increasing living, and enjoys a pleasant, healthy life.

For the small, general farmer, Tasmania is rich in unexploited chances. The Government extends to him a paternal hand, and gives him every encouragement to make a successful establishment.

Mixed farming in the south includes stock-raising, dairying, fruit-growing, poultry, and pigs.

Forage and potatoes are also grown in suitable localities. Potatoes have long been a Tasmanian staple, especially on north-west coastal lands.

The values of export in latter years have gone up steadily to figures approaching £500,000 annually. These totals could, of course, be multiplied tenfold by increased settlement.

Cleared lands in potato districts are often available at reasonable prices, but there are so many good investments for intending agriculturists all over the Commonwealth that golden opportunities are turned down for others that appear to be richer still.

For the assurance of intending immigrants with families, it should be stated that throughout Tasmania are scattered hundreds of free State schools, and that high schools and colleges, both State and proprietary, are established in the larger centres of population.

Mr. Leslie Evans proffers some sound advice for young settlers:—"Land is cheap and the climate is delightful. Women have votes in this part of the Southern Hemisphere. English grasses and clovers flourish here, and English landscape scenery can also be enjoyed. In fact, Tasmania is Old England over again, minus some undesirable features. But don't think you are coming to Tasmania to pick apples off trees in the streets, because they grow in orchards which are in most cases several miles from the cities. Don't imagine a couple of hundred pounds is all you require to set you up in the fruit industry without further effort, because it will not do so; the less capital you have the more work must be done. Don't think it is 'infra dig' to take your coat off if it hampers the play of your muscles; no one will make remarks about your being in your shirt-sleeves in hot weather. Above all, please do not, as many have done, begin to teach your employer the second week you have been on the orchard. This has resulted, with one other failing, in getting many Englishmen looked askance at in this part of the world. Work hard the first week, and make up your mind to work harder the second, because the chances are you will not be 'fit' at the beginning. Don't take your money, if you bring any, out of the bank until you have been in the State at least six months. Make this a golden rule, and if any one wishes you to break it, don't accept the suggestion."

Mr. Evans has prepared a report on the crops, conditions, and possibilities of Tasmanian agricultural districts for *Australia Unlimited*.

The Huon District.—The residents at the different centres in this belt are largely sons of pioneers who were no doubt attracted by timber possibilities. The banks of the Huon are more and more being dotted with orchards, while for aquatic pastimes the river can hold its own with any stream in the Commonwealth. The outlying ranges, including the famous Hartz Mountains, Adamson's Peak, and the "Sleeping Beauty" or "Huon Belle," together with the lesser peaks, on a still summer morning present a scene of dazzling beauty which no pen can justly portray. In the winter months (June to August) the climate of the Huon is severe.

South Bruni and D'Entrecasteaux Channel.—The D'Entrecasteaux Channel links up the Huon River with the Derwent, where Hobart, the capital, stands, 12 miles from its mouth. The Channel is much nearer by water to Hobart, and its shores are studded with charming villas. The views from the surrounding hills are beyond description. South Bruni, where orchards are coming into prominence, shelters the southern and eastern side of the Channel, and this place must be visited and seen for itself. As a yachtsman's paradise, the Channel has no counterpart in the Southern Hemisphere. On both sides of any centre between Gordon and Mills Reef there are 50 miles of lovely, landlocked lake-like waterway; generally speaking, bold water to the very banks, and ranging from one to four miles in width. The rugged grandeur of the surrounding hills, the dainty little bights and anchorages, together with the smooth water, will some day be duly appreciated.

The Glenorchy District.—Glenorchy is a small suburb of the capital, where a fine quality of fruit is grown. The land here is beginning to carry an enhanced value, owing to the fact that the city is extending in that direction, and building is going on apace. One small orchard of four acres gave over 1000 bushels of apples to the acre for some years, but it is now played out. Hop culture is carried on in a small way at this centre. Orchards extend right on to South Bridgewater, and there are many fine sites to be purchased.

The Bagdad Valley.—Twenty miles from Hobart by rail brings one to the Bagdad Valley. A nice little centre, English in character, is Bagdad, but it enjoys a lighter rainfall than the Huon, and yields are not so heavy. There is a sprinkling here of professional men from the capital who own orchards. Bagdad holds the proud position of possessing an orchard for which the highest

price on record was given. The amount stands at considerably over £200 per acre.

The Derwent Valley.—New Norfolk, Macquarie Plains, and Glenora are situated in the upper part of the valley of the River Derwent. Many thousands of fine acres of orchard lands can be seen throughout this magnificent belt. The last bend of the Derwent approaching New Norfolk is pre-eminently picturesque. Here the waters of the Derwent, and higher up the valley those of its tributaries, are employed for irrigation purposes both for fruit and hops. The fine plantations and palatial residences here show what apple-growing means to the settler.

Tasman's Peninsula.—Before proceeding to the northern end of the island it would be well to briefly note what Tasman's Peninsula is capable of, as there are many hundreds of acres of suitable land yet to be employed in this vicinity. Some phenomenal yields have been taken off a small patch at Nubeena. The Peninsula will always remain historically of importance owing to its past. Here the tourist finds Port Arthur, Eaglehawk Neck, with the Blowhole, Tasman's Arch, Devil's Kitchen, and the Tesselated Pavement. Much activity is being displayed on the foreshore of Norfolk Bay, a large inland sea, where our warships go for ball practice. Orchards are being extended in several directions, and its proximity to Hobart assures it a fine future. A few miles higher up the coast Messrs. H. Jones and Co.'s orchard of 300 acres at Triabunna is linking up the outlying centres with profitable fruit production.

The North-East.—At Scamander and Georges' Bay, now mainly of interest as watering-places where bream and other fishing is enjoyed, fruit culture is progressing. The mild climate produces a very highly-colored apple, and there are thousands of acres still the property of the Crown near St. Helens (George's Bay). A good rainfall (29 inches) is enjoyed. The soil, being largely decomposed granite, results in an apple of firm flesh and well adapted for carriage to distant markets. Some day in the not far distant future the north-east will command high attention as a fruit-producing area.

Travelling west from George's Bay the orchards at Scottsdale and Lilydale come into view. The highest-grade apples are grown at these places, and there is plenty of room for newcomers. Scottsdale flourishes on rich basaltic soil arising from decomposed volcanic rock, which is brick-red in color, and the vigorous trees, if rightly pruned, centre their activities in the direction of heavy yields. Color might be declared the dominant feature of apples grown in this

belt. It remains to be seen whether the still milder climate at St. Helens will not produce a better apple in this respect. Judging from what has been grown at Scamander and George's Bay, the growers at Lilydale will require to maintain the highest standard of cultivation.

Estuary of the Tamar.—Fruit-growing on the banks of the Tamar River was practically

dential houses with orchards than the estuary of the Derwent.

The Mersey Valley.—Last, but by no means least—in the opinion of some, first of all—we approach the Spreyton district, where apple culture is making a distinct forward movement. Latrobe, Spreyton, Railton, and Devonport will in the near future produce many thousands of



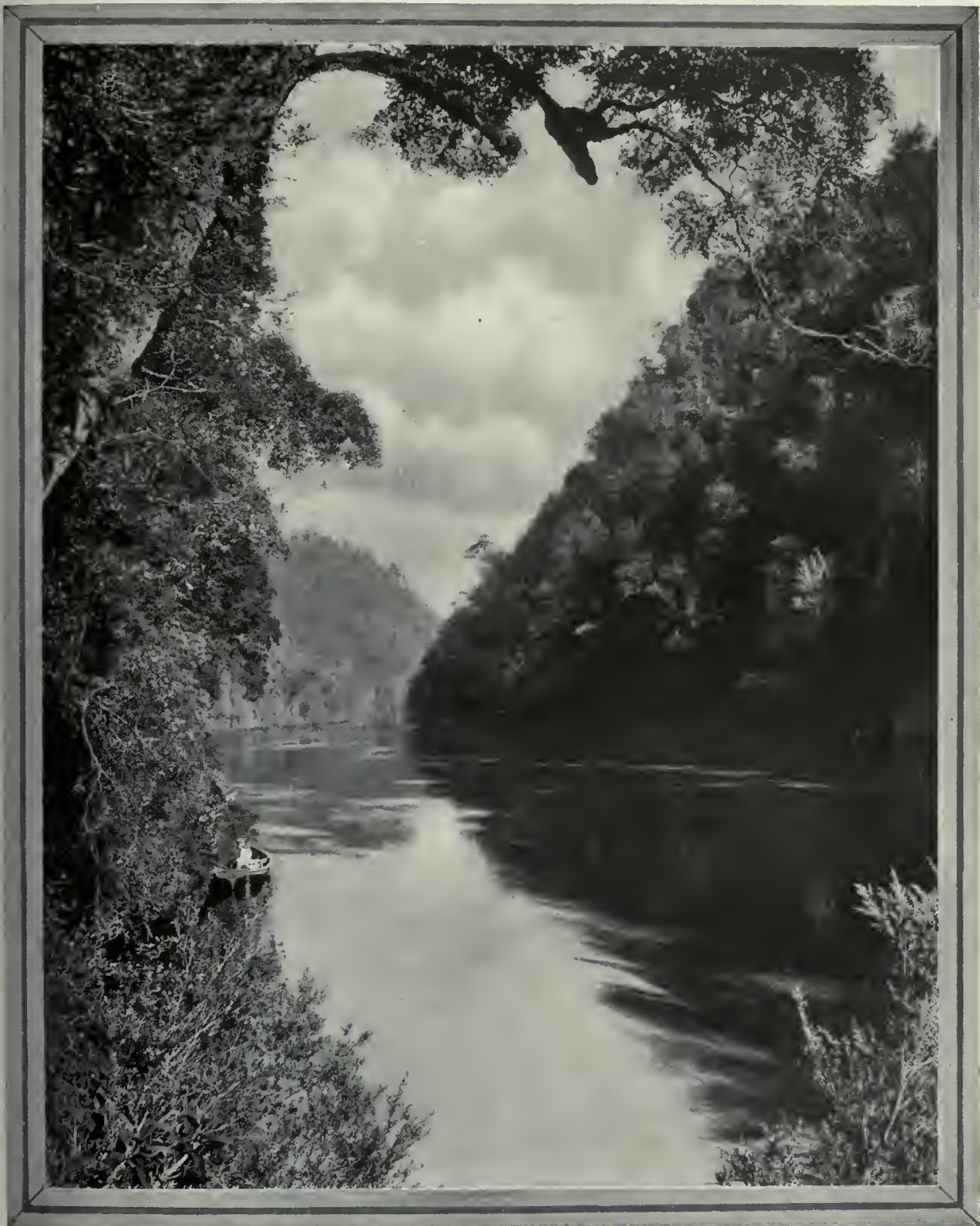
Lake Hartz, Hartz Mountains

unknown ten years ago. Now there are over 4000 acres planted. In 1908 there were only 724 acres. Modernity is the main characteristic of this movement, both in regard to system and management. In another decade or earlier the Tamar will be a scene of great activity, when ocean-going steamers call for fruit at Bell Bay. This estuary has a foreshore of at least 100 miles. River scenery of a very beautiful character goes in with the selection, and already its banks have been embellished by the presence of comfortable homes, picturesque gardens, and, what should be of greater import, cultured people. The lower reaches of the Tamar Estuary have a longer foreshore (shore-line) for resi-

cases of high-grade apples, and as the port of Devonport is adjacent there is every natural facility. Perhaps nowhere else in this State will there be found so many retired Anglo-Indians as within a stone's-throw of Devonport. This fact, combined with the rich surrounding country and all the enjoyments of modern life, should exert a strong attraction to newcomers.

Taking districts seriatim, Mr. Evans give valuable information regarding local products, land values, and lands available, more particularly in northern areas:

Staverton (Sheffield District).—The land in this district is worth from £3 to £12 per acre



Gordon River Gorge, West Coast



St. Columba Falls, George River

according to the clearing that has been carried out. Peas, oats, and potatoes grow well, but the district is adapted to dairying and grazing. It will carry two sheep to the acre in properly fenced paddocks.

Barrington.—On chocolate farms oats go up to 80 bushels to the acre; potatoes 8 tons per acre; two acres for a fully-grown beast; two sheep to the acre. The price of land runs from £12 to £20 per acre.

Stoodley.—Mixed farming prevails, mostly potatoes. Since the Irish blight, blue peas have been very profitable. Land runs in value from £5 to £30 per acre, average price £12. The number of stock on 100 acres—30 sheep, 6 cows, 20-30 pigs, and the usual stock to work the farm.

Forth.—Mixed farming—wheat, oats, peas, beans, potatoes, mangolds, hay, dairying, poultry, sheep. Oats and hay are the most profitable crops. Land is worth from £15 to £27 per acre. Fifty acres is considered the minimum on which a living could be made. The land will graze one beast to the acre, or eight sheep on the same area. Uncleared fruit land is valued at £5 per acre; when cleared its value rises to £15 per acre.

Ridgeley.—Land uncleared is valued at £2 to £4 per acre, partly cleared £10 to £15, whilst

cleared land rises to £15 to £20 per acre. There is splendid feed where the land is good and of even quality. The district is well provided with transport, shipping, markets (Burnie and Waratah). The minimum area to make a living off is considered to be 50 acres. Mixed farming prevails, dairying, grazing, cropping. The best crop is considered to be the potato, which averages 4 tons to the acre. Oats are largely grown, and yield 50 bushels to the acre. Dairying and grazing are extensively carried on; sheep not general in this district. The land will carry one beast to three acres; one cow to four acres, which allows for a little cropping. Sheep, one to the acre on good runs.

Irishtown.—Potatoes and oats are the principal crops of this district, taken alternately. The former average 4 tons to the acre. Hay crops give 2 tons to the acre, but good crops rise to 3 tons per acre. Since Irish blight broke out dairying has made great strides. The soil is well suited to cereals, pulse and roots. First-class land is worth from £1 to £10 per acre, the price depending on situation, amount of improvements and instalments paid to the Crown, rather than on its quality. Partially cleared land is worth from £3 to £5 per acre. Not less than 100 acres should be purchased as a holding. Grass land will carry one cow to three acres; roughly cleared land one cow to six acres, or one ewe and lamb per acre.

Kindred.—Mixed farming holds sway: potatoes are grown on the chocolate soil. Oats for grain and hay. Peas, turnips and mangolds, the latter to supplement the green feed for dairying, which has made great strides, as witness the establishment of co-operative butter factories at Ulverstone, Burnie and Devonport. Wheat is only raised in small quantities for home use. All stock enjoy the best of health. Pork raising as a supplement or adjunct to dairying goes on. Beef, mutton, wool are produced in small quantities. The price of unimproved land is about £15 per acre. Improved areas run from £12 to £25 per acre. The holdings run from 100 to 150 acres, but 50 acres are considered the minimum from which a living could be made. The land will carry one beast to the acre, or three sheep to a similar area.

The altitude is from 500 to 700 feet. The roads in the district are good.

Preston.—Mixed farming: oats and potatoes are the leading crops. Potatoes yield from 5 to 10 tons per acre; oats from 50 to 80 bushels per acre. It is considered that 100 acres are necessary to make a living off. Bush land is valued at £4 per acre, grazing land at £7/10/-, and

improved farms at £13 per acre. The land will carry about one beast to two acres, and one sheep per acre. The grazing land is best suited for dairying.

North Motton.—Potatoes and oats are the principal crops grown in this district. Potatoes are planted from June to October. The mild winters allow a continuous supply of fodder to be grown. Partly cleared land is valued at from £8 to £12 per acre; cleared land at from £20 to £24 per acre. Fifty acres are required to make a living on. The altitude of the district is 500 ft.



Mount Olympus, Lake St. Clair

New Ground.—Mixed farming: wheat, hay, potatoes. Improved areas are valued at from £10 to £30 per acre. From 50 acres upwards are needed to make a living on. Fruit land, uncleared, runs from £2 to £14 per acre, according to situation. £10 per acre will fit fruit land for the plough or planting. Sheep on farms (not runs), two to five head per acre. One beast to two acres.

Moorville Road.—Potatoes are the leading crop in this district. Oats, peas, hay also largely grown. Dairying is carried on here. The best land is valued at from £12 to £20 per acre. Minimum area to make a living on 100 acres. Potatoes

yield from 5 to 6 tons per acre; oats, 50 bushels; hay, 2½ tons; blue peas, 40 bushels per acre. This district grows good grass. English, cocksfoot, white and red clover, turnips, mangolds do well here.

Devonport.—Potatoes, dairying, and mixed farming. First-class land is worth £25 per acre. Dairying land from £10, subject to the clearing done. A good living can be made on 75 acres of red soil, and 125 acres of dark loam. Uncleared fruit land is worth from £1 to £10, according to its position. Fruit land, newly planted, is valued at £30 to £40 per acre. Coming into bearing, £60 to £70, with cost of looking after added. The land in this district would carry a heavy head of stock, but it is not utilised much for grazing. Crop yields are heavy here.

Table Cape.—Mixed farming: potatoes, oaten hay, oats, blue peas, wheat, barley, in the order named. The district is admirably adapted for dairying and grazing. Uncleared land is valued at about £6 per acre. Improved farms, £25 per acre. Minimum area to make a living on, 50 acres. Fruit land uncleared, from £3 to £10 per acre. Cost of clearing ranges from £10 to £20 per acre. Grass land will carry three sheep to two acres; one cow to three acres. On scrubbed and grassed land one cow to four acres, if fireweed and ferns kept down.

Scottsdale West.—This district is admirably adapted for dairying, as it is well watered and grows grass and clovers to perfection. Mixed farming is carried on, peas, oats, potatoes, roots. Drabsoil partially cleared is worth from £3 to £8 per acre. Chocolate soil partially cleared and grassed rises in value from £10 to £14 per acre. The minimum area to make a living on dairying is 100 acres. Clearing land suited for orcharding costs £10 per acre. The land will run two sheep to an acre or one beast to four acres.

Scottsdale.—All classes of farming and horticulture are carried on here, but dairying is perhaps the most profitable. First-class cleared farms are worth £20 per acre, and 100 acres are sufficient to make a living on. This price applies also to cleared fruit land of first-class quality close to the railway. Uncleared fruit land can be had for £1 per acre. As much as £100 per acre have been taken off an orchard in this district in one season. Some farms will carry from 5 to 10 sheep per acre, others only one.

Lilydale.—About 2000 acres, also smaller holdings, available for orcharding and mixed farming in this district.

Avoca.—There is not much land available in this district, as it is mostly held as large estates used as sheep runs, but well adapted for mixed



Lobster Creek, Leven River

farming, hay, wheat, and cereals. Price of land £2 to £3 per acre. Taking the good with the bad land, the area required for a holding is not less than 1000 acres. It will carry one sheep to the acre, which number could be increased by cropping.

Frankford.—Grass, dairying, and rearing stock. Most profitable farm products, oats and potatoes. Price of land from 30s. to £7. Minimum area required, 150 acres. Fruit land, cleared, £7; uncleared, £3 per acre. When fenced against rabbits and cleared would carry four sheep per acre; 1 beast per acre.

Upper Flowerdale.—Mixed farming and dairying are carried on at this centre. Potatoes are planted from April to October, and the yield is from 6 to 10 tons per acre. The dairying industry is making headway. Cocksfoot and other grasses and clovers do well, and last in the ground from five to seven years. Partly cleared and cleared farms run from £8 to £25 per acre. Land scrubbed, grassed and fenced, without further improvements from £3 to £8 per acre. The land is increasing in value as the metal roads are extend-

ing further back. The number of head of cattle the land will carry varies according to the clearing and grassing done. A fair average would be two sheep to an acre, and one beast to three acres. If fodder crops are grown, the average is much higher. On one of the best 400-acres, with fodder and grass land, there were reared 800 lambs and fattened for market; 400 ewes were fed and 10 cows milked, besides running surplus cattle, horses, etc., to work the farm. Out of the 400 acres, 60 acres were planted with potatoes, oats, etc., for marketing.

St. Helens.—Crown land is available in this district, £1 per acre first-class; 100 acres scrubbed and grassed sufficient to make a living by dairying. Second-class land is available, suitable for fruit-growing, at a cost of 10/- per acre; clearing cost from £10 to £15 per acre. Land can be cleared, fenced, and planted with fruit trees for £20 to £25 per acre. The land will carry, when cleared and grassed, one cow on 3-5 acres; three sheep per acre. There are nearly 100 acres of young orchard land in this district. Large areas of land near the port are still available. The fruit colours well here. Dairying is carried on at

Pyengana, Gould's Country, New England, and Upper Scamander. The cheese factory at Pyengana produces 70 to 80 tons of cheese per annum, and in addition there are large dairymen who do not supply the factory. Gould's Country also possesses a factory. Pyengana is 20 miles from St. Helens, Gould's Country 12 miles, and Scamander 12 miles. The roads are good in this part of the island. There are considerable areas open for selection suitable for grazing. The climate is, perhaps, as mild as any part of the State.

for their own use, and who sell in the district chiefly.

There is no land for sale here, all available sites having long since been taken up. It is not an orcharding district. Recently very fair land has been discovered in the broken country of hills and gorges, between Mount Nicholas and Mount Victoria, which is heavily timbered, and more or less unexplored.

The drawback to the cold plains in this district



Timber Train in Geeveston Forest

Transport by steamer to Hobart or Launceston at 17/- per ton.

St. Mary's.—The district is a long-settled one, and there is no land now for sale. The land is occupied mostly for pastoral purposes and dairy farming; but since the railway opened in 1886, cereals are on the increase. The farming community here is divisible into three classes:—

(1) Pastoralists in the valley of the Break o' Day, who also grow wheat and oats. (2) Tenants in the valley who rent portions of the above estates and grow the same cereals. (3) Settlers in the hill districts, opened up since the 'sixties, chiefly by Germans, who grow enough

is the perishable nature of the timber, which consists of "cabbage-gum," "swamp-gum" (the open country variety), and "white-gum," all of which suffer from the cold and windy climate, and are continually on the break down, causing a litter, which requires constant clearing up. This militates now, with the high price of labour, against keeping the runs clear. A run, or paddock, cleared up, will in seven to nine years be just as "dirty" again.

Carnarvon.—Dairying and orcharding are the principal industries on Tasman's Peninsula. Cultivation consist principally in growing fodder for stock. A hundred acres of good land are considered a sufficient area to make a living on.

There is plenty of land in this district suitable for orcharding; clearing light scrub costs from £5 to £15; heavily timbered costs £25 to clear ready for the plough. Orchards newly planted cost £40 per acre; in full bearing £100. Scrub land, grassed, the first season will carry a fat beast to the acre, but after two or three years it will take about three acres to keep a cow, and about three sheep to the acre. During July, August, and September, stock will require feeding, or to be turned on to a bush run.

Wattle Grove.—Fruit culture is the chief industry in this district. Apples, pears, stone fruit and berries grow well. Uncleared land runs in price from £5 to £10 per acre; cleared land, £40; orchards newly planted, £50; in full bearing, £100 upwards per acre. Roughly cleared land will carry one beast or five sheep to the acre. If tillage were employed this number could be increased. A capital of £2000 should purchase a property with a turnover of between £400 to £500 per annum.

Tyenna.—The hop is the most profitable crop on the river flats. Potatoes and vegetables grow well. There is fine grass country, and the district is admirably suited to dairying. The bulk of the land is held by the Crown, and costs from

10/- to £1 per acre to purchase, and £3 per acre to scrub the timber, ring, and burn off, and sow with grass. The cost of clearing the timber would be much more. A few settlers will sell at prices ranging from £6 to £8 per acre, which means 3 or 4 acres under cultivation, and from 50 to 100 acres in grass on roughly cleared land. Small fruits grow well here. The land will carry two sheep to the acre all the year round, but owing to the rough state of the country, each acre is taken up to the extent of about 2 square chains by standing timber, logs, bark, and rubbish. It will carry one beast to every 4 or 5 acres all the year round. Apples grow well, but take the black spot as no spraying is carried out. If the settler grows hops, a small area will suffice for a living; but for mixed farming, which is general, it is considered that from 100 to 150 acres are required to live on.

Glen Huon.—Land for sale under freehold is rare in this centre. The cost of clearing new land and preparing same for orchard purposes varies from £20 to £25 per acre. Orchards in full bearing cost from £100 to £150 per acre to purchase. Roughly cleared land will depasture two head of cattle per acre in summer; in winter 3 acres are required to support one beast. Crown land exists at the Denison and Weld Rivers.



Packing Stores to the Ringarooma Tin-Mines.

THE ISLANDS OF TASMANIA.

TASMANIA is, in reality, the mother of many islands. She is surrounded on all sides by her fledgelings. They are a vigorous brood, cradled in sturdy southern conditions. As time goes on, they will find homes and wealth for thousands of strong Australians.

Wind-swept and sea-girdled, these Islands of the South, to a great degree are still awaiting for human occupation and development:—

The Furneaux Group of Islands—of which the largest are Flinders, containing about 513,000 acres, Cape Barren, about 110,000 acres, and Clarke Island, 28,000 acres—is situated in Bass Strait, off the north-east corner of the mainland, from which it is separated by Banks Strait, about 15 miles across in the narrowest

place. It lies in almost a direct line between Cape Portland and Wilson's Promontory, and forms one of the links that remain of the mountain system which undoubtedly at one time connected Tasmania with the Continent of Australia. The formation of this group, we are officially informed, is almost exclusively granitic and Tertiary, with metamorphic schists and sandstones in places. Tin has been discovered on each of these islands, but not in payable quantity.

Clarke Island is leased as a sheep-run, for which it is best adapted. Cape Barren Island, as the name suggests, is broken, rough, and the soil of poor quality. Some 4000 acres across the western end have been set aside as a reserve for the use of half-caste inhabitants.



A Harvesting Scene, Glenore

Selection under "The Crown Lands Act," until recently has been practically confined to the western border of Flinders Island, where about 10,000 acres have been taken up and are being improved. During the years 1909 and 1910 most of the useful land on Flinders Island was selected, and is now on its trial.

Some of the smaller islands are exceedingly fertile, notably Great Dog, Green, Kangaroo, and Preservation Islands. The sooty petrels (*Puffinus tenuirostris*), better known as mutton-birds, abound, and are the principal means of support to the native islanders. The young birds are cap-

The distance from populous centres, of course, presents a difficulty that would have to be taken into account. It is of importance to note that these islands lie in the direct routes between Hobart and Melbourne, and between Launceston and Sydney; they are therefore conveniently situated for trading.

No official rainfall record is kept at Flinders; but at Goose Island, 15 miles away, the record shows 79 inches per annum. This plentiful water-supply does not appear to obtain on Flinders Island, as the settlers frequently complain of the scanty rainfall, and they estimate the annual fall



On the North Coast Road

tured in their holes by night in hundreds during the month of March. They yield up large quantities of pure oil, and are then pickled for the outside market. Wild ducks are plentiful, and swans and Cape Barren geese are obtainable. Chappel, Babel, Storehouse, Forsyth, or Penguin Islands, and part of Little Green Island, are reserved as "rookeries" or breeding-grounds for the mutton-birds.

From the position of these islands, the richness of the soil, and the temperature of the climate—for which the latitude, the low elevation, and local salt-water currents are responsible—they are peculiarly adapted to the production of vegetables of every description during the winter months, when they are unobtainable on the mainland, and would therefore command a high price. The question therefore suggests itself whether a profitable trade in early vegetables could not be opened up in conjunction with the fishing industry.

at about 20 inches. This comparatively low estimate may be due to the rapid absorption of water during the summer months, owing to the sandy nature of the soil. The fact remains, however, that the island is not so well watered as could be wished, and the water in several creeks and lagoons is brackish and unfit for drinking.

Hunter Group.—These islands lie near the Tasmanian coast, between Woolnorth and King Island. The group includes Robbin's Island, 24,450 acres; Walker Island, 1720 acres; Trefoil Island, 255 acres; Barren Island, 21,000 acres; Three-Hummock Island, 23,000 acres; Perkins Island, 2600 acres; with the small islands of Albatross, Steep, Stack, Kangaroo, and Petrel, containing collectively about 1300 acres. The first three islands named have been granted to the Van Diemen's Land Company, and comprise a small proportion of fair land, Trefoil being exception-



On the River Mersey

ally good. The most of the other islands are leased from the Crown for pastoral purposes at low rentals. They are unsuited to cultivation.

Maria Island.—Maria Island, so named by Tasman, the enterprising navigator, in the year 1642, forms a prominent feature on the east coast of the mainland. Its principal place of communication is Triabunna, 9 miles distant by boat. It was used as a penal settlement in the forties, of which there are still many signs remaining. It covers an area of 24,000 acres. It presents a bold and rugged aspect along the north-east shore, the highest point, called Mount Maria, rising to an altitude of 2329 feet in about $1\frac{1}{2}$ miles. The best land, which was included in the old settlement, extends from Port Darlington at the extreme north of the island southerly along the western shore, and comprises about 1500 acres, 500 of which have been sold to the directors of the Maria Island Company, and about 1000 acres purchased under "The Crown Lands Act" by selectors. A large proportion of the land purchased and applied for was at one time cleared and cultivated, and included a hop plantation. At present 12,300 acres are leased for pastoral purposes.

The peaks of Mount Maria are composed of grey granite rock, whilst the north-east corner of the island exposes immense masses of fossiliferous limestone, giving place along the western shore to diabasic greenstone, or trap and sandstone rock towards the southern end, which is of a sandy and worthless description. Tin, gold, and silver are said to have been discovered, but in small quantities.

Practically, the whole of the island is now available for settlement. About 4000 acres have been selected.

Bruni Island (North and South) forms the eastern shore of D'Entrecasteaux Channel. The island extends northerly from Bruni Head, off Southport, to the estuary of the Derwent, which is distant 13 miles from Hobart. It is of very irregular shape, and connected by a narrow neck or isthmus at Adventure Bay. It comprises a total area of 90,000 acres, of which 28,000 have been alienated. Of the portion remaining, there is some good heavily-timbered and scrub land in the neighbourhood of Little Taylor's Bay, South

Bruni; but settlement thereon is hampered by the want of direct communication with a market, although steamers pass daily through the Channel to and from the capital. It is of igneous origin, in which greenstone predominates. Portions of the north-west of South Bruni, and the extreme south and north of North Bruni, are of Tertiary formation, in which anthracite coal has been discovered, but so far has not been turned to profitable account.

Orchards are being planted out at Daniel's Bay, South Bruni, where a comfortable boarding-house has been established. Thence excursions may be made to Cloudy Bay, with its clouds of mist caused by the breaking of the heavy surf upon its rocky shore; Cloudy Lagoon; Adventure Bay, with a sandy beach some 6 or 7 miles in length; celebrated for the variety of marine shells to be found there; and the lighthouse at Bruni Head, from which may be obtained a beautiful and extensive view of ocean and distant mountain. Bream-fishing can be had in a large creek flowing into Cloudy Lagoon, and Daniel's and Taylor's Bay abound in fish of all kinds.

Schouten Island, lying to the south of Freycinet Peninsula, off Little Swanport, is unfit for cultivation, but sound and otherwise suitable for depasturing sheep. The greatest drawback experienced in working this island is the inconvenience of boating the stock to and from it. It comprises 8500 acres of more or less stony country.

The Macquarie Group.—This group is situated in the South Pacific Ocean, in latitude $54^{\circ} 50'$ south, and in longitude 159° east, distant from New Zealand in the south-westerly direction about 600 miles. It was originally discovered in 1811 by some adventurers from New South Wales engaged in seal-fishing. It comprises Macquarie Island, about 18 miles in length by 5 miles in breadth; Bishop and Clerk, 30 miles to the south; and Judge and Clerk, 7 miles to the north of Macquarie Island. It is low-lying, with not a stick of timber anywhere to be found, and has been worked for years as a birding and sealing ground by authority of the New Zealand Government, under the belief that it was a dependency of that Dominion, but more recently under licence from Tasmania. The other islands are of less importance, but used for similar purposes.

BRITISH NEW GUINEA
(PAPUA)



NATIVE VILLAGE, PIMORESBY.



SETTLERS HOME, SAMARAI.



Samarai, Papua

BRITISH NEW GUINEA (PAPUA)

IN area the island of New Guinea exceeds 300,000 square miles. Discovered by Europeans four hundred years ago, it still remains an undeveloped country.

In 1914 the total white population of Papua (British New Guinea) was only 1186. This was increased some few hundreds by the occupation of the German portion of the Great Island, in September of that year, by a military expedition raised and despatched by the Australian Government.

All those parts of the island west of the 141st degree of latitude—about 150,000 square miles—belong to the Dutch.

The German portion included the north-eastern mainland, the larger islands of Bismarck Archipelago, and nearly 200 smaller islands.

The south-eastern portion only is a dependency of Australia, being under the administration of the Commonwealth, but not included in it. Papua is divided into eleven magisterial districts, presided over by a Lieutenant-Governor.

Papua is entirely tropical. The native population has been approximated at half a million. The Papuan is of a more advanced type than the aboriginal of Australia, has some knowledge of agriculture, and is probably more capable of conforming to the manners and usages of civilization.

Native labour has been largely utilized for construction of roads and public works, for clearing

forest to establish plantations, and for the cultivation of such tropical products as rubber and coconuts.

Colored service is voluntary. Employers are under legal obligation to properly house and feed their native servants, who must also be returned to their villages at the completion of their agreement. Refusal to work after engagement, or desertion from service, renders the laborer liable to punishment. The term of indenture is limited to three years. Wages must be paid in the presence of an officer of the Government.

Under just conditions, the Papuan is said to have been converted into a faithful and intelligent servant.

In March, 1914, two hundred and twenty-eight plantations had been established in British New Guinea. These covered an area of 43,000 acres, and were yielding good profits.

Coconuts, sisal hemp, rubber, and cotton were the principal products, with coffee, vanilla, kapok, tapioca, cinnamon, tea, maize, and tobacco as secondary industries. Rubber trees yield an average of 2lb. per tree here, as against 1lb. in the Malay States.

About 350,000 acres of coconuts had been planted by natives for food supply, in conformity with a Government regulation.

The Government had established six plantations, of a total area of 1,515 acres, for the propagation of coconuts and Para rubber. Others

are being developed by means of five annual Government loans of £5,000 each.

Although the greater part of the interior is still unexplored, enough is known of New Guinea to justify the conclusion that it is one of the richest and most suitable countries in the world for tropical agriculture. Tea, coffee, cocoa, rice, cotton, and tobacco will be profitably cultivated.

"The above, it must be remembered, represents the total local outlay of the proprietary company, as there are no rents to pay for the first ten years, no survey fees, and no costs for the preparation and registration of the lease.

"New Guinea is said to be the best rubber-growing country in the world. There are enormous areas of easily-accessible virgin land suitable for



Sisal Hemp at Fairfax Harbor

So far the attention of planters has mainly been given to the growth of Para rubber and coconuts.

Costs given in The Official Handbook of Papua for preparatory work are as under:—

"*Para Rubber.*—For cutting down the timber and burning same, with the exception of the large stumps and logs, lining, holing, and planting with 120 trees to the acre, and handing over a Para rubber plantation well weeded and in good going order, contracts have been let at £6 per acre, and satisfactorily fulfilled. This price has allowed a reasonable profit to the contractor. This does not include rubber plants, erection of buildings, etc.

this industry, with a heavy and even rainfall. The cost of clearing and planting 250 acres with rubber in the Territory of Papua—over six years—is equal to about £17 per acre.

"The manager of one of the largest coconut plantations in the Territory, in an article appearing in the issue of the *Tropical Agriculturist*, Ceylon, for October, 1908, says:—'The Territory is situated outside the hurricane zone, has an agreeable climate and a plentiful rainfall (except in the dry belt of the Central Division). Thus the planter has every advantage which nature can bestow to render his enterprise successful. The soil is considered equal in richness to anything in the world; and our correspondent's experience leads him to express it as his opinion that, in the

course of a few years, when Australia has realized what a valuable asset she possesses right at her very doors, Papua will have become the most prolific and richest exporter of tropical products outside of Ceylon. Labour is plentiful and cheap, and land easily obtainable on the most liberal terms. His estimate of the expenditure necessary to plant 500 acres of coconuts for the first year is £2,856, or £5 13s. 3d. per acre, including the erection of houses for the manager and assistant manager. The cost of planting 1,000 acres (500 acres the first year, 300 acres the second year, and 180 acres the third year) is—

First year	£2,856
Second year	1,935
Third year	1,602
Fourth, fifth, sixth, seventh, and eighth years	7,115
	<hr/>
	£13,508

or £13 10s. per acre.

“The above planting costs represent the experience of a manager who planted 300 acres with coconuts in this Territory.”

Alluvial and volcanic soils prevail along the coast and up to elevations of 6,000 feet.

Mount Victoria, in Owen Stanley Range, has an elevation of 13,200 feet.

Good harbors, high mountains, and broad, ever-flowing rivers are physical features of this great undeveloped island. The Fly River is navigable for small craft for over 500 miles.

Capital for the development of tropical industries has of latter years been forthcoming. The authorities have aimed at anticipating and removing as far as possible the difficulties of pioneering.

Government buys land direct from the natives, which it leases in perpetuity to planters, in areas not exceeding 5,000 acres, at an annual rental of threepence per acre.

But these are mere official facts; dry, as facts usually prove, but necessary for reference.

To most of us, there is another New Guinea, a land of wonder and mystery, where tattooed head-hunters in weird war-paint and feathers tread dripping jungle paths darkened by towering tropical vegetation. Volumes of absorbing ethnological interest can be written about the tribesmen, the men of the polished stone age, their traditions, superstitions, and customs.

Broad, rapid-flowing rivers, and mountains that lift their heads from foothills of forest into the snows; feathery palms, and Birds of Paradise are



A Native Village

in our vision of the Dusky Island. They are a part of its gorgeous reality.

Precious sandalwood and ebony, beautiful ornamental timbers, bamboos, scented woods, and ornate tropic flowers are all to be found in the jungles of the real New Guinea.

Indigenous cotton, sugar-cane, rubber, vanilla, nutmeg, ginger, bananas, breadfruit, sago palms, nuts, fruits, and vegetables, all grow as profusely as in the neighbouring East Indies. New Guinea is as fecund, as naturally lavish, as rich, as Borneo or the marvellous island of Java—no more than a two-days' sail from its shores. Drugs, dye-woods, spices, pearls, pearl shell, tortoise shell, and gold are among its products.



A New Guinea Belle

Copper, silver, tin, lead, zinc, iron, manganese, sulphur, and petroleum have all been discovered, and large coal beds are also said to exist.

Of all these, mineral oil has probably the greatest value.

Oil struck on the Vailala River is pronounced to be of excellent quality. Exploratory work so far carried out indicates that the petroleum fields of New Guinea, like those of Java and Sumatra, cover a large area. The establishment of this fact is of vast importance to the Commonwealth and to the Empire.

Not long before the war, England voted two million pounds out of consolidated funds to enable the Admiralty to carry out its agreement

with the Anglo-Persian Oil Company. At that time nearly fifteen millions of British money were invested in oil production in Russia, of which ten millions might be regarded as "effective" capital.

The British Empire, with only 2.6 of the world's oil supply, may find in Papua a property of inestimable value.

With modern means of preventing and combating tropical diseases, European life in New Guinea is attended by constantly lessening risks.

The more settled districts are well policed by native constabulary controlled by white officers. The ordinary comforts and pleasures of a planter's life in the tropics may be enjoyed safely.

For the adventurous mind, the ethnological student, the lover of Nature in its more florid expressions, for the sportsman, the Dark Island of the North has an eloquent call.

There are stores, hospitals, missions, hotels, bungalows, schools, cart roads and horse tracks, rest houses, in Papua already. Later on there will be railways and motor cars.

Wild pigs, crocodiles, cassowaries, scrub turkeys, marsupials, ducks, quail, snipe, and pigeons in abundance await the sportsman.

As this valuable island is opened up, its mountains will afford healthful sanatoria for Europeans. Within a day's journey of Port Moresby altitudes of 2,000 feet give cool nights and less oppressive days.

The beautiful island of Samarai is the base of an archipelago of great tropical beauty, extending eastward to the Louisiades. To quote the Hon. Staniforth Smith, who (until he volunteered for military service as a private) was Administrator of the Territory of Papua: "The scenery is always beautiful, in many instances grand and majestic. In a cruise through the islands a fascinating panorama of novelty and beauty unfolds itself before one's gaze. Tiny islets, crowned with palms, and clad to the water's edge in robes of emerald green, dot the horizon, and contrast strangely with some giant peak, grim and weather-scarred, that springs sheer out of the watery depths. In other places mighty cliffs, hidden by walls of foliage, shut out the view, and usher the traveller into some land-locked harbor, where he can drop anchor on a shingly beach, and explore the hidden recesses of the primeval forest, or visit the peaceful villages of its interesting inhabitants.

"To the mountain-climber the more inaccessible central main range offers great attractions, but expeditions of this nature require the engagement of guides and carriers, and more elaborate arrangements.

"On the north-east coast, in the neighbourhood of Cape Nelson, the high, bold, headlands and deep indentations, forming small land-locked bays

have been compared to the famous fiords of Norway; while inland little-known mountain chains and smoking craters invite the more venturesome to explore their secret recesses.

"In the Western and Gulf Divisions the low-lying country is less picturesque; but the mighty rivers, fringed with sago and nepa palms, are navigable by steam-launch for many miles. The inhabitants of the large villages on these rivers, are a strong and vigorous race, whose staple food is sago. The large communal houses, or 'dubus,'

Headquarters are located, one being as much as 900 miles away. Garrisons are maintained at each of the important stations.

"The trade of the possessions is principally copra, but exports consist also of cocoa, medicinal barks, maize, and shells (used for making pearl buttons). The average monthly output of copra is 1,000 tons. All exports come to Australia in British vessels, and all stores, rations and commodities used in the territory for trading and the upkeep of plantations go from Australia.



At Sariba, near Samarai

seen at these villages, sometimes 300 feet long and 60 feet high, constitute the highest conception of native architecture. In most instances, these large dwellings are used exclusively by the male inhabitants."

In connection with New Guinea these notes taken from a recent Budget speech of the Minister for Defence are interesting:—

"The possessions previously known as German New Guinea, south of the Equator, continue to be occupied by Australian troops, under Brigadier-General Pethebridge, as Administrator and Commanding Officer. The islands are at varying distances from New Britain, where the

"Under the terms of surrender Germans who subscribed to the oath of neutrality, and have observed regulations, are permitted to follow their vocation within prescribed areas, but the proceeds from any business or plantation are officially supervised to prevent any benefit accruing to the enemy.

"The Customs receipts from October, 1914, to 30th June, 1916, were—Import duty, £39,570; and export duty, £8,695.

"At the end of 1913 the white population of the colony, including Japanese, was about 1,600, of which 75 per cent. were Germans. Since our occupation about 300 Germans have been sent out of the colony. There are about 1,300 Chinese in the possessions.

"About 75,000 acres are under cultivation—mostly coconuts.

"About 12,000 natives are variously employed in connection with plantations, the usual period of contract being 3 years. As a rule, natives work more satisfactorily when employed on an island quite distinct from that which they are natives of.

"German paper money is not now recognised as currency in the possession, but German silver

and nickel coins are accepted at the value of 11d for a mark. Any German silver money which comes into the Commonwealth Bank at Rabaul is not re-issued, British money gradually supplanting the German currency.

"A branch of the Commonwealth Bank of Australia has been established at Rabaul, and its business is steadily increasing.

"The health of the troops is most satisfactory, owing to the precautions taken by the Military Medical Staff."



Para Rubber Trees (6 years old) at Javarere, Papua

PATRIOTIC, BENEVOLENT,
AND NATIONAL



**SOLDIERS
OF
AUSTRALIA**



AUSTRALIA'S ARMY AND NAVY.

THE ethical *motif* behind Australian militarism is Home Defence. But at the outbreak of the European War, the States, in complete Federal concord, voluntarily came forward with men and money to assist the cause of Britain and her Allies. Australia felt that she owed allegiance to the Parent Isles from which her original stock had sprung. In what she regarded as a just war she was prepared to contribute more than a fair proportion of her blood and treasure.

Although a referendum of the men and women of Australia resulted in a majority against conscription, the Commonwealth still contributed volunteers, and her soldier sons still continued to fight like Paladins across the sands of Egypt and down the shattered, shell-torn front that marked the boundary between the Teuton and the Gaul.

In the year 1870 the last Imperial regiment had been withdrawn from Australia. From that date—prior to Federation—the Colonies maintained small detachments of permanent soldiery, and extended the militia system with a cadet training in the larger schools.

At the time of Federation, the total defence force of the six incoming States was under 30,000 men.

The Commonwealth, as provided by the Act of Constitution, took over control of defence matters in due course. The Federal Act of 1909 did away with the old voluntary scheme, and introduced a compulsory military and naval system for home defence.

While totally opposed to war, the enlightened democracy of Australia were unanimously resolved that every future citizen born in the Commonwealth should be trained and ready to defend his native country against possible armed aggression.

The Act of 1909 provided:— Junior Cadet training for lads 12 and 13 years of age, followed by Senior Cadet training for lads from 14 to 18 years of age; and thereafter adult training for two years in the citizen forces, to equal 16 days annually, followed by registration (or a muster parade) each year for 6 years. Arrangements for registration, enrolment, inspection, and medical examination of persons liable to be trained

were made. The latter acts introduced necessary modifications, the principal being the extension of adult service to eight years. On 1st January, 1911, by proclamation, compulsory training was established. The already existing militia (voluntarily enlisted) were free to complete the three years for which they had engaged to serve, but conformity to the new system was essential. Officers and non-commissioned officers might re-engage. All male inhabitants of Australia, who are British subjects, and have resided in the Commonwealth for six months, are liable to serve. Exemptions exist for certain individuals and classes of people; and may be granted in the case of unpopulated and sparsely populated areas. The training is as follows:—From 12 to 14 years of age, in the junior cadets. From 14 to 18 years of age, in the senior cadets. From 18 to 26 years of age, in the citizen forces. All male inhabitants of Australia between the ages of 18 and 60 years are made liable to serve in the defence forces in time of war.

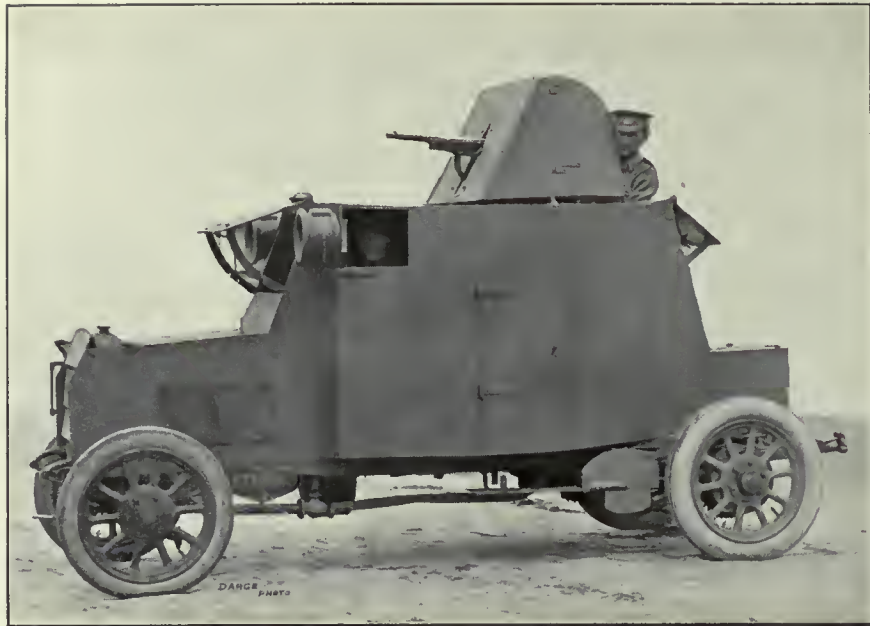
At the conclusion of his tour around Australia, undertaken in order to advise the Commonwealth upon questions of defence, the late Lord Kitchener said that "one of the greatest needs of Australia was systematic, statesmanlike, and comprehensive railway extension; that trunk-lines opening up communication and developing the fertile districts in the interior would undoubtedly stimulate the growth of population, as well as foster trade, and considerably increase the means of defence."

This is a question which will concern Australian statesmen long after the two Transcontinental lines, now in course of construction, have been completed.

Railway-builders are Nation-builders also; they deal with certainties, whereas much that party politics embodies in the too-wide horizon of its activities, is open to doubt.

This article may fitly include a few interesting facts dealing with what Australia—a small, enlightened, but non-militant democracy—has done in what she regarded as a just war against barbarism.

The first Australian Division of 20,000 left Australia on the 1st November, 1914. Twelve



The First Australian-made Armored Motor Car

months later over 100,000 troops had been organized, equipped and despatched for active service abroad. This number had increased to 220,000 on the 31st July, 1916, on which date there were, in addition, 45,000 men in training in camps in Australia. In addition, many miscellaneous units requiring special training had been raised and despatched from Australia.

The Imperial Army organization has been rigidly adhered to, and the system of training modelled on that of the Imperial Army. During the period of training, special arrangements were made to ensure thorough training in musketry, bayonet fighting, scouting, entrenching by day and by night, the use of bombs, grenades, etc.

To ensure that the training and examination of officers of the A.I.F. are conducted on uniform lines, all candidates, after selection on the results of preparatory competition examinations in their respective military districts, are sent to a final officers' training and qualifying school at Duntroon, where the staff of the Royal Military College is available to supervise the school. Already 1,382 candidates have attended the school, and the consequent effect is the standardizing of the training of the troops, which is a very material factor in the efficiency of the Army.

The Minister of Defence, in his Budget speech late in 1916, was able to announce:—

"Except in the case of one or two items which the Imperial Government has undertaken to supply, the whole of the troops forming the Expeditionary Forces of the Commonwealth

have been fully clothed, and fitted out with the very latest fighting equipment. No unit up to the present time has embarked for Australia deficient in any single article of clothing or equipment which would in any way impair its fighting efficiency.

"The fitting out for service abroad of units which hitherto had not formed part of the Australian war organization called for considerable initiative and resource, as much experimental work became necessary in providing new stores—regarding which only meagre details were available locally. All difficulties in this respect, have, however, been successfully surmounted, and *it has been made manifest that the resources of the Commonwealth in labor and machinery sufficed to produce almost every item of necessary military equipment.*

"For transport and supply services in connection with troops embarked to date, 3,400 vehicles and 16,000 sets of harness have been provided. Practically all these vehicles have been made in Australia, also about 11,000 sets of saddlery. The Government Harness and Saddlery Factory has turned out an enormous amount of leather and canvas work, embracing 150 distinct articles, and has proved a most valuable adjunct to the resources of the Department in the execution of the orders for supplies urgently required to meet unforeseen demands.

"It is satisfactory to note that 25 per cent. of the rifles supplied to the Australian Imperial Force have been manufactured at the Commonwealth Small Arms Factory. The weapons

supplied from this source have been well reported on.

"The supply of Small Arm Ammunition (also made in Australia) has always been found to be one of the greatest difficulties in time of war. The resources of the Commonwealth have been severely taxed in this connection, but all requirements have been fully met.

"The troops in military occupation of the late German possessions in the South Pacific, in addition to some thousands of native police and others employed by the Administrator, have had

arrangement of those services was made. Such re-arrangement has worked well and smoothly, and the public can be confidently assured that all invalids will receive the very best possible treatment. As the Government of India were short of nurses, a large number have been sent from Australia to assist them in nursing their invalids."

Up to date of the Minister's pronouncement, no less than 216 decorations for service in the field have been gained by members of the A.I.F., including fourteen Victoria Crosses.



Aviation in Australia

to be provided with ammunition, equipment, and special clothing to comply with climatic conditions and local custom.

"Provision has also been made for the maintenance of the Citizen Army to enable the training prescribed under the Defence Act to be carried out and to facilitate efficient mobilization if necessary.

"Every endeavor has been made to keep the Medical Services up to the highest possible standard. Complaints were received in the early part of the year regarding the conduct of the Australian Hospitals in Egypt. As a result, the Director-General of Medical Services visited all medical units overseas, and a complete re-

Senator Pearce was also able to announce that:—

"The Central Flying School, at Laverton, has been established for the training of officers of the military forces, as military pilots, and for the training of non-commissioned officers as mechanics. Permanent personnel consisting of three officers and 50 other ranks is provided.

"The aerodrome is 700 acres in extent, with a water frontage on which hydroplane hangars are being constructed.

"The buildings at the Flying School include aeroplane hangars, repair shops, offices, officers' quarters, and non-commissioned officers' quarters.

"The repair shop is fully equipped, and in it complete aeroplanes are constructed. The aeroplane engines are constructed in Melbourne.

"The flying equipment at present comprises eight aeroplanes and one hydroplane.

"A half-flight of the Australian Flying Corps was organised, trained, and despatched to Mesopotamia in April, 1915. A squadron of the Australian Flying Corps, consisting of 28 officers and 200 other ranks has been despatched for active service, and a further squadron will be despatched in a few months.

"Schools for officers to qualify as pilots are held regularly."

In regard to the Royal Military College, the following facts are officially supplied:—

"The College was officially opened on the 27th June, 1911. Its object is to provide a supply of thoroughly well trained officers capable of undertaking the duties of administration and instruction of the Citizen Forces. The College has been established somewhat on the lines of West Point in the United States, and the College course is free, entrance to same being by competitive examination, which is open to all who fulfil certain prescribed conditions.

"No charges of any description are made to parents of successful candidates for admission.



Interior of Metal-Rolling Mills

Female Operatives at Work

Small Arms Ammunition Making in Australia



Australian Light Horse Field Artillery.

"Of the graduates from Duntroon, seven have been mentioned in despatches, three granted Military Crosses, and one the Croix de Guerre."

In 1909—"for the more effective coastal defence of the Commonwealth"—in agreement with the British Government—Australia decided to establish a naval unit of her own.

The battle cruiser *Australia* arrived in home waters in September, 1913. Eleven months later she was hurriedly coaled in Sydney harbor and sent forth on her historic mission to German New Guinea, which was captured by the Australian troops.

Subsequently the *Australia* played the overture to that tragical and heroic act in the drama of naval war when the Falkland Islanders heard the thunder of Admiral Sturdee's guns announcing the doom of Von Spee's squadron.

The destruction of the German raider *Emden* by the *Sydney* gave early laurels to the young Australian navy, and further justified a policy which had brought about the entente between Australia and England regarding naval defence.

The establishment of a Naval College at Jervis Bay, the port for the Federal Capital, was a part of the new scheme of defence. Other colleges and naval bases are being developed. The course of naval training pursued here is similar to that of English Naval Colleges, but the pay of the men—who enter for a period of five or seven years, with liberty to re-engage for a longer period—is double that offered by the British Navy.

At Jervis Bay in 1916 the College held its full complement of trainees.



Some of the Crew of H.M.A.S. "Australia"

The following is an official sketch of the fleet's work to the winter of 1916:—

"Although the work of Australian warships during this second year of the war has been less spectacular than before, its importance and value to the Empire have in no way diminished. In naval war, just as in land wars of the older type, fighting occupies a comparatively small part of the war's duration. During the wars with France from 1793 to 1815, for instance, the number of engagements—even counting engagements between single ships—averaged about one per year. The real work of the navy, persistent, arduous, usually monotonous, is blockading, patrolling, occasionally convoying; preventive rather than destructive, and in this sort of work Australian ships and crews have for the last year taken their full share. In most cases the work has been done in tropical climates; it has produced few palpable results in prizes or ships destroyed; it has necessitated long periods of continuous steaming at sea, apparently objectless sentry-go, which try both ship and crew more severely than does the excitement of actual fighting. But a fence is all the more satisfactory when nobody tries to climb it, and the patrol devoid of incidents is probably all the more effective.

"H.M.A.S. *Australia*, which reached England on 28th January, 1915, and was at once attached to the Grand Fleet in the North Sea, has since then been engaged in assiduous patrolling as flagship of Vice-Admiral Pakenham, in command of the second battle-cruiser squadron. She was by ill-luck unable to take part in the Jutland battle.

"The two light cruisers, H.M.A.S. *Sydney* and H.M.A.S. *Melbourne* have been engaged on more varied service. They were attached, on arriving in European waters, to a squadron under the command of Vice-Admiral Patey, and have since been employed in patrols and investigations, which have taken them as far south as Monte Video, and as far north as Halifax, in Nova Scotia. This has meant not only an unusual amount of sea time but life in climates varying, often sharply, from the cold of a Canadian winter to the perpetual moist heat of the Gulf of Mexico—by the end of last year, for instance, the *Sydney* had steamed well over 100,000 miles during her commission, nearly three-quarters since the outbreak of war. More than half of the *Sydney's* sea time has been spent in the tropics. When the course of events admitted of it, the two ships paid visits to several British possessions in the Atlantic and the Gulf.

"While the two newest cruisers were on this duty in the Atlantic, H.M.A.S. *Pioneer* was engaged in somewhat similar work in the Indian Ocean. She was attached to the squadron that blockaded German East Africa, and took an active part in many of its more exciting opera-

tions. From the time of her arrival off the African coast she was employed, in company with other ships, in watching the mouth of the Rufigi River, up which the cruiser *Konigsberg* had taken refuge, and when, in July, 1915, the monitors sent out from England entered the shallow river, and succeeded in blowing up the enemy ship, the *Pioneer* was employed in shelling German land defences at the river mouth. Later on she visited Capetown, and has since been used on regular patrol work, also taking part in several visits to, and attacks on, coast towns in the German colony.

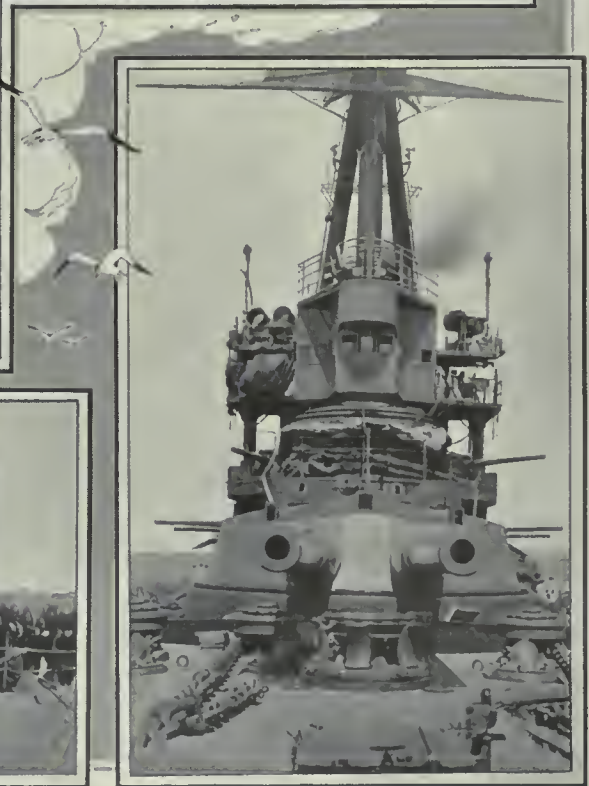
"The remaining ships of the squadron—H.M.A.S.'s *Encounter*, *Warrego*, *Parramatta*, *Yarra*, and *Una*, along with the *Psyche* and *Fantomé*, temporarily attached by the Admiralty to the Australian Navy, and manned by Australian crews, have been effectively and continuously employed nearer home in guarding the routes by which Australian trade and Australian convoys traverse the neighboring oceans. In the course of this work they have covered huge mileages, mainly in tropical waters, under conditions of much discomfort. They have entered many harbors previously little known and rarely visited, and thus have added to the world's permanent stock of maritime knowledge.

"Besides the warships of the squadron the Navy Office has under its charge many other ships, a fleet of transports, and another of cargo vessels, as well as colliers, oil ships and supply ships for the use of the fighting fleet. Of these naturally little can be said except that they have throughout the year performed their allotted duties steadily and well. Besides carrying to the various seats of war the several Australian contingents—men, horses, and gear—the transports have carried to Europe Australian products—wool, wheat, meat, etc.—to the amount of 180,000 tons. Another 85,000 tons have been carried in the cargo vessels. The Commonwealth indeed has become the biggest shipping firm in Australia. It employs a total tonnage of about 680,000, and uses for its ships other than warships during the year more than 420,000 tons of Australian coal. The ships recently purchased by Mr. Hughes will add to the work done in this direction.

"The whole of this mass of traffic has moved securely through the oceans under the protection of the Imperial Navy, whose squadrons imprison the German High Seas Fleet, deny to German trade the Atlantic trade routes, blockade German coasts in the Indian Ocean and keep the western Pacific free from German raiders and gun runners. In each of these tasks some Australian warship is taking its part as usefully and creditably as, if less conspicuously than, Australian troops are taking theirs in the war on land."



AUSTRALIA'S NAVY





Infant Public School, Sydney

STATE EDUCATION IN NEW SOUTH WALES.

AT the end of the year 1913, Mr. Carmichael, Minister for Public Instruction in New South Wales, enlightened the public with some highly interesting facts.

"The outward and visible signs of educational progress," said Mr. Carmichael on this occasion, "may be seen in the new Education Offices, which are fast approaching completion, in the foundation of the Teachers' College now being laid within the University grounds, in the Conservatorium of Music, which is being remodelled in the Government House grounds, and in the hundreds of new school buildings of the most modern type, while others have been made more fitted for educational purposes by remodelling. Chief of the new schools are the new High School at North Sydney, and the new High School at Orange, while there is scarcely a suburb, and certainly no inspector's district, throughout the State where considerable sums have not been spent during the past year in making school buildings more fitted to conserve the sight, hearing, and general health of school pupils.

"Apart altogether from school buildings, the striking feature of 1913 is the remarkable growth of public interest in education. There has been an unprecedented increase in school enrolment, and a record attendance, which reflects in a remarkable degree the influx of population into this State. No other State within the Commonwealth can show anything approaching the increase in school population that New South Wales is able to show for 1913."

In order that those interested in international methods of education, as well as intending citizens of the Mother State, should know definitely how the educational activities of New South Wales are organised, the State Director of Education, Mr. P. Board, has kindly prepared a synopsis of the system, which the author of *Australia Unlimited* gratefully acknowledges.

Nowhere throughout Australia are the advantages of education underestimated, and nowhere are Australian children allowed to grow up in ignorance. It is greatly to the credit of these young States that successive Governments have made extended provisions for raising the intellectual standards of their communities.

There is probably no part of the British Empire, or, in fact, probably any part of the civil-

ised world, where so determined, and for the most part so successful, an effort has been made to incorporate education with the life of the people as in New South Wales. It is necessary to remember that the State has an area of 310,000 square miles, and a population of 1,856,000—that is about six people to every square mile. When it is considered that 763,000, or about three-eighths of the total population, are concentrated in the metropolitan area, approximately 12 square miles (1916), the difficulty of the problem of furnishing educational means to a scattered population may be realised. The two largest Primary Schools in Sydney have an enrolment of 1835 and 1786 respectively, while there are over a thousand schools scattered throughout the most remote parts of the country, where the attendance is less than 20.

New South Wales has shown a commendable activity in the provision of educational facilities for outback families. It is to these that the State Education Department holds out a helping hand. Wherever an average attendance of 20 pupils can be guaranteed the State erects a school building, equips it with furniture and apparatus, and supplies and wholly pays a trained teacher. If the attendance does not reach 20, but is more than 10, a school is established provisionally, under the same conditions, and is known as a "Provisional" school, alike in all respects to the Public school, into which it will be merged when the attendance increases to 20.

While the Education Department is thus prepared to establish a school where it is warranted, it is the policy of the Department wherever practicable to establish a "central" school, and convey the pupils to the school by vehicles, or—on the coastal rivers—by motor launch. For instance, instead of establishing a number of provisional schools four or five miles apart, one large school well staffed and thoroughly equipped is established. The children for miles round meet at specified places along the road, and are picked up by subsidised coaches, which are timed to arrive at school at 9 a.m. In the afternoon the pupils are conveyed to or within easy walking distance of their homes.

Occasionally two groups of children, perhaps five to ten miles apart, may be found—not suffi-

cient to warrant a school being established in each, but conjointly more than sufficient. In such cases a "half-time" school is established, the teacher dividing his time between the two schools. So keenly alive are these bush children to the advantages of education that many of them attend both schools. Then there are cases when the families are even too scattered to be gathered into two such groups. If the residents of a locality are prepared to provide a suitable

Quite recently it was discovered that there were children out in the West who were not able to take advantage of any of these opportunities. The Education Department thereupon equipped a van or caravan with school material and furniture, placed a specially-selected teacher in charge, and started him out on a kind of gipsy, or rather missionary, circuit. The teacher would drive his van up some mountain gully till he reached the isolated home of a selector. Here he would pitch



A Kindergarten Class

room, an itinerant teacher is appointed, the State again supplying the necessary text-books and materials. This itinerant teacher moves from house to house, from which the name "house-to-house" schools is derived. If a resident in a thinly populated locality, with a family of not less than four children, or for the matter of that, two families of two or more children each, care to engage a tutor or governess, the State subsidises the salary of such teacher to the extent of £5 per pupil in average monthly attendance up to a maximum of £50 a year, or in the Western districts £6 per pupil, with a maximum of £60. Even single children are looked after, for if the child has to be sent away from home because the parents are out of reach of any of the foregoing facilities for obtaining education, a "boarding allowance" is paid up to a maximum of £5 per year.

his camp, and for a week or so would gather the little bush children round him. Before leaving he would furnish them with books and other materials, and map out a course of instruction, promising to come back in four or five weeks and stay another week. Then the horse would be hitched to the van, and, no doubt to the regret of both children and parents, would move on to the nearest selector some miles away.

Again, there is a great deal of railway construction in progress in New South Wales, and the navvies make camps near their work moving onwards as the railroad is made. To give the children of the railway builders educational opportunity, the Department of Public Instruction provides a portable school, which moves on with the railway camp.

In the settled districts there are modern schools equipped with all the newest educational ap



Sydney Technical College and Museum



Conservatorium of Music, Sydney

pliances and staffed with trained teachers, that will compare favourably with schools in any part of the Empire. It is obvious therefore that whether a family resides in the heart of Sydney, the eighth largest city in the world, or way out in what is sometimes humorously described as the "back o' sunset," every child is the object of the State's educational care. In fact, every child between the ages of six and fourteen years residing within two miles of a public school is compelled by law to attend for a specified number of days in each year.

At the close of 1915 there were 2640 State primary schools in operation, attended by 227,546 pupils, and taught by 6,511 teachers. The total cost of education for the year was over a million and a half. There is no local educational rate, the whole cost being borne by the Government out of ordinary revenue. Everything is absolutely free. Not only are no fees charged, but the pupils are supplied with most of the necessary school material, such as readers, writing tablets, etc., without charge.

SECONDARY EDUCATION.—The State provides the means of Primary Education for the child of every man in the State, and if the pupil has sufficient ability to take proper advantage of it every child may proceed to a course of Secondary Education leading right to the University. The open door of opportunity stands wide. The only passport required is ability. High Schools have been established in Sydney, and in several country centres no fees are charged. By means of a system of certificated examinations all pupils, whether resident in the city or in the country, are enabled to take advantage of these High Schools. An examination is held at the close of each year, based upon the work done in the Primary schools. As a result of this examination a number of bursaries are awarded, giving assistance while attending a State High School. It is recognised that the pupil attending a large school in the city, with all the additional educational facilities, has a decided advantage over the pupil attending a little school in the country. In order to equalise the conditions, a number of the State bursaries are allotted for competition among country pupils only. A further distinction is even made in favour of pupils taught in one-teacher schools. The winner of a bursary receives a grant of 30/- in order to purchase books, and a money grant of from £30 to £40 a year, if, in order to attend the High School, the child has to board away from home. If, however, the pupil can remain at home he is given a free railway ticket to the nearest High School, and a grant of £10 for the first year's course, £10 for the second, £15 for the third, and £20 for the fourth year. During 1915, 300 of these bursaries were awarded.

It will be seen that every boy and girl throughout the State has the opportunity to obtain a thorough course of Secondary education leading right to the doors of the University. At the end of the fourth year's High school course the pupil may secure a leaving certificate, which under specified conditions as to the subjects studied gives admission to the University. The brilliant pupil of limited means is still the object of the State's fostering care, for under the University Amendment Act of 1912, two hundred University exhibitions are awarded, which exempt the student from payment of all fees. He may thus become a doctor, a dentist, a barrister, or an engineer.

It is obvious therefore that social or financial status is no bar to the advancement of the clever child of the poorest man in New South Wales. Primary education is brought to his door, in spite of the wide distances of Australia, and if he has the ability, he is carried on by means of bursaries to any of the professions—Medicine, Law, Engineering, Science or Education.

CONTINUATION SCHOOLS.—It is not given to every parent, however, to allow his child to remain at school to the age required for a University course, even with the assistance of State bursaries. For these the Day Continuation schools—or, as they are called in New South Wales, the "Superior" schools—still free—are open.

There are three types of Superior schools—Commercial, Junior Technical, and Domestic; the course in each case lasting two years. These schools are intended to prepare boys in some measure for the career upon which they are likely to enter. If a boy is to enter upon a business career he may attend a Commercial Superior school, where he is fitted for a subsequent training in office work by being taught such subjects as commercial arithmetic, bookkeeping, shorthand, office routine, and business principles. If, on the other hand, he is likely to take up a trade, or to engage in any other occupation that requires technical knowledge, with hand dexterity, he goes to a Junior Technical Superior school, where he is taught drawing, benchwork in wood and iron, elementary science, and trade arithmetic. At the end of the two years' Superior Public school course the boy from the Junior Technical school may enter a Trades school, which, in conjunction with his workshop experience, will turn him out a competent tradesman.

Girls after leaving the Primary school may enter a Domestic Superior school, where the course of instruction has been drawn up with the aim of fitting them to manage a home. In addition to continuing the girls' general education the course includes cookery, laundry, dress making, millinery, gardening, art and home



Junior Technical Class in a Public School

decoration, music and social exercises; while the second year course gives a practical training in business principles, for girls destined to enter upon commercial careers.

If, however, the pupil cannot remain at school, but has to enter upon some wage-earning occupation at the age of 14, provision is made for him to continue his education after working hours. Evening Continuation schools—Commercial, Junior Technical, and Domestic—have been established, in which the course is much the same as that of the Superior Public school, though necessarily not of so extended a character. These schools are held three evenings a week, and, like all other State schools, are free to everybody. At least, a fee of sixpence per week is charged; but if the pupil attends regularly, the whole amount of the fees paid is refunded at the close of the year, almost affording a means of compulsory saving! The object is to offer a premium for regular attendance.

It will be seen, therefore, that the State has made provision for almost every possible set of conditions. To the parent who can afford to allow his child to continue at school until he is 18, the University is open, or the boy is educationally fitted to enter upon some professional career. For those boys and girls who are only able to remain at school until they are 16 before becoming apprenticed or entering into business, the Superior schools make provision; while for the boys and girls who have to leave school when they are 14, the Evening Continuation schools will afford facilities for extending their education.

Then the Trades School and the Technical College provide opportunity for boys to become not only efficient tradesmen, but captains of industry.

The wide activities of the Department of Public Instruction in regard to the various forms of education afford numerous opportunities for entering the teachers' profession. Boys and girls who intend to become trained teachers have their path made very easy. By passing a competitive examination for "probationary students" at the age of 15 they are given two years free education in a High school, and during the second year are given an allowance of £12 if the student resides at home, or £30 if the student has to board away from home. They pass then by competitive examination to the Teachers' College, where they undergo a training of from one to three years. The majority remain at the Teachers' Training College for two years. During their course of training at the Teachers' College students are given an allowance of £30 if they remain at home, and £50 if they board away from home. At the completion of their period of training they are appointed as assistant teachers at a commencing salary of £110 per annum, increasing according to classification within four years to £186.

PHYSICAL EDUCATION.—The State makes provision for the mental development of the boys and girls of New South Wales, and the greatest care is taken to ensure a corresponding physical development. A part of every day is devoted to physical exercises, and one afternoon a week is set apart for organised games. Practi-

cally every school has its cricket, football, and tennis club, while swimming is part of the school curriculum wherever there are bathing facilities. Life-saving and First Aid are taught in many schools, while debating clubs, camera clubs, and kindred school associations are established at all the more important schools. Every school has its own library, and boys are encouraged in a taste for healthy, wholesome literature. In Sydney, Newcastle, and some of the other large centres, an annual display of physical drill is one of the most popular entertainments of the year. In Sydney a voluntary association of teachers under the name of the Public Schools' Amateur Athletic Association has for the past 25 years organised school competitions in various sports, and has

while they do not attempt to prescribe for any ailment, the defects noticed, particularly in connection with eye, ear, nose, throat, and teeth, are pointed out, and the parent advised to secure immediate medical assistance. Where it is found that the indifference of parents has resulted in no action being taken, a school nurse visits the home and personally impresses upon the parent the necessity for immediate action. During the past two years arrangements have been made for Travelling Hospitals and Dental Clinics for the purpose of treating children whose ailments had not received attention under the arrangements already described. The Travelling Hospital visits country towns and remains in each sufficiently long to treat the ailments of children re-



Hawkesbury Agricultural College

furnished an annual spectacular display of physical drill. The schools have been associated in this way with some of the most notable recent events in Australian history. For instance, at the inauguration of the Commonwealth, at the time of the visit of the American Fleet, and on Empire Day and Coronation Day, spectacular displays were made which embodied in some form the event that was being commemorated. These displays are attended by enormous crowds.

MEDICAL INSPECTION.—The child's physical welfare is safeguarded by regular exercises, and a system of medical inspection has recently been instituted, revealing to many parents unsuspected ailments in their children, which undetected would have involved a life-time of misery. The school doctors visit the various schools periodically, and

vealed by the medical inspection which had not received attention by other means.

“GO ON THE LAND.”—Recognising that agriculture must always be an important factor in the national life of any new country, the Education Department at all times endeavours to induce boys to go upon the land. At almost every country school there is an experimental plot which is used both for horticulture and agriculture. Many of the schools have miniature farms in the playground, and Nature Study forms an important part of the ordinary Primary School curriculum. For some years the Public schools forwarded an exhibit to the Royal Agricultural Show held annually in Sydney, which was intended to show that the operations of the school garden were not meant so much to produce prize flowers

and vegetables as to show the educational processes underlying the treatment of the subject.

Another important phase of the Department's work in connection with agriculture is the institution of Rural Camp schools for city boys. These Rural Camp schools are held in centres of agricultural settlement, and the co-operation of the farmers is readily given. Usually the Rural Camp school consists of 12 boys and a teacher from each of twelve schools. The Education Department provides tents, food, camp outfit, and so on, each pupil contributing a sum varying, according to the distance travelled by rail, from 7/- to 10/-. This amount covers railway fares and all expenses while in camp. The camp lasts a week, during which time the boys are initiated into the actual working of the farm. They take part in the various operations—milking, ploughing, haymaking—according to the season of the year, and the result has been a quickening of agricultural interest in the minds of boys who

without these school camps might never have seen a farm.

There is an Agricultural High School at Hurlstone, near Sydney, at which boys of 14 and upwards undergo a two years' course of study preparatory to entering the Hawkesbury Agricultural College, or one or other of many experimental farms scattered throughout the country.

It will be seen from the foregoing statement that the principle of "equal opportunity" underlies the whole of the State educational system.

In addition to all this, the State has extended its Agricultural College education to provide cheap agricultural training for a large number of boys, British and Australian.

These Farm Apprentice schools are carried out in connection with the State Experiment Farms. At these schools boys are trained as farm labourers, and are given sufficient instruction to enable them to go on the land when age and opportunity permit.



Field Work at Hawkesbury College



Sloyd Woodwork Class, Victoria



A State Infant School, Auburn, Melbourne

STATE EDUCATION IN VICTORIA.

AMONG the nations, Australia presents the unique spectacle of a continent, 2,400 miles long and 2,000 in breadth, where the people speak the same language without a single provincial dialect, and where the percentage of illiterates is comparatively much lower than over any corresponding area of the earth's surface. If we have not yet attained the ideal of an educated democracy, we can still reflect with pardonable pride that the foundations have been well and truly laid. In the matter of elementary instruction at least we can confidently challenge comparisons.

Taking New South Wales and Victoria as examples, it can be seen that education throughout Australia is regarded as a most important national institution.

A sketch of the rise and progress of education in Victoria, the first Australian State to institute a system of free, secular, and compulsory public instruction, must, to be intelligible, take into account the earlier developments of education in the parent State of New South Wales. At a time when that State included what are now Victoria and Queensland, the education system was begun under the auspices of the various churches by means of grants from the State. Then came the appointment of a Board of National Education (1848), and the establishment of certain national schools in common with the existing

denominational ones. In 1850, the year before the colony of Victoria was formed, New South Wales had 43 national and 184 denominational schools in operation. It was not till 1867 that the parent State entrusted the control of public education to a Council empowered to expend all moneys appropriated by Parliament for primary education. The Council was permitted to grant aid to denominational schools, but this principle was not favored by a majority of the people, who felt that the work of public instruction ought to become a department of the Government, and be placed in the hands of a Minister directly responsible to Parliament. Accordingly the Act of 1880 made the New South Wales system wholly undenominational, and wholly free except for a fee of threepence a week (repealed in 1906).

In Victoria, the dual system, national and denominational, was in force from the time of separation (1851), until 1862, when the Common Schools Act dissolved the two Boards, and set up a Board of Education consisting of five laymen. School fees were charged, varying from sixpence to half-a-crown weekly. But the Board system was unsatisfactory, and the memorable Education Act of 1872 established a Department of Education and instituted the principle of free, secular, and compulsory education, which has been maintained in its integrity to the present day. The

landmarks of educational progress since that time have been the abolition of the plan of payments to teachers by "results;" the provision of a permanent head of department with the title of Director; the periodical tightening of the regulations enforcing attendance at school; the passing of statutes establishing on the one hand kindergarten schools, and on the other high schools and technical schools (including schools of domestic arts for girls, high schools, agricultural high schools, and higher elementary schools for both

When pupils are nearing the completion of their elementary-school course, which, in normal circumstances, ends when they attain the age of fourteen, the attention of their parents is directed to various types of intermediate schools which have been provided for the purpose of giving some suitable educational approach to their future vocations. Elementary pupils may obtain at the age of twelve a Qualifying Certificate which will enable them to enter either a junior technical school or a high school. Thus the system of



Victorian State School Gardens

sexes, and junior technical and technical schools for boys); the more efficient training of teachers (aided greatly by the bringing about of closer relations with the Melbourne University by means of free studentships admitting to the course for the Diploma of Education, and of other concessions with regard to the courses in arts and science); the enforcement of the registration of private schools, with its corollary of periodical inspection by State officers; the provisions for physical culture and military training in elementary schools and high schools (brought into actual practice by a wise co-operation between the Education Department of the State and the Defence Department of the Commonwealth), the establishment of an advisory Council of Education, the members of which represent the University, the great public schools, and the State technical, high, and elementary schools; and last but not least, the institution of a system of physical examinations of pupils by a staff of school medical officers.

The report of the Victorian Minister of Public Instruction for the year ended 30th June, 1916, showed that there were over 2,000 elementary State schools, as well as special schools for afflicted and delicate children.

intermediate education overlaps slightly the course of the elementary school. Those pupils who remain in the elementary schools take a supplementary course till they qualify for the Merit Certificate, obtained in their fourteenth year.

Junior technical schools are worked in conjunction with the senior technical schools. The course of instruction is, for the first two years, of a general character, fitting pupils for further technical work. Third-year students begin to specialize in the particular trade or class of work which they intend to take up. They then merge into the classes of the senior technical school.

In the high schools, a four years' course and a six years' course are provided. The first two years of the high school course is of a general character. At the conclusion of this, pupils are allowed to specialize in accordance with their future careers. Thus one section may take a course preparatory to University study, another to commercial work, another to agricultural work, and girls may take a special training in domestic arts, which includes dressmaking, millinery, needlework, cookery, laundry, housewifery, etc. No fees are charged in junior technical schools and high schools for pupils under fourteen years of age. Very small fee



Physical Training for Boys

Domestic Economy for Girls

State Education in Victoria.

are charged for other pupils, and there is provision for a remission of these fees and for making grants of books and apparatus under special circumstances. The State also provides a liberal system of scholarships for intermediate and higher education.

In connection with the elementary school system, there are established centres for special training, for example, woodwork centres, cookery centres, and schools of domestic arts. In woodwork and cookery centres, pupils from elementary schools attend for certain hours in the week, and return to their elementary school for instruction in other subjects. In the schools of domestic

arts, specialized instruction is given to girls in the last two years of their elementary-school course. In addition to the subjects English, geography and history, and arithmetic, the girls receive theoretical and practical training in household management, cookery, laundrywork, needlework, and personal and domestic hygiene.

The formation of the Schools Horticultural Society, with practical work in planning and planting, and the culture of flowers in the gardens attached to many of the State Schools in town and country, is also a pleasing portion of the special training devised for the children in their leisure hours.



Training College for State School Teachers, Melbourne

THE STATE SAMARITAN.

AUSTRALIA, the Benjamin of Nations, has been able to avail herself of all national experience. She may take the good and leave the bad. She is free to follow precedents or establish them.

In the boasting and rivalry of nations claiming the highest civilisation there has been much smoke of black materialism and very little true spiritual fire. After all, a nation's claim to greatness lies not so much in its armaments, or its trade, as in the sum of its contribution to the moral and intellectual advancement of the human race. For philosophy, Greece was weak in numbers, but her foundations are built below the tide of war; and for morality, the symbol of a wooden cross has overcome obstacles that might have resisted ten thousand swords of steel.

Australia has adopted a system of citizen soldiery, not for war, but that she may be enabled to enjoy the blessings of Peace.

In similar manner she has installed a system of State benevolences, not because she desires to encourage mendicancy, but in order to prevent it.

Recognise the rights of misfortune and you do away with charity. Where there is no merit in giving and no shame in receiving; where benevolence is not left to the judgment or caprice of individuals; where the State is the protector of the weak and helpless, every taxpayer naturally becomes a philanthropist.

Sentiments such as these are part of our political consciousness. State-applied humanitarianism is really the spiritual inspiration behind most of our later legislation.

Unlike our elder brother in Democracy we do not accord the Almighty Dollar perpetual reverence. We relieve our work with considerable play. Although we applaud merited success, we are not without sympathy for honest failure. This is our national philosophy. So convinced have we become of its righteousness that we are constantly extending its application.

In another section of this book, reference is made to Federal Old Age Pensions and Maternity Bonuses.

Apart from the benefits which each citizen of the Commonwealth is entitled to under these Acts, the different States devote large sums of

revenue to the care of the sick and aged, the young and helpless.

Most of the State capitals have several large and well-equipped Hospitals, and there is at least one in every important town or centre of urban population, the latter being often a Hospital and Benevolent Asylum combined. Special Hospitals for women, children, incurables and those suffering from consumption and from infectious diseases, also lying-in homes, dental hospitals, deaf-and-dumb and blind asylums, inebriates' sanatoria, lunatic asylums, and quarantine stations, are to be found in every State.

The number of General Hospitals (not including special institutions) in the Commonwealth in 1915 was 398, involving an expenditure of £1,280,461, the number of indoor patients alone attended during the year being estimated at not less than 179,829.

Of Benevolent Asylums in the Commonwealth there are (1915) about 25, either endowed by their respective State Governments, partly or wholly, or supported by voluntary contributions. In addition to the Benevolent Asylums, there are a number of benevolent and charitable societies which minister to the infirm and destitute in the several States. Of Orphanages there are 45, with several Industrial Schools and Reformatories; throughout the Commonwealth.

The few remaining aboriginal natives of Australia are protected by the various States (except Tasmania, where the aboriginal is extinct), and in the more closely-settled States, such as New South Wales and Victoria, they are cared for in Mission Stations, where they are housed and encouraged to work and their children receive elementary education. About £80,000 is spent by the States yearly on this account.

Some idea of the liberality with which the State Governments and the community generally respond to the call of charity may be gathered from the fact that, in a population of rather less than five million white people, the amounts furnished by Government and those raised by public subscription, etc., but excluding the old-age pensions and maternity bonuses, which are not given in the name of charity, considerably exceeds £3,000,000 annually.

Besides which there are Public Health Departments, Dental Boards, and State institutions for the purposes of vaccination, for the regulation of the sale of drugs and stimulants, for the prevention and spread of contagious diseases, and for the safeguarding of the public health against impure food and adulteration.

Under the portfolio of the Minister for Labor and Industry, each State administers its Labor Bureau, the Factories and Shops Acts, Minimum Wage Act, Early Closing Acts, Truck Acts, Apprentices Act, Workmen's Compensation Act, Saturday Half-Holiday Act, and the Industrial Arbitration Act, which may all be regarded as measures of remedial legislation. In the same category should be included the Shearers Accommodation Act and the Miners Accident Relief Act.

Each State has also institutions for the protection of girls and the correction of juvenile offenders.

The care of children who are dependent on the State through accident or misfortune is not left

to chance charity. It has been made a scientifically-organised State function.

Recognising that the herding of large numbers of children in foundling hospitals leads to all sorts of evils, Australia has adopted the boarding-out method.

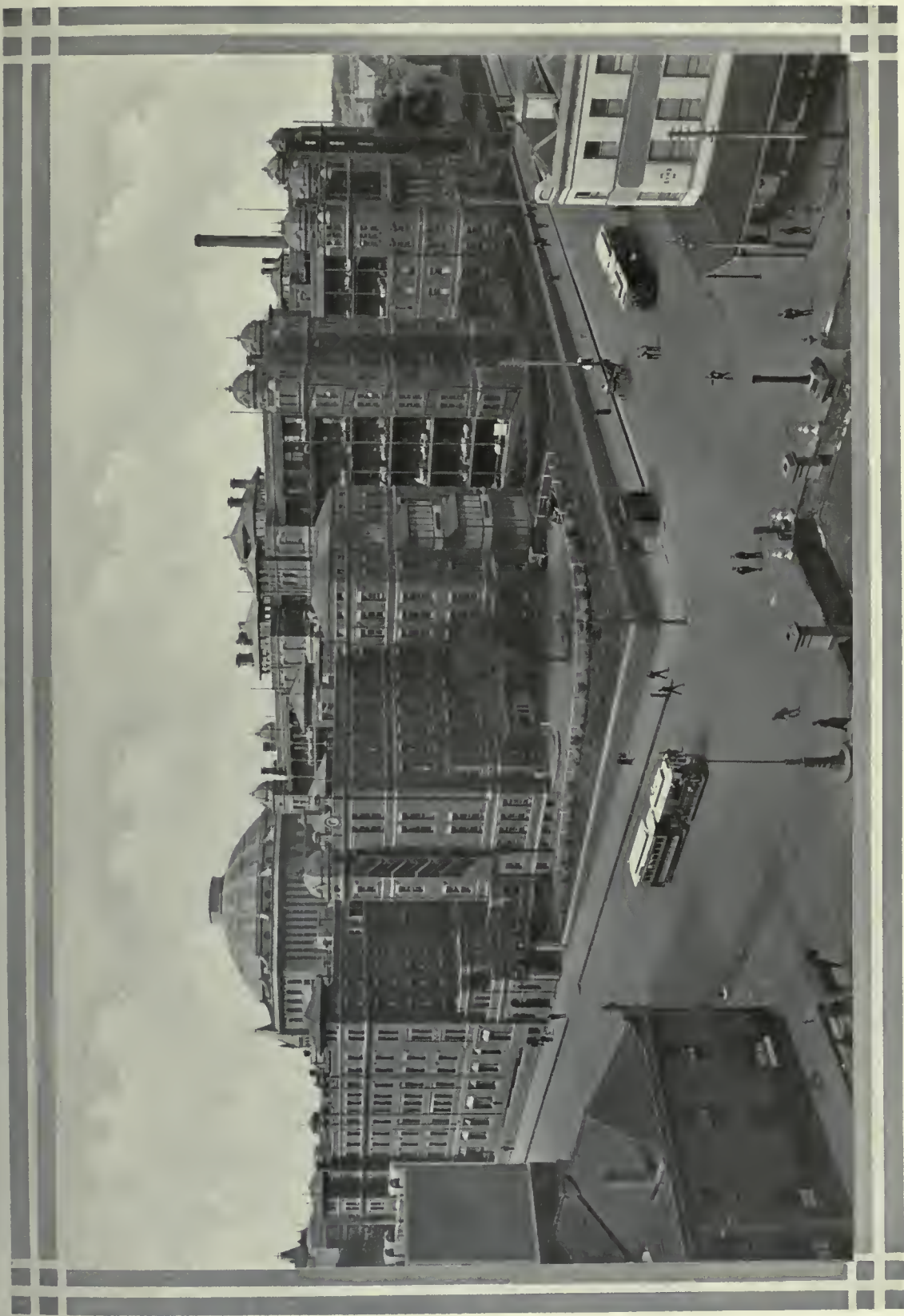
In 1895, under the barrack system, the total mortality stood at 105.9 per thousand. In 1911 this had been reduced to 69.49 per thousand—a proof that the improved methods of dealing with foundlings had led to a great saving of human life.

In New South Wales alone, of the 11,492 children under supervision for the year 1915, 6,612 were with their mothers. This humane system of affording relief to mothers on whom, through death or desertion, the whole care of a family may have been thrown, reflects credit on the community which has adopted it.

The supervision of State children is carried out by a staff of Departmental inspectors, to each of whom is assigned a district. There are three lady



One of the Wards at Sydney Hospital



Melbourne General Hospital

inspectors also, who are specially charged with supervision of the conditions of infant life, and who visit and inspect infants placed out apart from their mothers in the city and suburban areas.

while the wages are transmitted half-yearly to the Board's offices, and banked to the apprentice's credit.

One-third of the accumulated amount is paid to the children when the term of indenture has



"Cicada," Burwood, Sydney. State Home for Children

The homes are chosen for the children with a view to obtaining for them suitable supervision and training. Every applicant for a State child is required by law to present a form, which sets out the environment of the home. Each form must be endorsed by a magistrate and a clergyman, or other prominent resident. The home is inspected by an officer of the Children's Relief Board before children are sent, and subsequent supervision is exercised over it.

Payment for maintenance ceases when children are 13 years old. If physically fit they are then apprenticed under the provisions of the State Children's Relief Act.

When they have been indentured, children receive wages and pocket money according to a scale prescribed by the Act. The pocket money is paid weekly to the children by their employers,

expired, the balance remaining at interest until they attain the age of 21 years.

In rural New South Wales, taking the Mother State as a typical example, there are also thirteen Cottage Homes, eight of which are devoted to invalid and crippled children.

The Farm Home—which is composed of five of these institutions grouped at Mittagong—deals with truants and juvenile offenders committed from Children's Courts.

The Farm Home is largely self-supporting. The treatment, whereunder the younger lads are entirely separated from their elders, has been found most resultful in reforming and improving wayward and neglected children.

The policy adopted is—the shortest possible period of detention, compatible with good



NO. 4 HOME FOR BOYS MITTAGONG



TREE GRUBBED ON THE FARM HOME



EASTWOOD HOME FOR MOTHERS AND BABIES



NO. 2 HOME FOR GIRLS MITTAGONG



NO. 10 HOME FOR BOYS MITTAGONG



MITTAGONG SCHOLARS

Some New South Wales Government Institutions under the State Children's Relief Board



A Bedroom at "Cicada," Children's Home, Sydney

haviour, a strict insistence on school attendance, discipline, cleanliness, and obedience.

The institution is practically a technical school, where this class of youth is taught, in a healthful, pleasant way, a number of useful things.

A Government medical officer is in regular attendance, and a Government dentist visits the Home regularly every week.

State-supervised institutions for the preservation of infant life include the Babies' Hospital at Thirlmere, the Home for Sick Infants at Paddington, and the Home for Mothers with Infants at Croydon.

There are also probationary Farm Homes at Dora Creek and Toronto, for the treatment of boys who have been determined sexually depraved or mentally or physically unsound. The results are pronounced to be favourable.

Street trading by children under 16 years of age is controlled by the provisions of the Neglected Children and Juvenile Offenders Act. The minimum age at which a juvenile license for street trading can issue is 12 years in some occupations, and 14 years in others.

Girls are not allowed to engage in street occupations, and the moral welfare and education of the boys is strictly overlooked by the local authorities.

The exploitation of child labour is not one of the pillars on which our young democracy would rear the edifice of its industrial development. We can challenge the world in humane legislation. It is our universal hope and aim that, when our population has sprung from five to fifty millions,

the conditions under which they will labor and dwell shall be better than they are to-day.

In Australia at the present moment neither starvation, nor sweating, nor juvenile labor, nor illiteracy nor injustice, is tolerated. And what we have not done we are on the way to do.

In the State hospitals the very best medical skill, honorary in many instances, is free to inmates. Kindness and humanity, accompanied by organised service, are officially regarded as the need of the afflicted. Each year sees some further reform or improvement in the national system of aiding the weak and helpless. To protect women and children, to care for the sick and aged throughout Australia—this has come to be a recognised function of administration. No change of Government will alter this outlook. In fact, each succeeding Minister endeavours to add to the good work of his predecessor. Step by step we are building up a system of applied humanitarianism, which alone shall entitle us to march with the vanguard of civilised nations.

We pride ourselves upon this, as greatly as upon our riches and resources. Those who would become citizens of the Commonwealth will do well to remember that if misfortune or sickness overtakes them, they will find that in this country the rights of misfortune are recognised.

While the State, as Samaritan, bases its deeds of succour and consolation upon the soundest Christian principles, it avoids all semblance of charity and extends its strong arm for the support of the helpless, on the grounds of citizenship and necessity.



THE LATE THOMAS WALKER, OF YARALLA A PREMIER AUSTRALIAN PHILANTHROPIST

AS a philanthropist the good name and fair fame of the late Thomas Walker live thirty years after his death and will doubtless live in the grateful memory of future Australian generations. Blessed by worldly wealth, this fine citizen sought to apply his money for the benefit of humanity, not only in his own time, but for all time to come. One of Sydney's most successful commercial men of the nineteenth century, he built up a very considerable fortune, first as a general merchant, later as a banking and financial magnate. He was not a pastoralist in the strict sense of the word, but large pastoral interests came into his hands during the course of his career, and thus he became a power in the pastoral world.

Records of worldly success, be they ever so brilliant, are soon forgotten when those who have achieved them pass into the Great Silence; but

the memory of noble deeds and high achievements in the cause of Humanity is fortunately slow to fade. Great as the late Thomas Walker's donations to charities were while he lived, they were overshadowed by his legacy of the fine Convalescent Hospital so charmingly situated on the Parramatta River, near Sydney, which worthily perpetuates his name.

He was born at Springfield Place, Leith, Scotland, on May 3rd, 1804, being the elder son of Mr. J. T. Walker and his wife, Ann Walker, of Perth. He arrived in Sydney in 1822. He immediately entered the employment of Messrs. William Walker and Co., who carried on a business as general merchants at Battery Point, Sydney, Mr. William Walker being his maternal uncle.

Thomas Walker remained in the employ of his uncle's firm for many years. He displayed such



“Yaralla,” Sydney. The residence of Miss Eadith Walker

marked business ability that when the original partners retired, the business was handed over to Mr. Thomas Walker and a cousin, the London house being Walker Brothers & Co. They carried it on with high success. The enterprise, however, did not offer sufficient scope for a man of Mr. Walker's commercial talents, and he also devoted himself to pastoral pursuits. He secured large commercial and pastoral interests, one of them being a half share (with Sir Terence Murray) in Yarralumla station, now included in the Federal capital area. From the 'thirties until 1858, he was identified at different periods with other station properties.

With a wide diversity of interests, he had by the time he reached middle age accumulated a large fortune. His energy was intensified into genius, and he became the “live wire” in very many of the large commercial institutions of his day. He was a director of the late Australian Steam Navigation Company and other Sydney institutions. He had great pleasure in his later years in occupying the position, year after year, of President of the Bank of New South Wales, an institution in which he had long been interested. He took a deep interest in this in-

stitution, which was founded in 1817, because it was the first bank established in Australia that attained proportions worthy to be compared with not a few of the great monetary institutions of Great Britain and America.

When advancing years necessitated a slowing-down of his energies, he gradually withdrew from the directorates of the many financial institutions with which he had been actively connected, but he retained the position of President of the Bank of New South Wales to the day of his death.

Mr. Walker applied his wealth wisely, and delighted in acts of beneficence, donating during his lifetime many thousands of pounds to the relief of the suffering and in aid of various charitable enterprises. In April, 1882, just before he left for a short trip to the old country, he placed a cheque for £10,000 in the hands of his friends, Mr. Thomas Buckland and Mr. Shepherd Smith, to be distributed by them among certain benevolent institutions.

The gentlemen nominated carried out the task and the £10,000 was distributed among twenty charitable institutions in sums varying from £100 to £800.

Mr. Walker's main claim to the grateful remembrance of his country is to be found in the convalescent hospital which bears his name. It is built on the Parramatta River, adjoining his old home, "Yaralla." This memorial to a high-souled Australian citizen stands alone. It is singular, everlasting, a national gift of eternal value. It had been the philanthropist's dream to carry out the work himself; but, fearing that he would not

"With a view to enable them to do so, I hereby direct my trustees to appropriate and set aside out of my estate not less than £100,000, for I assume that this sum may be sufficient for the building and maintenance of the hospital I have in view to establish. . . . My idea is that the hospital and other buildings connected therewith should be erected on that part of my land known as Rocky Point on the Parramatta River."



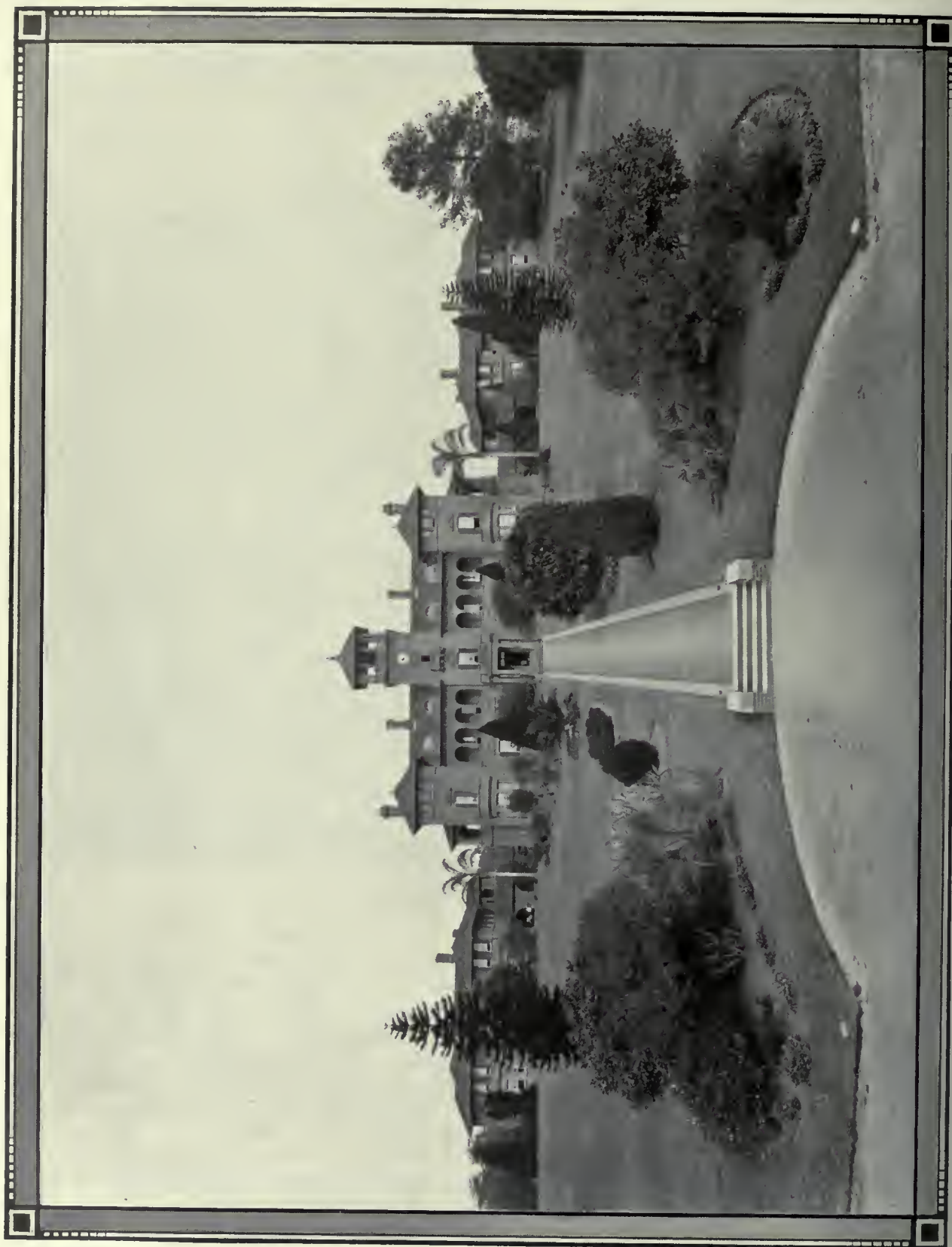
The Entrance Hall, "Yaralla"

live to see it accomplished, he explained what was in his mind fully in a codicil to his will, of which the following is an extract:—

"For a considerable time past I have had it in my mind to establish on part of my land here (Yaralla) a hospital on a somewhat extensive scale for the reception and restoration to health of convalescent patients from the hospitals of Sydney and elsewhere. But the pressure of other claims on my time has prevented me from carrying this project into effect.

"Should this still be the case at the time of my death, then I enjoin the trustees of my will and my daughter to accomplish my design as soon after my decease as it may be practicable to do so.

The trustees of the estate and Miss Eadith Walker, his only child, were called upon to carry out the noble project. Our illustrations show how ably and faithfully they performed that duty. The hospital is unique in design, situation and management. It is only in name that it is associated with other hospitals. The founder's idea—liberally interpreted and amplified by those who carried it out—was to provide a home where recuperating invalids could rest as the guests of the institution, while regaining health under perfectly ideal and beautiful surroundings. So artistically and liberally was the whole scheme carried out that even the magnificent sum set apart by Mr. Walker (which, by the way, did not include the cost of the land, a valuable Point jut-



General View of the Thomas Walker Convalescent Hospital, Sydney



Dutch Tower on the Wharf.
Thomas Walker Convalescent Hospital.

ting out into the Parramatta River) was insufficient for the building and endowment, if the plans prepared by Messrs. Sulman and Power, the architects, were to be completed in harmony with the design. Additional amounts were at once made available by the founder's daughter with affectionate loyalty to her father's high intent in the good work—the late Miss Joanna Walker and Mrs. Annie Sulman (*nee* Masefield) also taking part. The total expenditure was £150,000, with the sums invested for the maintenance of the hospital, i.e., about £5,000 per annum. The site indicated by Mr. Walker at "Rocky Point" was chosen out of the "Yaralla" property. About thirty acres are included in the hospital grounds. In front of the beautifully laid-out gardens is a landing-stage, at which the river-steamers call. A quaint Dutch water-tower has been erected with a cosy waiting-room, and above it a smoking-room.

The central or administrative hospital building contains the matron's apartment and offices, doctor's office, dispensary, board-room, library and waiting-room. Beyond this is the entertainment hall, connected by a broad vestibule leading to the two wings set apart for female patients on

the left and male patients on the right of the administration buildings. The entertainment hall seats 200 persons and is handsomely ornamented. It is lighted by specially designed and exquisitely painted windows, and has over the entrance a small gallery and at the opposite end a raised platform. Here concerts and other amusements are arranged for the patients, and occasionally the matron and nursing staff invited their friends to a dance, prior to the War.

The Joanna Walker Memorial Cottage Hospital for children is built on the same property, a little to the left of the women's wing. The late Miss Joanna Walker, sister to the philanthropist, was always most interested in promoting the comfort and welfare of children. Her residuary legatees provided a children's cottage and increased the usefulness of the main hospital, as it allowed the portion previously devoted to juvenile patients to be added to the accommodation for females.

The Thomas Walker Convalescent Hospital is absolutely unsectarian. It has, during nearly a quarter of a century, brought sunshine to many a weary heart. It completely fulfils the intention of its benevolent founder, which was to allow

patients discharged from the hospitals, and other convalescents, to spend a little time recuperating their health in ideal surroundings before taking up again the burdens of life. Thousands who have regained their health look back upon their fortunate sojourn upon the quiet river, with pleasure and gratitude.

The late Mr. Walker wielded a great power in the financial world of Sydney in his day, but always had a constitutional dislike for active politics. Hence he did not gain that more showy popularity which the politicians of his period enjoyed. New South Wales has probably cause to regret that Mr. Walker did not enter active politics. Had he obtained a position in politics corresponding to that he achieved in commercial life, his genius would undoubtedly have proved invaluable to the colony of New South Wales.

The stand he took upon the land question showed that he had more than ordinary knowledge of the subject. His letters and pamphlets addressed to the Legislature, and later to the people of New South Wales, displayed great intellectual vigor and absolute fearlessness.

Mr. Walker's idea, from which he never wavered and which he urged with great earnestness, was that a system of agricultural areas should be established. He held unswervingly to the conviction that in sanctioning free selection before survey all over the country Sir John Robertson's Act did irreparable injury to the pastoral industry and to the State. Had the policy he advocated been pursued, it is contended by his modern disciples that "the Governments of modern times would not have had to resume at enormous cost the big pastoral holdings, bought in the first instance in many cases for a mere song, and which have been required for closer settlement during the past decade."

Mr. Walker looked forward to a time when the value of the land would be enormously increased. He urged that it should be held by the Government and let at a fair rental for grazing purposes, and such as was suitable for agriculture sold from time to time at full and fair prices. In one of his pamphlets addressed to the people of New South Wales he declared that twelve million acres of our best lands had been "thrown away"—entailing a loss of as many millions sterling, at the very least. He wrote:—



The Joanna Walker Memorial Children's Cottage Hospital

"Have you eyes that see not and ears that hear not, or are you asleep, or is it that you are all so engrossed by the pursuits you are individually engaged in, that matters of general concern, be they ever so momentous, are allowed to escape your notice? I am led to ask these questions from seeing that you appear to be unconscious of the great wrong that is being done you by those to whom the care and management of your magnificent landed estate is confided. That grand estate is of far greater value than the rest of the

and fair prices proportionate with their respective values—these being modes of procedure consistent with reason and common sense—the bulk of your estates are let in large areas at low and quite inadequate rates of rent, and for such brief terms and on such other unfavorable conditions as render it impossible for the tenants to afford a higher rent; and all the better part of it so placed at the disposal of a limited and specially-favored class of people that they may pick out the choicest morsels they can find and purchase



In the Garden at "Yaralla"

property possessed by you as a community, and if rightly managed should suffice to provide for almost all the proper expenses of your government, and so relieve you of the heavy burden of excessive taxation. Yet you are torpid and inert whilst this property of inestimable value and importance is being devastated and given away. You are being thus robbed of all the advantages to which you as owners thereof are entitled, and which would be yours were the property managed by honest agents having common sense.

"Instead of the most part of this estate being *ad interim* let for grazing purposes at full, fair, and reasonable discriminating rates of rent which would provide an enormous and growing annual income to the State, and other portions of it suitable for agricultural operations being sold at full

the same at a very low fixed uniform price, payable in minute yearly instalments during a long period of time; such price being far below the value in the market of the land thus parted with, which of course varies in accordance with the special qualities and position of each portion respectively.

"The scant and altogether incommensurate amount of money thus obtained is almost wholly absorbed in maintaining a vast army of administrators which, conveniently for the purposes of the government, is called into existence and kept fat by this pernicious system of dealing with your property.

"In this wantonly wasteful and destructive way upwards of twelve million acres of the best of your land have already been thrown away; en-

tailing upon you a loss of as many millions of pounds sterling at the very least."

Referring to the evils of the land legislation of New South Wales, Mr. Walker was of opinion that "if any private person were found dealing with his property in such a way as this (that is, by the State), he would most certainly be treated as a lunatic; and were a trustee for others to act in such a way he most

been proved by dour experience, made a great mistake, however good his intentions may have been."

In his last appeal to the people of New South Wales on the land question (dated from his home at "Yaralla," Concord, in September, 1884, two years prior to his death) Mr. Walker wrote:—

"Actuated by a desire to be of use to the community of which I have so long been a member, and to which, in the course of nature, I must soon say farewell, I have in numerous printed letters laid before the members of both Houses of Parliament representations regarding this important matter, which I hoped might be useful. But I am sorry to say—except that I have been told by very many members that they entirely concur with my views—these letters have not been productive of any appreciable effect. They have been as if addressed to hungry wolves in sight of their prey. In these I have attempted to set forth the true state of the case, and I now take a final leave of the subject, hoping and trusting that such a settlement of this important matter will yet be made as will be the most beneficial to the community as a whole."

Of such firm and fearless thought was Mr. Thomas Walker, broadminded, benevolent, rich in heart and soul as well as in worldly possessions. He left Australia his debtor for national convictions fearlessly spoken, for noble gifts of mind and heart and hand.

It should be mentioned that Mr. Walker was a member of the old Legislative Council of New South Wales prior to the granting of responsible government. With others he voted for the severance of Port Phillip from New South Wales, and was one of the first four members (the Rev. Dr. Lang being another) who afterwards were elected to represent Port Phillip in the Legislative Council, and, of course, resigned membership on the erection of Victoria into a separate colony.

A wise man, a far-seeing man, a capable man: after a good life lived, by his high intent is still poured out daily a gracious oil of human kindness to salve the wounds and soften the sorrows of his less-fortunate fellow-citizens.

His opportunities for doing good were more than usual. He made unusual use of them to help and heal the afflicted.

Australia, free, humane, and enlightened, holds and will hold the memory of the late Thomas Walker in reverence and high regard. He died on September 2nd, 1886, in the 83rd year of his age.



"Yaralla" (Entrance Front)

assuredly would be held personally liable and, as a fraudulent agent, subjected to condign punishment.

"The original cause of all these evils is doubtless the Land Law of 1861, which was enacted, it is said, in a fit of passion, and most certainly passed in the absence of sound judgment and ordinary foresight at the instigation of a statesman who, in this instance at all events, as has



George Fife Angus,
The Father of South Australia

THE ANGAS FAMILY.

PIONEERS, PASTORALISTS AND PHILANTHROPISTS.

THE "Province" of South Australia has always prided itself upon the purity and probity of its citizenship. High philanthropic and economic ideals were embodied in its beginnings. Wakefield was associated with its formation. Among its earliest pioneers were men of the Pilgrim Fathers' type, men of stern uprightness, such as those who, for conscience sake, journeyed overseas with William Penn.

Pre-eminent among them stands the name of George Fife Angus, who would be a historical figure in any country, whose life was the life of one of the world's successful men, whose memory will long endure as the actual Father of a free Colony in the South.

He was born at Newcastle-on-Tyne, England, in 1789. His father was a coach builder and

shipowner in a large way of business, claiming descent from the Earls of Angus, who played their vigorous parts in Scotch history.

In the year 1804 George Fife Angus, then aged 15, was apprenticed to his father's business, in which he soon developed a great proficiency. Philanthropic work must have appealed to his imagination very early in his career, for we find him at eighteen successfully organizing "The Benevolent Society of Coachmakers," in his native town. At twenty he was an overseer in his father's factory, at 24 he married.

Our chief interest in his career lies in his connection with the South Australian Company, which established the first settlement in that colony and laid the foundations of its prosperity. In 1829 Mr. Robert Gouger was inspired with

the idea of founding a British colony on the southern coast of Australia on the system propounded by Edward Gibbon Wakefield. When, early in 1832, Mr. Angas received a prospectus of the proposed company he at once expressed his willingness to take up as many shares as would qualify him to become a director. He was elected, accordingly, as a member of the provisional committee.

His first action in this capacity was to enter a protest against paupers being sent out as settlers. He also expressed the hope that the appointment of a Governor would be left in the hands of the Company until the population had reached 10,000 and a Legislative Assembly had been established.

When the colonisation scheme had been further considered, Mr. Angas put his ideas into more definite and detailed shape. His programme comprised the following distinctive points:—1.—The exclusion of convicts. 2.—The concentration of the settlers. 3.—The taking out of persons of capital and intelligence, "and especially men of piety." 4.—The emigration of young couples of good character. 5.—Free trade, good government, and freedom in matters of religion."

We next find Mr. Angas promising Mr. Gouger that he would act upon the Board of the South Australian Association formed to carry out the provisions of the South Australian Bill which, in 1834, had been passed by the British Parliament, after considerable opposition, eventually overcome by the Duke of Wellington. On May 5th, 1835, Mr. Angas was gazetted one of the eleven Royal Commissioners, the chairman being Colonel R. R. Torrens, whose Land Act was to make his name prominent in the annals of Australian history, while the secretary was Rowland Hill, of penny postage fame.

To meet the conditions in regard to purchase of land in the proposed colony, Mr. Angas suggested the formation of a Joint Stock Company. His idea was to "establish a collateral company to purchase the required amount of land, to employ the emigrants, and to provide the capital necessary for the working of the Colonial Government," frankly expressing his belief that unless these objects were accomplished the project of the new settlement would assuredly prove a failure. His fellow-commissioners, however, did not agree with him. The affairs of the association reached a deadlock. The disappointing situation did not, however, deter Mr. Angas from further effort in this direction, with the result that he succeeded in securing, by September 29th, of that same year, a capital of £20,000 subscribed by himself and four others, wherewith to start "The South Australian Company," which was to

make the establishment of the colony practicable. About a fortnight later the capital of the company was increased to about four thousand shares of £50 each, making up the sum required by the prospectus to justify the Directors in proceeding. Mr. Angas was elected chairman. His position as a director in the company necessitating his resignation as a Commissioner, the Government, at Colonel Torrens' request, allowed him to retain his seat for three months—long enough for him to see all the preliminary measures required by the Act completed. Among the directors also of the company were Raikes Currie, Charles Hindley, John Pirie, John Rundle, and Henry Weymouth, all of whose names were in due time perpetuated on the principal streets of the new city of Adelaide. Mr. Robert Gouger officiated as secretary.

Mr. Angas continued to influence men of capital in the big cities in this new pioneering Company, and in forcing the Government to facilitate the despatch of the first settlers, which the Commissioners seemed unable to effect. His shipping interests also helped him in this task. For many weeks he worked hard in fitting out three vessels with emigrants, provisions, and live stock for the new colony. On February 22nd, 1836, one month after the legal formation of the Company, the *John Pirie* set sail, followed two days later by the *Duke of York*, with Mr. Samuel Stephens, colonial manager of the Company, and other officers and servants, taking with them very complete instructions prepared by Mr. Angas relating to banking, ship and boat-building, commercial and shipping affairs, whaling and fishing, the erection of houses and warehouses, wharves and dockyards, the charge of stores, the working of mines and quarries, flour, saw, and other mills, and many minor matters. The third vessel was the *Lady Mary Pelham*. Their destination was Nepean Bay, Kangaroo Island, and there the first South Australian colonists, who were of a very superior type, pitched their tents.

Negotiations between the Company and the Bank of Australasia, for the establishment of a branch of the latter in the new colony, having failed, Mr. Angas submitted to the South Australian Company a proposal for forming a bank outside of the affairs of the Company but working in its interests, and this being accepted, Mr. Edward Stephens was sent out from England as manager of the South Australian Banking Company, with a framed banking-house, iron chests, and the entire plant of the bank, together with bank notes, engraved in London, varying in value from 10s. to £10, and representing in the aggregate the sum of £10,000. Mr. Henry Kingscote was Chairman of Directors, and Mr. Angas

one of the directors. In 1867, the title of "The Bank of South Australia" was adopted.

Mr. Angas had already, in 1828, in conjunction with his cousin, Mr. Thomas Joplin, founded the National Provincial Bank of England. He was further to be intimately associated with the establishment of one of the most successful of Australian banks. In 1837 one of the directors of the Tamar Bank in Tasmania, Mr. Philip Oaken, went to England to negotiate with an English company for the sale of that bank, with the object of increasing its capital and extending its operations. He interviewed Mr. Angas and won his interest in the proposal, the outcome of their interviews being that Mr. Angas formulated a scheme for the establishment of the "Union Bank of Australia." Early in July that institution was formed, with G. F. Angas on the first Board of Directors.

His business interests in the colony were looked after at first by Mr. Flaxman, his confidential clerk, whom he had sent out from England for that purpose, but who became infected with the land fever then at its height. He bought largely in Mr. Angas's name and incurred heavy responsibilities which nearly brought his principal to ruin. Some idea of the boom may be gathered from the fact that this small community of 16,000 acquired nearly 300,000 acres.

Illustrative of the widespread character of Mr. Angas's colonising interests, it is interesting to note an occurrence which had an important bearing on the history of New Zealand, then to some extent colonised from New South Wales. He received a visit from a Frenchman, Baron de Thierry, whose brother had in 1837 gone to New Zealand and there possessed himself, by means of barter with the natives, of a large tract of country in the North Island. Mr. Angas gathered from the conversation that the French Government intended making a settlement there. He accordingly informed the Colonial Secretary, Lord Glenelg, who suggested to Mr. Angas the formation of a Joint Stock Company to promote a British settlement. Mr. Angas hesitated to take any interest in another colony; but the Government acted on his information and appointed Captain William Hobson, R.N., to proceed to New Zealand as "Her Majesty's Consul and as eventual Lieutenant-Governor," to propose to the Maoris to recognise Queen Victoria as their sovereign. He arrived there in January, 1840, and secured the adherence of the North Island chiefs to this proposal, taking possession of the South Island on the ground of discovery. Mr. Angas's information proved correct a few months later, when the British Consul politely but firmly informed a French expedition that they

were forestalled. The British Government was not unmindful of Mr. Angas's invaluable services in saving New Zealand for the Empire, and offered him first a knighthood and then a baronetcy, both of which he declined.



The South Australian Company

An interesting contemporary Souvenir of the First Board of Directors, January, 1836

George Fife Angas resolutely put aside all personal honor. He declined to allow his name to be used in christening the ports, towns, or physical features of the new colony of South Australia, although his memory has been since perpetuated in the naming of the town of Angaston, Angas Park, and certain streets and parks about Adelaide.

On many occasions during future years, his co-workers in Adelaide had urged Mr. Angas to join them there, but his numerous and important home interests made that impossible. It was evident, from the diary he kept regularly during his life, that South Australia occupied the first place in his mind. But he had many interests of a great financial value in the colony, including large tracts of country near Adelaide, and he recognised that these required some personal oversight, especially as the colony was suffering depres-

sion. So he decided to send out one of his sons. John Howard Angas, then only nineteen years of age, but already a man after his father's model, to represent him in the new colony and look after



The Hon. John Howard Angas

his large interests there. The young man, in company with his sister and her husband, Henry Evans, and their infant son, set sail on Good Friday, 1843, in the barque *Madras*. Mr. Angas's eldest son, George French Angas, an artist, and a friend of Landseer, went to Australia on a visit about this time, and made a great number of sketches and notes, which he ultimately published in his "South Australia Illustrated," "The New Zealanders Illustrated," and "Savage Life and Scenes in Australia and New Zealand,"

"A Ramble in Malta and Sicily," &c. He opened the first art exhibition held in the new colony, in 1845, and was for a time curator of the Sydney Museum.

Mr. J. H. Angas proved a wise and energetic steward of his father's interests. He had, before leaving England, studied and practised land-surveying, in which he became very skilful. He was also exceedingly tough and enduring physically, as he soon proved when he began pastoral life in the South Australian bush. When he arrived he found that property was selling for less than the cost of the title-deed two years before, homes were being let to respectable tenants rent free and Adelaide was half deserted. But his first year saw a definite turning of the tide. Governor Grey's policy of encouraging people to settle on and cultivate country lands rather than herd together in the city was beginning to bear fruit, and a bountiful season in 1843 was encouraging the farmers, the harvesting being greatly accelerated by a recent introduction of the Ridley reaping machine. What helped most, however, was the discovery that the colony was rich in mineral wealth. The opening of the Kapunda mine attracted population and revived trade and commerce, but it was to pastoral pursuits that Mr. J. H. Angas instinctively turned.

Although portions of the paternal property in the Barossa ranges was highly mineralised, he had his father's distaste for mining ventures. So, within a few days of his arrival, he found his way to the locality, then known as "The Surveys," in which was German Pass, then consisting of one house and two cottages—now the thriving town of Angaston. There, at the head station of Tarrawatta, in a pleasant valley heavily timbered with giant gum-trees, with the river Gawler flowing through it, some four miles east of Angaston, he made his headquarters, living in a stone hut of two rooms which, increased in size, is still standing. Later on he built the Valley House on the left bank of the river, and lived there for years an extremely busy and often wandering life, nearly always in the saddle, looking after his father's extensive and scattered properties. He was the pioneer pastoralist of that fertile district. He had, like most pioneers, exceedingly rough experiences, but laid surely the foundations of his father's and later his own exceptional prosperity.

He used Tarrawatta for depasturing stock, one of his successful speculations at this time being the taking over of a thousand head of cattle from the S.A. Company's property at Gumeracha to depasture, payment to be made in kind. Similarly flocks of sheep were obtained on the agistment system, payment being one half their increase and produce. Later on, when the Burra Burra



Lindsay House

copper mine was opened he did a big business in buying and breaking in bullocks for teams, opening a depot near Gawler.

In 1848 Mr. G. F. Angas found himself compelled by circumstances to resign from the Board of the South Australian Company, of which he was chairman, and which he had served so well for over twelve years. He was able, in replying to a resolution acknowledging his great services, to remind his fellow-directors that the new colony had a population of 33,000, and a public surplus of £15,000. Failing health again suggested to him the advisability of spending his remaining years—he was now sixty years of age—in South Australia. So, having sold out of all his many English interests, he set sail in the ship *Ascendant*, with his wife and youngest son, on October 3rd, 1850. In the same vessel, the British Government sent to Adelaide the important, indeed historic document of the New Constitution, granting self-government to South Australia.

A few days after landing in his adopted country, Mr. Angas was entertained at a public dinner, his hosts including some of the first settlers, who had gone out in the pioneer vessel and had dwelt in the temporary canvas town on Kangaroo Island. It was no mean compliment, and no empty one,

that the chairman paid him when in describing the early attempts to found the colony, he said that “after the first efforts were made the machine stuck fast, and but for George Fife Angas would have stuck there till the present moment,” a statement that received emphatic assent from the assemblage.

Those were proud and happy days for Mr. G. F. Angas. Here at last he beheld the settlement he had done so much in establishing. Now the population stood at 63,700, exclusive of 3,730 aborigines, 174,000 acres of land were enclosed, and 15,000 acres depastured by cattle and sheep. The public revenue was £280,000 per annum, showing a surplus of £40,000. Its import trade was £887,000 and its export £571,000, employing tonnage of 168,500, inwards and outwards. Wool exported was over 3¼ million pounds weight, while 44,594 cwts, of metal and 8,784 tons of copper ore had been exported during the previous year. “Nowhere,” says his biographer, “had greater changes and improvements been effected than in the Barossa ranges district and upon the extensive lands possessed by Mr. Angas. Through the judicious and farseeing management of his son, the wilderness had been made to blossom as the rose.”

He had barely settled down in his new home at



Collingrove House

Lindsay House, Angaston, when he was gazetted a member of the Board of Education and a Justice of the Peace. When the first Legislative Council under the new Constitution was elected, Mr. Angas was returned unopposed for the Barossa district. He soon found himself engaged in many a sturdy fight on the important public questions which came up for settlement. Somewhat conservative in his views he was not always on the winning side.

That he was still acceptable as a legislator was proved in 1857 when, in spite of his unsuccessful opposition to universal suffrage, he was elected a member of the Legislative Council by a large majority, in the first Parliament (of two Houses) elected under the amended Constitution. At the close of the first session he visited England for two years and on his return to the colony was escorted to his home by a lengthy procession, an address of welcome being presented to him. He was re-elected to the Council in 1865 but a year after was compelled by increasing infirmities—he was then nearly 80 years old—to resign his seat, when the House unanimously gave expression to the gratitude of the colony for his eminent services, even an old opponent declaring that he was always regarded as “a deep-thinking, clever man who never hesitated to declare what he thought was the right view and was never overawed by popular clamor.”

In his old age, he retained a good deal of his philanthropic enthusiasm, even in the comparative retirement he enjoyed at his beautiful home at Angaston. On December 28th, 1878,

he celebrated the forty-first anniversary of the founding of the colony by handing over to the authorities as a gift the Angaston Recreation Park of twenty-one acres. On the following 1st May he celebrated his ninetieth birthday and a fortnight later he died, leaving three generations of descendants. It may fairly be said of George Fife Angas that he made the founding of South Australia his life-work, emulating the example of his distinguished predecessor, Sir Joseph Banks, who for so long overlooked the interests of the Mother State of New South Wales.

Mr. John Howard Angas never made politics a principal interest in his life; but when his father, through increasing infirmities and old age, was unable to continue his political career, it was to his son that the public looked to carry on the family tradition. At first, J. H. Angas declined to enter politics, in spite of the flattering terms of a voluminous requisition—a roll of foolscap sheets of signatures about 14 feet long, which was addressed to him in 1868—asking him to stand for the Barossa electorate at the next general election. The second request from Tanunda, Angaston, and Gawler in December, 1871, he felt it unfair to decline. He was in due course elected by a very large majority. He was never an active party man, and concerned himself only with questions on which he had special knowledge or convictions. One of the longest speeches he made in the Legislature was on the Land Bill. He introduced a bill amending the Aliens Act in regard to making naturalisation easier and cheaper. He also interested himself in the over-

land telegraph from Adelaide to Port Darwin, his intimate knowledge of the interior of Australia making his views of special interest. He favored the land grant system in connection with a proposed transcontinental railway, and actively supported the policy for the preservation of native timber. In various debates on education, immigration, road and railway construction, he took an active part, but strongly opposed the break of gauge. In 1876 he was compelled for health reasons to retire from politics.

After an interval of eleven years, however, he was again persuaded to enter the political arena. In 1887, he was asked to stand for the Legislative Council for the Central Division, which included Adelaide. The requisition referred to his long residence, great experience, and practical knowledge; his well-known enterprise and deep interest in the welfare, development, and advancement of the province, which would cause his presence in the Legislature to be of great service "at the present critical period of our history." Mr. Angas re-entered Parliament when general depression, following the great land

boom, was but faintly showing promise of future prosperity. A good harvest, a rising market for pastoral products, and mineral discoveries both at Teetulpa and on the Barrier, gave the colony new hope. Moreover, the jubilee of South Australia was about to be celebrated.

The Hon. J. H. Angas was in full sympathy by temperament and experience with such a situation. He had lived through periods of seasonal adversity, and knew that they were followed by years of plenty, but he knew also that future prosperity would not be won by the mere endurance of a handful of colonists. Consequently we find him a warm supporter of what should be the basic Australian policy—attracting a desirable class of emigrants to increase production, of giving tenants security of land tenure, protecting local industries, and especially conserving water and extending irrigation. Though he was a large landowner, he advocated land and income taxes, at the same time making the public income balance expenditure. Mr. Angas served out his term, but when that expired in 1894 he definitely declined to continue his parliamentary career.



The Church at Collingrove

When, in 1854, Mr. J. H. Angas went to England on a visit, partly for a holiday and particularly to settle some of his father's affairs, he met, at the house of a married sister, the family of Mr. Collins, a millowner of Cheshire. This gentleman's only daughter became Mr. Angas's wife and returned with him to Australia. The voyage was made in a Dutch cattle boat, which carried only one other passenger, and was an exceedingly distressing experience. The young couple built their home, "Collingrove," in a valley near the old Tarrawatta station. At first only a humble abode in picturesque surroundings, it is now a handsome, commodious residence, situated in fine park-like lands. Less than two miles away, by a road through the estate, stands Lindsay House, where Mr. George Fife Angas lived, now the home of his grandson and successor, Mr. Charles Howard Angas, who was born in England during a visit of his parents.

Shortly after his marriage, he had acquired on his own account the first of many properties that he conducted with such conspicuous success. This was the Mount Remarkable station, which became the nucleus of his extensive enterprises in the North. This station was eventually increased to 45,000 acres. He devoted considerable personal attention to his pastoral holdings, improving and developing them to a high degree. Among the flockmasters of Australia, though not unrivalled, he was without a peer.

In the early 'fifties, Mr. Angas entered into partnership with Mr. A. B. Murray in a sheep run in the Murray Valley, meeting with such success that in 1855 they won the first prize for imported merino rams at the Adelaide Agricultural Show. He had also bought in England a herd of ten stud bulls and cows, which had been chosen from five different breeders. At the same time he turned his attention to horses, and made a beginning with the Collingrove Clydesdales, which afterwards became famous, by purchasing the two-year-old draught entire, Sultan, which had been adjudged in England the best of his year and class, also a mare of corresponding character. He followed up the importation of the Clydesdale stallion Sultan, with Argyle and Rantin Robin, both Scottish champions, and Young Lord Clyde, a horse of high repute.

Soon afterwards, as a consequence of natural increase, he formed the Arrowie and Wirrialpa runs, and stocked them with the progeny reared at Mount Remarkable. A vast tract of country, including several thousands of square miles on Stuart's Creek, was leased from the Crown as a cattle run. Station after station was added in the far North until the entire concern, under the direct management of Mr. J. H. Angas, in that

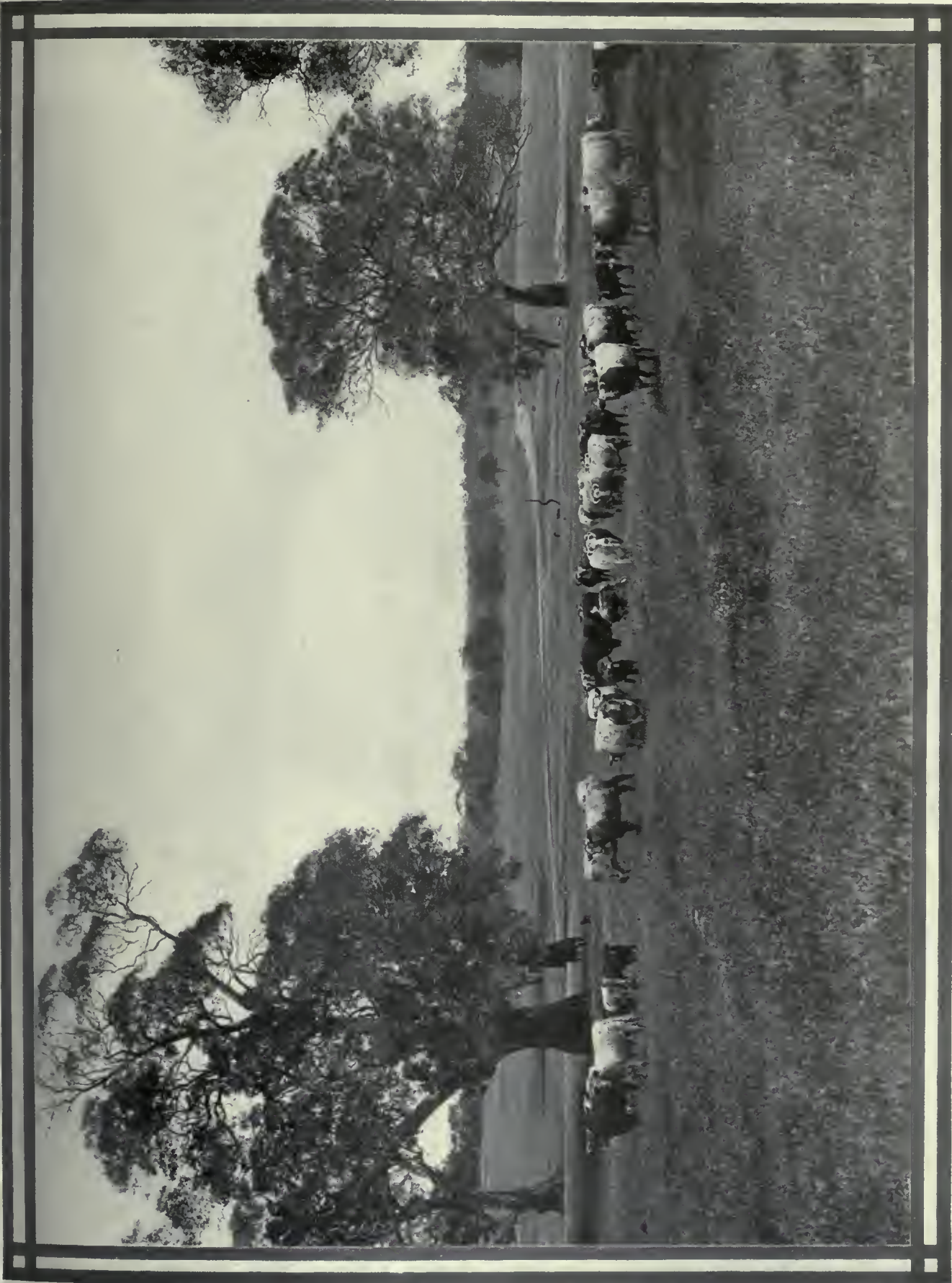
part of the colony, assumed vast proportions. Yet he never bought a property without inspecting it personally and later satisfying himself that the improvements he thought necessary were carried out. He visited each station at intervals, and he would take an active part in the cattle musterings, and in the drafting and classifying of stock.

The Hill River estate was purchased by Mr. Angas in 1871 from Mr. C. B. Fisher. It comprised 55,000 acres. The homestead is charmingly situated in a cosy nook of the sheltering hills near a little rivulet, with a garden of rich soil; it is about 90 miles north of Adelaide, and has an altitude of 1,500 feet above sea-level. With the station he purchased a large portion of the celebrated merino flock.

Point Sturt was one of Mr. Angas's later purchases. It is different in topography and surroundings from any other of his properties. He secured it in 1888, expressly for his famed Short-horn stud. It is 3,200 acres in extent, comprising the whole of a peninsula jutting into Lake Alexandrina. Its soil is not rich and has a limestone foundation, but it is well grassed, lightly timbered, and well suited for a stud farm. Kingsford, famous for its herd of Herefords in Mr. J. H. Angas's time, lies a few miles from Roseworthy.

Finniss Springs, directly south of Lake Eyre, which was occupied by Mr. Angas under lease from the Crown so recently as 1898, comprised 578 square miles. It was used as a breeding station, and turned out many fine cattle. He installed 20 artesian bores here, and at Stuart's Creek, which pour out an aggregate of 225,400 gallons per day. One struck water at 740 feet—the others varied between 35 to 131 feet—and yielded an additional 36,000 gallons; while still another, at a depth of 962 feet yielded a flow of nearly a million and a half gallons a day.

In many of his public activities, Mr. John Howard Angas closely followed in the footsteps of his father. Thus he took the latter's position as a Vice-President of the local branch of the British and Foreign Bible Society and in 1885 when the constitution and title of the local organization was altered, he became the first President and held that office until his decease. He gave liberally to the Society's funds, and especially to that for the erection of Bible House in Grenfell street, Adelaide. He also took an active part in the work of the local branch of the London Missionary Society, with which also his father had been closely connected, and he founded and principally sustained several missions in the South Seas, and especially the Angas Island Mission in New Guinea. He took a great interest in the



Angas Shorthorns, Collingrove

splendid work in London of Dr. Barnardo's National Waifs' Association, many of his gifts, totalling several thousands of pounds, being given through his sister in England, Mrs. Johnson, one of Dr. Barnardo's first and most consistent supporters.

It may briefly be mentioned that, as his father was the first Treasurer of the British and Foreign Sailors' Society—which indeed owed its origin



The Angus Memorial, Adelaide

to Mr. G. F. Angus and his brother, William Henry Angus—it was only appropriate that Mr. J. H. Angus should be closely associated with the Society's work in England and he succeeded Lord Brassey as President, when the latter came to Victoria as Governor. The Angus interest in the Society is still preserved, Mr. Charles H. Angus being elected Vice-President in 1903. A permanent memorial of the services of the family is preserved in London by the establishment of a "Mr. and Mrs. J. H. Angus Room" in the Society's Home for Sailors at Ramsgate, England. Mr. C. H. Angus is Commodore of the Bethel Union Association, London, and possesses a bust of Nelson made from copper and mounted on wood from the great admiral's famous war ship, *H.M.S. Victory*, which was presented to him by the British and Foreign Sailors' Society as a

memento of his ancestors' and his own services to the Society.

The Australian Bushmen's Club was another of Mr. J. H. Angus's philanthropies, he and his father being generous contributors to the Bush Missionary Society, which was founded in 1856, and out of which the Bushmen's Club naturally grew.

Brief mention only can be made here of Mr. J. H. Angus's part in establishing the Inebriates' Retreat, Mr. G. F. Angus having given sixty acres at his estate of Belair for the purpose in 1876 and a sum of £1,000, his son giving £500 and subsequently supporting the institution liberally; also Hope Lodge, and Angus College for the training of young women missionary students; the Convalescent Home at Semaphore, the Home for Incurables—to which he gave his salary as a member of Parliament as a yearly subscription, and in which he built and furnished a room for the female inmates; the Hindmarsh Town Mission, initiated by Mr. G. F. Angus and liberally carried out by his son; the Blind and Deaf and Dumb Institution, with its Angus Home and Farm; and the Adelaide City Mission, the Benevolent Society, the Boys' Brigade, and other institutions.

The name of Angus is also prominently associated with the Adelaide Children's Hospital and Training School for Nurses, with which Mr. G. F. Angus and his son were closely connected from the commencement. On the list of Life Governors the name of G. F. Angus is first and that of J. H. Angus second, both having given liberal donations even before the hospital was built. The Training School for Nurses is a handsome building, presented by the Hon. J. H. Angus, M.L.C., in 1893, the foundation-stone of what is known as the "Angus Building" having been laid in April of that year by Mrs. Angus. One of the wards in the hospital was named after the late Mrs. J. L. Parsons, who was Mr. J. H. Angus's niece. He was Vice-President and took an active part in its management, as has his son, Mr. Charles H. Angus, who is now (1916-18) the President of the institution. Portraits in oils of Mr. and Mrs. J. H. Angus were presented by subscription to the hospital and unveiled in 1901 by the then Governor, Lord Tennyson, who spoke of them as "among the most munificent people he had ever met, and to whom South Australia owed an incalculable debt." To the Adelaide University, the School of Mines, and Roseworthy Agricultural College, Mr. J. H. Angus also gave most liberally and usefully. His private benevolences must have also represented a great sum and it has been said of him that while he gave liberally he gave wisely, and that consequently his gifts were of all the greater benefit to the community of which he was in the truest sense a "good citizen."



Charles H. Angas on "Fleetwing"
(From the Original Painting by Harington Bird)

Mr. J. H. Angas did not quite attain the great age of his father, though he so greatly resembled him in his disposition and temperament, but he lived till May 17th, 1904, having reached the age of eighty without any appreciable diminution of his mental faculties. It was said publicly of him that: "He was a man with an infinite capacity for taking pains. His years were full of business, rich in Christian zeal, and fruitful in benevolence."

It will be apparent from the following brief histories of the various Angas studs that Mr. J. H. Angas, and his son, Mr. Charles Angas, have done yeoman service to Australian stock-breeding.

The fine Collingrove herd of Shorthorn cattle was founded by Mr. J. H. Angas as long ago as 1845, quite in the early years of South Australian settlement, by the purchase of twenty-five heifers and a Comet bull from the South Australian Company, at that time the only importers of pure stock to the State. Since then the breeding and character of the herd has been maintained by the importation of a large number of high pedigree bulls and cows. In 1879 Mr. Angas went to England and there selected and sent out eighteen cows and heifers and six bulls from the most renowned studs in Great Britain, sparing neither trouble nor expense to obtain the best specimens of pure Bates blood, in which the most fashionable pedigree was combined with perfect form and sound constitution. Amongst those imported were many celebrated animals, such as

Oxford Beau 7th, Duke of Hazlecote 62nd, Wild Prince 6th, and other sires; together with Rugia Niblett, champion cow at the Royal Agricultural Show held at Bristol in 1878; her daughter, Rose Niblett, who proved herself the grandest of breeders, all her calves having been prize-winners, three of them champions; Blanche Rose 6th, dam of several champions, and many others.

As a prize-taker for Shorthorns Mr. J. H. Angas was eminently successful as has been his son, Mr. C. H. Angas in continuing the stud. In



Charles Howard Angas

1894, three bulls, Waterloo Earl of Sockburn 3rd (63512), Viscount Ruddington 2nd (66492), and Czarevitch, the last-named, the champion at the Royal Show in England, unfortunately died through an accident soon after landing. The other two did good service at the stud. These were followed in 1908 by Adbolton Thalia King (97771), a son of the celebrated King Christian of Denmark and Royal Blanche (96864), two very fine animals selected by Mr. Charles H. Angas when in England. In 1913 the herd was sold by the Trustees of the late J. H. Angas after the disposal by them of the Point Sturt property, the pick of these, consisting of thirty odd cows and three bulls being purchased by Mr. C. H. Angas, who now has them located at Hutton Vale, near Collingrove, where he continues to uphold the reputation of the stud. He has since imported another bull, Adbolton Royal Sovereign, now in use in the herd. In 1917 he easily won the bull Championship at the Adelaide Royal Show with Rugia's Prince 40th, by Royal Blanche (imp.) out of Rugia Niblett 30th; a son of his, Duke of Wortley 42nd, winning in the youngsters' class at eleven months old. The white cow, Charming Oxford 51st, won the female Championship. The Angas Shorthorn prize-list to date (1917) comprises 1,050 prizes, including 119 Championships.

The Collingrove Hereford stud was founded in 1869 by the importation of the bull May Duke (3965), bred by Mr. W. G. Preece, of Salop, and the cows Lady Wilson, Stately, and Winifred. Two years later a bull named Bruce, bred by Mr. P. Turner, of Pembridge, was imported from England and used in the herd. At a later date Mr. Angas purchased for 200 guineas the celebrated Jeannie Deans with her bull calf, afterwards called Charlie Deans (5252), and which was never beaten on the Show-ground, taking five first prizes and a Champion cup in Adelaide and first prize at the National Show in Victoria in 1881. Three years later Mr. Angas purchased the two-year-old prize bull, Sir Roger, from Mr. F. Reynolds, Tocal, New South Wales, while in 1885 the first prize yearling bull at Sydney, General Gordon, and a first-prize yearling heifer, Minerva 38th, also the prize two-year-old, Comely 6th, were added to the herd. In 1904 Mr. Charles H. Angas selected in England the Hereford bull, Spark (23167), and sent him out to Collingrove. He was possibly the finest and best-fleshed Hereford bull that ever came to Australia. The only time he was exhibited he won first prize and Champion in Melbourne, and he left magnificent stock. Since then Mr. C. H. Angas selected Twyford Lancer (25844) in England, in 1908, and in 1913 the herd was sold, owing to the trustees having disposed of Hill River station. The Collingrove Hereford prize-

list consisted of 507 prizes, including 62 Championships.

The Collingrove herd of Ayrshire cattle, bred chiefly for milking-cows, was established in 1887 by Mr. J. H. Angas, who purchased the Champion bull Herd Laddie and a few cows imported from New Zealand, including Lucy 2nd and Dainty. The foundation members of the herd and their descendants were very typical of the breed and the cows proved wonderful milkers. Herd Laddie won no less than 8 champion prizes at Adelaide and Melbourne against all comers; he was one of those rare perfect specimens which crop up occasionally and carry all before them. He was a most successful sire, and the herd during the short period that they were bred at Collingrove won 66 prizes.

Mr. J. H. Angas's famous stud of Hill River Merinos was founded by him soon after his arrival in South Australia. In 1845 he had bought some sheep from the South Australian Company, whose stud had been formed nine years previously by the importation of some fine pure-bred merinos from Saxony, with later some from Tasmania. Mr. Angas bought 750 ewes from the Company, and also a choice lot of stud ewes and rams. New blood from France was brought in in 1855, also later some Spanish merinos from the flock of King George III. Two celebrated Tasmanian rams, Hercules and Cæsar, were bought at high prices, their characteristics being density and evenness of the fleeces. Low-set, large frames, carrying fleeces of first quality combing wool, became distinguishing features of his sheep.

The Hill River merinos are very hardy and are considered suitable for dry and rough saltbush country. They have made themselves specially at home in the north-western portions of New South Wales and Western Australia, the south-western districts of Queensland, and the valley of the Darling river in New South Wales.

As Collingrove is situated in a district where foot-rot was at one time very prevalent amongst the merino sheep, Mr. J. H. Angas was induced to try longwools, and finding from the records of the Royal Agricultural Society of England that the Lincoln produced a greater combined value of wool and carcase than any other breed, and was singularly free from foot-rot, he determined to try that breed of sheep. The first importation was in 1865 from the flocks of Messrs. Hall of Lincolnshire, and George Angas, of Bawtry, Yorkshire. These were followed by ten rams in the following year. In 1869 eighteen ewe and six rams, a very choice selection from Messrs. Hall and Turner's flocks, were imported, and in 1871 and 1872 further shipments followed. In 1879 Mr. Angas made a selection from the celebrated stud of Messrs. Dudding, of Wragby



Rugias Prince 40th,
Champion Angas Shorthorn Bull

Lincolnshire, leading prize-takers at the Royal and other English shows for several years, and famed for the heavy fleeces of their sheep. One of these sheep imported by Mr. Angas—Panton Duke—clipped in 1878 no less than 30lbs. of washed wool, one year's growth. The success of the Collingrove Lincolns was most marked on the Show-ground, they having taken no less than 231 prizes. The Bradford Chamber of Commerce awarded Mr. Angas the highest commendation for samples of Lincoln wool and equal praise was given him at the International Show at Vienna.

The Collingrove stud of Lincoln sheep has gradually, through continuous importations, built up a reputation second to none by means of prizes at the principal shows, and in the sale ring. Mr. Charles Angas has proved conclusively that the crossbred ewe (by a Lincoln ram and a Merino ewe) is the most suitable from which to breed export fat lambs in Australia. That the Collingrove Lincoln stud has maintained its reputation is proved by the fact that—until he ceased showing in 1899, when they won both Champions, every first prize, and every second prize but one in Adelaide—these sheep had won no less than 231 prizes.

The present Collingrove Merino stud was formed by Mr. C. H. Angas when in 1887 and 1888 he brought down a small draft of selected sheep from Hill River station to form the nucleus of the new flock. Most of them were pure Hill River merinos, but some of the ewes were the progeny of the fine ram, Hercules (purchased by Mr. J. H. Angas for 1,150 guineas), their dams being Hill River bred. The draft consisted of three stud rams, forty-six ram lambs, two hundred ewes, and thirty-nine ewe lambs. Two of the rams were Cæsar (aged) and Wonderland (2-tooth), which had been purchased by Mr. C. H. Angas at Melbourne Ram Sales. Cæsar, who had won prizes in Tasmania, was by Thunderbolt,

dam by Sanscrit by Sir Robert; while Wonderland was by Little Wonder 2nd, by Champion Little Wonder, dam by Sanscrit by Sir Robert. Cæsar was killed in an accident in the winter following his arrival, but he left his mark on the stud, his son Anthony, among other good progeny of his, winning the Reserve Championship at the Adelaide Royal Show. Anthony left many descendants worthy of him, among them being several winners of high honors. Wonderland, on his part, left a large number of fine sheep as the result of his seven years' of service, probably his best son being Surprise, who gained first prize in a very strong class against thirty-six competitors at the Adelaide Royal Show. Subsequent additions to the stud have been two Murray rams from Mount Crawford—King of the Ring and Portland. King of the Ring was the son of Champion Wool Prince, and was a prize-winner; Portland being sired by Portsea. Another addition was Glasslough, also from Tasmania, whose sire was Sovereign by Golden Horn 2nd, the latter being the sire of the noted President, sold for 1,600 guineas and again, when seven years old, for 1,000 guineas. More recently, some successful rams have been added, including Spark, bred at old Wanganella, who is still in the stud.

The Collingrove Merino stud flock is notable for its wonderful evenness of type, in spite of numerous out-crosses of blood, the sheep being short-legged and deep of body, with well-sprung ribs, and of exceptionally hardy constitutions. The fleeces are light in condition and of high quality for South Australia but are large, giving a splendid yield, realising just about top prices for that State. The wool is of good length, density and evenness, and very good on the back—the last quality being one for which the Collingrove merinos are celebrated. The average weight and value of the



Charming Oxford 51st,
Champion Angas Shorthorn Cow

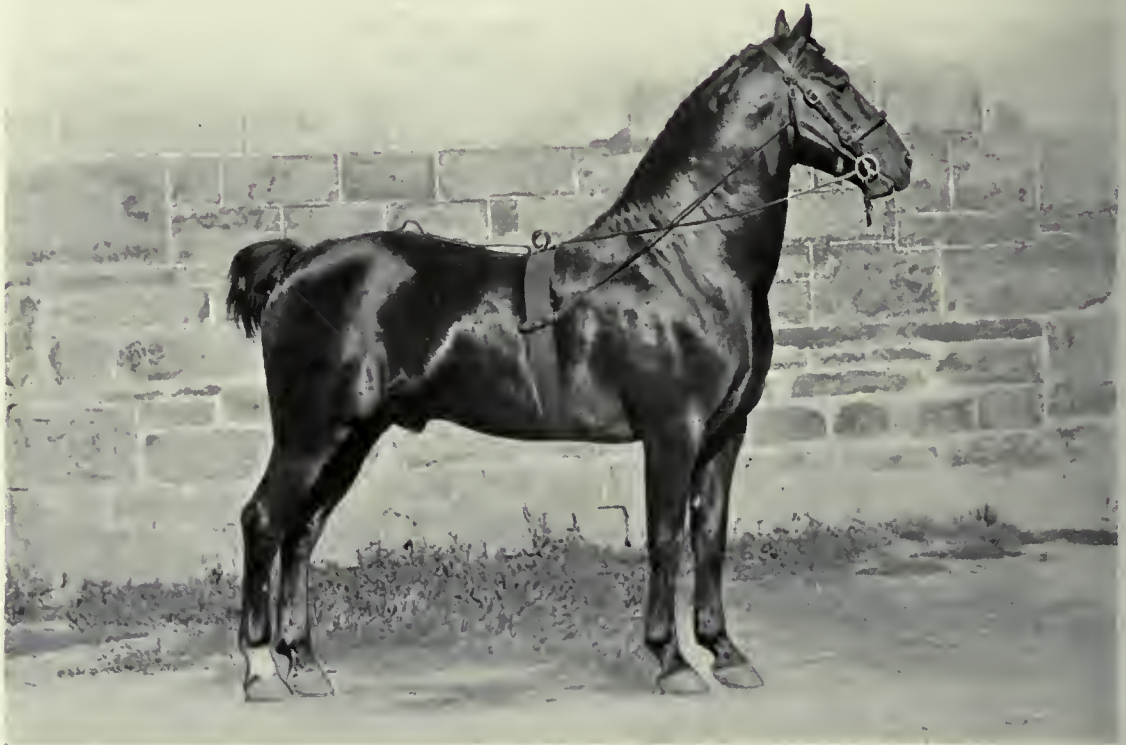
fleeces, taking the latest figures, are as follows (1917) :—Average weight for all grown sheep, 13 lbs. 4 $\frac{3}{4}$ ozs., and selling at an average of 15s. 10 $\frac{1}{2}$ d. per head, bringing up to 23 $\frac{1}{2}$ d. per lb.

During Mr. J. H. Angas's visit to England in 1879, he selected and sent out to Adelaide a draft of the best pure Berkshire pigs obtainable in the old country, and thus founded the far-famed herd at his Hill River station. He began to show pigs in 1882 at the Royal Agricultural Show in

Adelaide, when he took eight first prizes. Afterwards he invariably secured awards for his exhibits, having taken no less than 103 prizes. In Victoria, at the National Show in 1884, he gained Champion for boar and sow of the large breed, and sow of the small breed, also six first prizes and one second for other exhibits. These pigs were afterwards sold, when twelve head (all but three being under twelve months' old), realized £478 16s., or an average of £39 14s. 6d. per head, the highest price (£157 10s.) being paid for the sow Lady Severn. The descendants of the J. H. Angas herd are still being bred at Hill River by his grandson.

Not only was the Hill River estate devoted to stud stock, but agricultural farming was also car-

ried on. The most approved varieties of wheat were grown for seed and the produce of the farm was successfully exhibited at the Royal Agricultural and other Shows in South Australia, Victoria and New South Wales. The prize flour at the Paris Exhibition was made from White Tuscan wheat grown at Hill River. These wheats, which were only exhibited between 1879 and 1885, but won 63 prizes, including the £50 Chal-



Hackney Stallion, "Shirley Freelance" (imp.)

lenge Cup for best 100 bushels of wheat in Adelaide, won three times, three Champion prizes in Melbourne, and the Champion in Sydney, have been celebrated for uniformity of sample, size, and weight of grain, as well as flour-producing qualities.

Mr. J. H. Angas was also the largest shareholder and chairman of directors of the South Australian Ostrich Company, with its farm at Port Augusta. At both Hill River and Collingrove he grew currants, there being 20 acres of these at his Hutton Vale farm; at Hill River he cropped 5,000 acres of specially approved varieties of wheat in one season. He used mules for draught and harness in the arid north, and at various times imported high-

class donkeys to improve the breed, and got a friend on one occasion to select him a stallion and a mare in America.

The Collingrove Pony stud was commenced by Mr. J. H. Angas so long ago as 1866, but from that time to the present the pedigrees of the stock have been carefully kept, over seven hundred well-bred animals being on the register. Although for some years no particular type was aimed at, only good sires and mares have been used, and all the foals have been sold except an occasional mare kept to make up the number of breeders. In 1889 Mr. Charles H. Angas, who has since taken an active interest in the stud, was so struck by the bone, substance, style, and possibilities as a sire, of the imported Hackney pony, Young Sir George (2789), that he purchased him. He fully realised expectations, and Mr. Angas was thus encouraged to build up a type of pony then very scarce in Australia—a general utility pony up to a big weight in saddle and capable of pulling a good load in harness. Since 1900 not one of the best fillies has been sold until bred from, and then only to make room for younger and better animals.

In 1904, while on a visit to England, where he inspected many horses and ponies, he selected the chestnut 3-year-old colt, Gallant Crompton (8153)—by Royal Danegelt (5785), out of Lady Dorothy (185)—a full brother to Bonny

Danegelt, the Champion of England. This colt won five firsts and reserve for silver medal in the old country as a 2- and 3-year-old, and Mr. Angas was only able to get him owing to his being an odd size, viz., 14.2. He has won first prize whenever he has been exhibited, and is certainly one of the most perfectly shaped hackneys in existence. His stock from Young Sir George mares have been most successful, showing great substance and quality, and being fine movers. At the same time Mr. Angas, who with his sons is an enthusiastic polo player, imported a Polo Pony sire and mare, viz.: Autocrat, by Hurlingham—Housemaid, a beautiful dark brown, who had won ten prizes in the best company, and Rosemary, by Rosewater—Flirt, said to be the best 14-hand polo pony in England, and a prize-winner. The breeding of polo ponies did not, however, prove profitable and so Autocrat was sold.

Mr. C. H. Angas, in 1909, made other purchases in England of a Hackney stallion and three mares. The stallion is Shirley Freelance (9881), a lovely mover, dark brown, by Warrener (8025), by Whitegate Swell (6933), from Mell Valley Princess, winner of over a hundred first and champion prizes. His dam was the champion Gold Foil (13513), by the champion Sir Horace (540). Shirley Freelance won twelve prizes at eight shows in England in hand and harness, beating two champions; in Australia he



Capt. Ronald Fife Angas



Lieut. Dudley Theyer Angas

won first and champion in Melbourne and 3 firsts in Adelaide (the only times he was shown), while his stock have won many prizes, including champions in Sydney and Adelaide. Of the mares imported in 1909, Angram Rosarine (18872), a dark chestnut, by the champion Rosador (4964), by Danegelt (174), her dam being Princess (10428), by Garton Duke of Connaught (3009). This mare won 29 prizes in hand and harness in England, including 16 firsts, two Hackney Society medals and Reserve Champion. She has produced many fillies used in the stud and some good colts. Another imported mare was Polophelia (20159), a dark chestnut, by Polonius (4931), by Wildfire (1224), her dam being Towthorpe Dame (16294), by Grand Master 2nd (5230). She won 17 prizes in England, including six and reserve champion at Olympia in 1908; also first in Adelaide, the only time shown. Her stock have turned out splendidly, and one of her colts, Politician, a prize-winner, is now in use at the stud. The other imported mare is Rusper Midget (19478), a dark chestnut, by Parbold Gordon (7211), by General Gordon (2084), her dam being Parbold Midget (1673). She has won six prizes in England in hand and harness at Olympia and the Hackney Society's show in London, and first in harness in Adelaide, the only times she has been shown. In 1910 Rusper Midget had a nice black foal to the champion, Little Ruby (who was sold for £2,000), and she has since produced some very fine stock, including the winner of the championship at Melbourne and reserve championship in Sydney in 1917. The Collingrove ponies are now the property of Mr. Ronald F. Angas. They have been winners wherever shown, and without doubt are unequalled in the Commonwealth at the present time.

The Angas Estate near Angaston—now comprising Lindsay Park, Collingrove, Hutton Vale, and Tarrawatta—is one of the most notable properties in the State, its rich valleys providing fine grazing paddocks, with great red gums and other trees affording shelter and adding a park-like appearance to the demesne, while the rolling hills in the immediate distance complete the picturesque beauty of the scene. Lindsay House grounds include a small park, in which a herd of fallow deer browse among English trees and Indian black buck contrast curiously with the beautiful high-bred Jersey cows of the home dairy-herd. King George, when travelling with his brother in their "middy" days on H.M.S. *Bacchante*, stayed at Lindsay House, and when visiting Australia again as the Duke of Cornwall and York, renewed his pleasant recollections of his visit to that picturesque country residence.

Like his uncle, George French Angas, Mr. C. H. Angas has decided artistic ability. As a pastoralist and an excellent judge of stock he has painted many admirable portraits of his prize cattle and horses. As a keen sportsman, especially as one of the crack polo-players of Australia and a keen devotee of the sport for over thirty years, as also of coursing, he has painted pictures of his polo-ponies, greyhounds, bull-dogs, fox-terriers, etc. The entrance hall and billiard room at Lindsay House are decorated also with stags' heads, proud trophies of the chase. He was also for years a devotee of yachting.

These mementoes represent the lighter side of a life full of activities in philanthropy, and in pastoral and business interests. Besides his stock-breeding at Collingrove, Mr. C. H. Angas has large interests in the Tarella Pastoral Company, the South Australian Portland Cement Company, the Meadowbank Company, and others. He is a Trustee of the Pastoralists' Association of South Australia, and a member of other public bodies, and though he has always declined political office and other public duties, he has fully accepted the responsibilities of his position as a leading citizen of the State. He married the eldest daughter of the late William Dean, of Adelaide, in 1885.

The trustees of the late J. H. Angas have disposed of many of the Angas properties owing to the recent government taxation. The Collingrove estate now consists of only 4,600 acres, and this three years ago Mr. C. H. Angas handed over to his eldest son, Ronald Fife Angas, who held a commission in the Royal Field Artillery on active service in France, where he had been for two years, when he was transferred to the Royal Flying Corps, having been mentioned in despatches. Captain R. F. Angas married the daughter of Mr. and Mrs. Alick J. Murray, of Mount Crawford. The second son, Dudley Theyer Angas—who had to resign through ill-health his commission in the Naval Air Service in England, after going through the German South-West Africa campaign and some months in the Naval Air Service at Yarmouth, England—is now living at Hill River, of which he retains the head station and some 4,000 acres of arable and grazing land bought from his grandfather's trustees. At this place he combines wheat-farming with the breeding of a small stud of high-class merino sheep. Mr. C. H. Angas's third son, John Keith Angas, is still at school. His only daughter was married in 1908 to Major the Hon. R. D. Ryder, a brother of the Earl of Harrowby. Her husband was killed in December, 1917, while on active service in France.



“Fortuna,” Bendigo. The residence of Mrs. Geo. Lansell

GEORGE LANSELL

BENDIGO'S “QUARTZ KING”

WITH Bendigo and Ballarat is associated a romance distinctive from the inevitable adventure of mining fields. Both were the scenes of early alluvial rushes, when fortunes and misfortunes alike were written on the pages of the Past. Both developed into deep-lead fields, whereon the fossicker gave place to the investor. Both are to-day Victorian cities of industry and importance.

The history of Bendigo could not be written without copious references to the late George Lansell, who by exercise of a considerable genius contributed so largely to its successful development and continued prosperity.

He died in March, 1906, at “Fortuna,” on the famous New Chum mine, aged 82, with a long lifetime of profound achievement brought to a peaceful close.

His father, Thomas Lansell, was a business man in Margate, England, where the great mining man of Bendigo was born. At the age of 14, George, the eldest son, entered his father's business.

It happened that a younger brother, Wootton, was a rover who after a voyage round the world,—a feat of some distinction in those days,—invited his brothers George and William to follow him to Australia. In the year 1853 we find our subject leaving the prosaic surroundings of grocery and chandlery to try his fortunes in the Sunny South.

The good old sailing ship *Virginia*—she would be a marine curiosity to-day—landed them at Adelaide. George started up country and began his career as a gold digger at Echunga. After six weeks he returned to the South Australian capital.



George Lansell

Here thrilling stories of gold discoveries in Victoria reached the Lansell brothers, and we find them shortly afterwards at Bendigo, where they opened up a business. As butchers and soap and candle manufacturers to the polyglot population of the roaring field of Bendigo, they filled a useful function as partners for three years.

About this period (1855) the alluvial workings on old Bendigo showed signs of exhaustion, and the problem of quartz mining began to arise. The geological formation of Bendigo and its history as a goldfield are exceedingly interesting.

The Bendigo goldfield may be considered to occupy about 140 square miles or a tract 20 miles long by seven wide, the Mall in the centre of the city being the heart of the auriferous area; indeed, an old mine still rears its head among the commercial buildings of the city.

When the field was in its natural state, great blocks of quartz stood high above the surface in many places, thus arousing great expectations doomed to disappointment in the early times before the character of the saddle reefs was fully recognised. There is a zone of silurian rocks exposed along portions of the New Chum, Garden Gully, and Hustler's line of reefs at the surface that was exceptionally favorable to the occurrence of gold. What their total thickness may be can only be determined by the extension

of the surveys already made. In Lansell's 180 shaft the present depth is over three thousand feet, and it may fairly be expected that some hundreds of feet of strata must yet be added.

It was indeed owing largely to George Lansell's consistent enterprise and indomitable perseverance, that quartz mining was actively continued in Bendigo for over forty years, with the result that hundreds of shafts have been sunk around the city to depths varying from a few feet to the depth of Lansell's famous 180 shaft. Between the shafts, hundreds of miles of levels and crosscuts have been driven, opening up to view the stratified rocks of this region in a manner perhaps nowhere else excelled.

The yield from the Bendigo field from 1851 to 1860 is stated as over $4\frac{1}{2}$ million ounces. Ballarat during the same period yielded 4,800,000 odd, but these returns do not include gold privately got. By 1864 great progress had been made, the weekly average of gold taken away by the escorts having risen to 5,000 ounces, this owing to the steady improvements in the yields from the old reefs as they were explored deeper, and in a much lesser degree to the improvements (still very primitive) in the methods employed in getting and crushing the ore. By that time Bendigo had established itself as an unequalled field for reefs.

At the beginning of the next year (1865) many new and rich reefs in various portions of the field were discovered, but owing to the scarcity of water their development was comparatively slow, yet by 1866 there were no fewer than 139 registered companies, about fifty of which possessed steam machinery. In June, 1871, the quartz reefs of Bendigo were just beginning to prove the truth of the prophecies of earlier years. Garden Gully, Hustler's Reef, and the New Chum having given gold in abundance. Garden Gully raised from 1865 to 1891 3,326,300 ounces and distributed £865,600 in dividends, the called-up capital being £21,646. At Windmill Hill, where an old man and his sons obtained half a ton of gold in three years, the company obtained £16,000 worth in one month.

The Government survey shows that there are no fewer than 276 distinct quartz reefs in the district, and the Government records show that from 1851 to 1890 sixty million ounces of gold were secured, but this does not include the gold taken away privately by owners, the amount having been estimated at four million ounces. Bendigo's average yield of gold yearly is now about 165,000 ounces, considerably the highest in Victoria.

There are no less than 53 shafts over 2,000 feet deep on the Bendigo field and several exceed 4,000 feet in depth, the deepest being the Victorian Quartz shaft which is down 4,614 feet.

Mr. E. J. Dunn, who is the great authority on the subject of Bendigo reef formation, says:— "When first discovered much of the surface of the Bendigo goldfield was strewn with quartz. Prominent quartz veins seamed the country, or stood up in isolated masses above the surface. Alluvial gold at first absorbed undivided attention, but the occurrence of "specimens," or pieces of gold with quartz matrix attached, quickly led to a closer inspection of these numerous quartz veins, with the result that gold was found

"From the peculiar structure of the reefs, it is easy to understand the many disappointments and discouragements that pioneers of reefing at Bendigo had to encounter. Nearly all the reefs were 'saddle reefs' or the 'legs' from which the cap or saddle portion had been removed, or else were 'spurs' in all their variations. Fortunately, the quartz bodies at and near the surface were commonly rich in gold. This encouraged the enterprise and perseverance which led eventually to the unlocking of the mysteries of this goldfield, as



The Entrance Hall, "Fortuna"

sprinkled as fine particles through the quartz.

"Gold in the undisturbed quartz was first noticed at Specimen Hill, Eaglehawk, and very soon the idea of abstracting it occurred. At first attempts were made by means of hammers and other primitive tools to crush the stone and secure the gold, and even by such means some men succeeded in making a living; then "dollies" were used or light stamps worked by hand, later on wooden beams shod with iron, and so on to the present heavy iron shaft and stamp, and while the alluvial gold is all but exhausted, the veins of auriferous quartz promise employment to the miner at Bendigo for centuries to come.

shafts were sunk and crosscuts extended in search of the gold matrix. Before the gold-bearing quartz at and near the surface was exhausted, the 'second formation,' as it was called, was discovered, or, in other words, it was proved that the saddle reefs recurred the one below the other. This formed an epoch in quartz-mining at Bendigo.

The most peculiar feature about the quartz veins of the Bendigo district is the occurrence of the so-called "saddle reefs." These are bodies of quartz of lenticular form that are bent over the axial lines, the superficial transverse section of the reefs over "centre country" often amounting



The Music Room, "Fortuna"

to 400 or more superficial feet. They extend continuously along the axes for miles, thickening out or diminishing in size as they are traced along. They are often from 20 to 50 feet across, frequently 20 to 30 feet in height, and in some cases the quartz extends upwards through the fissured rocks for a height of 100 feet or more. These saddle reefs are not only of great size in places, of remarkable persistence in length, but they are also notable for recurring in depth one below the other. Some are very small just as others are of enormous size, yielding enough stone in a length of a few hundred feet to keep a mine busy for years.

It is when the several characteristics of the saddle reefs are fully appreciated that the vast resources of this district become apparent. Dealing only with the eight-mile block already surveyed there are, say, twelve distinct lines of reefs each 8 miles long; each of these lines carries several reefs, one below the other, probably of a remunerative character. On the principal lines many of these saddle reefs are of immense bulk. Unsurveyed there remains a tract of country—proved auriferous by the surface workings—that is many times larger than the eight-mile block

and through which the same anticlinal structure is known to prevail. Even within the eight-mile block, the extent of ground worked during the last forty or fifty years, Mr. Dunn asserts, is insignificant, compared to what awaits development.

In the other margin of Bendigo country, over which alluvial workings extend, the gold appears to be distributed rather through "spurs" than saddle reefs, but this may be only apparently the case, in consequence of the little that has been done in the way of mining along "centre country" in this area; below, says Mr. Dunn, the zone that have proved so productive may be looked for with certainty. Saddle reefs and their "legs" have produced an immense quantity of gold, but a very appreciable further amount has been obtained from the spurs, or veins of quartz that intersect the beds of sandstone and slate at all angles, that form so valuable a feature in many of the mines.

But little or none of this knowledge was available to miners and investors in the year 1853; nor indeed for many years afterwards. Still, as the alluvial returns grew less, quartz mining at Bendigo commenced to interest more deeply those who looked to permanent developments.



CITY OF BENDIGO.

Small companies and small working parties began the work. In one of these small companies George Lansell purchased an interest. He lost his money. He put money into claims and sustained further losses. But his faith in quartz-mining grew stronger. He believed that fortunes far beyond those already won by lucky diggers lay in the reefs of Bendigo.

While doubting the efficiency of the methods then employed in reducing gold ore from stone, he persisted in buying shares in a number of companies—very few of which returned him any profit.

At long length, Fortune smiled. He bought



A Cabinet, "Fortuna"

a large interest in the old Advance Company on the Victoria Reef—which during the early 'sixties had yielded fair returns. In the year 1865, this happened to be one of the few prosperous claims, a general depression having fallen upon the Bendigo field. At that time the hopes of the pioneer reefers had fallen very low.

Yet while the star of Bendigo seemed waning, the star of the Lansell fortunes was beginning steadily to rise. The Cinderella mine, on Johnson's Reef, in which he had also previously ventured, now began to return profits. It was these two mines that laid the foundations of Mr. Lansell's fortunes and brought him his reward for persistent enterprise. The Victoria gold-mine

returned him dividends. He took interests also in the Windmill Hill, Great Northern, and Young Chum mines—serving on their respective directorates. In fine, he became interested at length in almost every reef in the district, and his sound judgment and discernment proved most useful in their development. He rose head and shoulders above the other pioneer quartz-reefers; he was appointed a director on the boards of a great number of mines and his influence over the destinies of Bendigo mining grew year by year.

From this time forward the history of George Lansell is practically the history of Bendigo quartz-mining. He made a careful study of quartz-reefing, and did not hesitate to sink deeper and deeper in his search for gold, in spite of the contrary opinion of many of his associates. It was a hazardous venture. He stood to lose all as well as win much, and one instance of the latter occurred when, in one fortnight, he made a profit of £14,000. On the other hand, he lost thousands year after year in unprofitable enterprises on the field, though in the main he was successful.

As he continued to prosper, so did he continue to invest his money in new mining companies. So consistent and confident was he that he became known as the "Quartz King of Bendigo," and was the most sought-after adviser in mining matters.

He was the promoter of the Garden Gully United Mine, the most famous of all Bendigo mines, in which, in spite of its varying fortunes and long-delayed success, George Lansell always had the greatest faith. On one occasion a shareholder offered to a leading Bendigo citizen 2,000 shares in the mine at a penny each, rather than meet further calls upon them, but the citizen declined to invest and so lost a fortune.

In 1868 the prospects of the Garden Gully field generally improved, and four tributes were formed to work the ground leased by the original company, to whom they undertook to pay 17½ per cent. of all the gold they might win. The tribute companies sunk four shafts on the 620 yards of property they worked, with the result that remarkable results were obtained—some of the most phenomenal returns known to Bendigo.

Mr. Lansell was always ready to back his opinion and stand by it, with the result that he became the sole owner of several mines, such as the 180 of romantic history, 616, 222, 83, Comet Sandhurst, North Red White and Blue, South Red White and Blue, and the Sheepshead.

Most of these claims were originally held by companies in which Mr. Lansell had large interests. He continually increased these interests by buying out faint-hearted shareholders, until he eventually owned all the shares. He then sank the shafts deeper and deeper, venturing larg

sums of money but maintaining his firm faith in the properties, eventually reaping his rewards.

Something of the romantic history of this pioneer "180" mine may be told here. It was originally opened in the 'fifties by the Wittscheibes, who sold it for £30 to Messrs. Theodore Ballerstedt and Son. The new owners sank deeper in the claim and realised such an immense fortune that they believed the mine to be exhausted. When Mr. George Lansell offered

appropriate name of "Fortuna." It is indeed a princely mansion, picturesquely situated on a hill, amid pleasant gardens, its interior furnished in luxurious but tasteful style, and containing a collection of valuable articles from different parts of the world. Here it was his custom to entertain royally the distinguished visitors to Bendigo, and the past Governors of Victoria, the Marquis of Normanby, Sir Henry Loch, and Lord Hope-toun, being among those who enjoyed his lavish



Lansell's "180" Mine

them £30,000 for their property they did not hesitate to accept. The reef had been reached at 180 yards (hence its name) but Messrs. Ballerstedt's workings had reached about 450 feet; Mr. Lansell did not hesitate to adopt his invariable custom and continued to sink deeper and deeper still. From the first stope he cleared (lucky figure!) £180,000. Eventually he went down to a depth of considerably over 3,300 feet, making it the deepest mine of its day in the Southern Hemisphere. Great wealth was found in the various levels of the mine, and it proved one of the richest of the New Chum line of reef. It was on this claim that Mr. Lansell built his beautiful home, to which he gave the

hospitality and viewed the resources of the city under his able guidance.

As a local historian has said: "If Mr. Lansell reaped the fruits of his enterprise, it must be remembered that he never withheld his hand from the work of developing our reefs. Hundreds of miners were kept at work through his faith in the field's resources. He was always of opinion that all Bendigo's side lines of reefs are worthy of more attention than is at present bestowed upon them, more especially as they will, if found profitable, be more easily worked. His enterprise will be understood from the fact that, in addition to the mines he personally owned, he was a director of thirty-eight others, in which he pos-

sessed very large interests, and in the working of which he took a direct personal and practical share, being especially active and optimistic at times when the prospects of any of his enterprises looked darkest and most hopeless. It is certain that if it had not been for George Lansell and his faith and fine temperament, Bendigo would not have had so prosperous a history. He was the pioneer and patriarch of quartz-reefing. He always encouraged his miners to take an interest in mining investments. Many have had to thank him for laying the foundations of their fortunes."

During a seven years' residence in London, Mr. Lansell married an English lady, Miss Edith Bassford, who had been educated in Bendigo. At the request of a number of influential residents of the Quartz City, Mr. and Mrs. Lansell returned to Bendigo and settled there permanently. Their

family consists of five sons and one daughter, namely, George Victor, Edith V., Horace V., Leonard V., Eric V. (deceased), and Cyril V. Lansell. All the sons volunteered for active service during the great war, three being accepted and one son (Leonard) rejected owing to the loss of an eye.

Apart from the great material advantage to the district resulting from his almost limitless mining activities, Mr. George Lansell was a good citizen, a faithful friend, and a generous helper. Unostentatious even retiring as he was, he was most liberal in his public charities, and especially in his private benevolences, and it was to the credit of the citizens that, after his death in 1906 at the venerable age of 82 years, the city of which he was the most prominent pioneer, should do him the exceptional honour of erecting a statue to his memory in its central public square.



Statue to Mr. George Lansell at Bendigo



Sydney Cove in "First Fleet" Days

(From an Early Painting)

THE ABBOTT FAMILY

HUNTER RIVER PIONEERS

THE Abbots, who settled at Wingen on the Upper Hunter and in other parts of northern New South Wales, are a very old, very numerous and very widely-spread pioneering family in every part of Australia, and in every phase of Australian life.

The first of the family to reach Australia was Captain Charles Abbott, who arrived with his regiment two years after Governor Phillip established his headquarters on the old tank stream or creek which emptied into what is now Circular Quay, Sydney, the shipping centre of Australia.

In 1808, when the tempestuous rule of Governor Bligh had become intolerable to the colonists, Major Johnston, with the assistance of Captain John Macarthur and Captain Abbott, and the co-operation of almost all the free settlers, deposed and imprisoned the Governor, and took over the government of the colony. Two years later the Regiment was recalled to England. Captain Abbott was the principal witness for Major Johnston in the trial by court-martial of that officer in 1811.

Captain Abbott did not return to Australia after that date, but the knowledge of the country which he had acquired induced a large migration of members of the Abbott family in the late 'thirties and early 'forties of the nineteenth century. Some of the Abbots now settled in Australia came from England, but the greater part of the migration was from Ireland, which, at that time, was over-populated and in a very depressed condition.

The Abbots who came from Ireland to Australia in 1838 and onwards had one advantage, in that it was not their first attempt at colonisation and pioneering in very difficult and dangerous surroundings. Just two hundred years earlier when Oliver Cromwell came to the conclusion, after much heart-burning and prayer, that "for the safety and freedom of the British nation it was necessary that the man of blood, Charles Stuart, should be either restrained or evicted from the throne of Great Britain and Ireland," he consulted with his cousin, John Hampden, and pointed out "that to meet the King's Forces,



Mrs. Eleanor Kingsmill
Abbott,
Wife of Thomas Abbott,
both came to Australia in 1838

Mrs. Frances Amanda
Abbott,
Wife of John Kingsmill
Abbott,
both came to Australia in 1838

decayed serving-men, tapsters and such rabble were of no use. To match them they must have men who had the fear of God before them, and would make some conscience of what they did." John Hampden thought "the idea a good one, but impracticable." Cromwell did not accept his cousin's opinion, but at once proceeded to put his idea into practice by selecting from among his neighbors and personal friends one hundred and nine "God-fearing men—men who feared God and feared nothing else," and commissioning them to each select ten men of the same character, to form the rank and file of his regiment. That was done, and the selected men submitted for Cromwell's approval, tested in every possible way and culled out if necessary. The result was "The Ironsides," "which never were beaten, and never considered the number of the enemy." In the list of the hundred and nine men first selected by Cromwell appears the name of John Abbott, known later, after the fashion of the times, as "God-be-with-us" Abbott.

When the long wars of the English Revolution were over, this old Ironside, with his family and numerous relations, settled in Ireland on the lands which Cromwell had conquered, and resumed for closer settlement, from the supporters of the Stuarts. This was the first colonisation by the Abbotts, who after 200 years moved on to Australia, to take their part in "bringing the waste places of the earth into use."

In 1838 Thomas Abbott and his wife, Eleanor Kingsmill, with their six sons and two daughters, arrived in Sydney, numbers of nephews and cousins arriving with them, or in the next few years after that date. They settled for the most part in what is now the northern part of the State of New South Wales.

Thomas Abbott, the head of the family, was the direct descendant of John Abbott, the old Ironside and Puritan, who settled in Ireland about 1654-1656, after his many battles in Cromwell's wars, and his wife, Eleanor Kingsmill, was a descendant of Sir Edward Kingsmill, who was sent over by Queen Elizabeth to form a Colony or Plantation, as it was then called, in Ireland, and was highly commended for his success by the Royal Commission which Elizabeth sent over "to enquire into the state of our Plantations in Ireland."

When Thomas Abbott reached Australia he was 68 years old, and brought with him two daughters, Mrs. Anne Shaw, a widow with three children, and Miss Martha Abbott, afterwards married to Thomas Allen, then Governor of Parramatta Gaol; and six sons, John Kingsmill Abbott, Joseph Abbott, Thomas Kingsmill Abbott, Henry Palmer Abbott, Benjamin Abbott, and Robert Palmer Abbott, two other sons and one daughter having died in Ireland.

As the Abbotts did not bring much capital to Australia, they were not entitled to a free grant of land, and did not get any. Thomas Abbott, the head of the family, got a Government appointment, and remained in Sydney, so that he might send his four younger sons to Cape's College, a very high-class educational establishment, to which so many of our leading men in Australia owed their early training.

Mr. Cape was of the class of teachers who are "born, not made," and Australia was fortunate in having such a man to train and teach the youths of his day. His boast was that "he had never turned a failure out of his school."

John Kingsmill Abbott, the eldest son of Thomas Abbott, was married before leaving Ireland to Frances Amanda Brady, daughter of Captain W. E. Brady, a retired military officer, who had charge of one of the districts into which Ireland was divided when the Royal Irish Constabulary was formed. A few years after landing in Australia he bought 330 acres of land adjoining the village of Wingen, and leased the adjoining station, Glengarry, on the Page River, a tributary of the Upper Hunter.

This was the first start of the Abbotts in the work of developing the Pastoral Industry of Australia, which has since grown to such large dimensions. The land then taken up still remains in the hands of John Kingsmill Abbott's descendants, with considerable additions purchased from the Crown as the years went on, and is now very highly improved, and used chiefly for breeding sheep and cattle, and partly for farming.

John Kingsmill Abbott died in 1847 at Scone Upper Hunter, leaving one daughter, Lydia, and

four sons, Joseph Palmer, William Edward, Thomas Kingsmill, and John Henry, all born in Australia, and under seven years old. Frances Amanda Abbott, his widow, remained on the

J. H. M. Abbott served through the South African War in the Australian Light Horse, was given a Commission in the Imperial Army, then took up literature, writing "Tommy Cornstalk" and other well-known books of Australian life. He is now on service with the Australian Imperial Forces. Frances Amanda Abbott married Norman Simpson, of Burindi station, Manilla River; she is now a widow with four children, two sons and two daughters, the eldest son (eighteen years old) being a private in the Australian Imperial Forces abroad.

Macartney Abbott, second son of Sir Joseph Abbott, adopted the law as a profession, practising as a solicitor in Sydney. He was elected to the Legislative Assembly of New South Wales in 1913, and again in 1917, for the Upper Hunter; he married Elizabeth Hall, of Scone, by whom he has two sons, William Edward Macartney Abbott, and Terence Kingsmill Abbott. Sir Joseph Abbott was married for the second time to Blanche Solomons, of Maitland, by whom he had three daughters and one son, Lydia Abbott Abbott, Blanche Abbott, Eleanor Kingsmill Abbott, and Joseph Palmer Abbott. Blanche Abbott married Charles Kater, of Mumblebone station, Warren, and Joseph Palmer Abbott is a lieutenant in the Royal Field Artillery, now serving in France.

William Edward Abbott, second son of John Kingsmill Abbott, left the Sydney Grammar



The late Sir Joseph Palmer Abbott,
Eldest son of John Kingsmill Abbott

station, and with the help of a few convict servants, carried on the work until her children were educated and started in life, dying at Wingen in 1902, aged 83 years.

The eldest son, Joseph Palmer Abbott, adopted the law as a profession, practising as a solicitor at Maitland and Murrurundi, and later on in Sydney. In 1880 he was elected to the Legislative Assembly for Gunnedah, and held that seat until 1887; he was then elected for Wentworth and held that seat until 1901, in which year he died. He was appointed Minister for Mines in 1882, Minister for Lands in 1883, and Speaker in 1889, which office he held until 1901; he was knighted in 1890, was a member of both the Federal Conventions by which the Commonwealth Constitution of Australia was drafted and adopted in 1900; he married Elizabeth Macartney, eldest daughter of Dr. Macartney, of Maitland, who died in 1880, leaving three children, John Henry Macartney Abbott, Frances Amanda Abbott, and Macartney Abbott.



Macartney Abbott, M.L.A.,
Second son of Sir Joseph Palmer Abbott

School at 16 years of age to take charge of the station property at Wingen in 1860, which up to that time had been managed by his mother. He gradually converted the leaseholds into free-



W. E. Abbott, of Wingen,
Second son of John Kingsmill Abbott

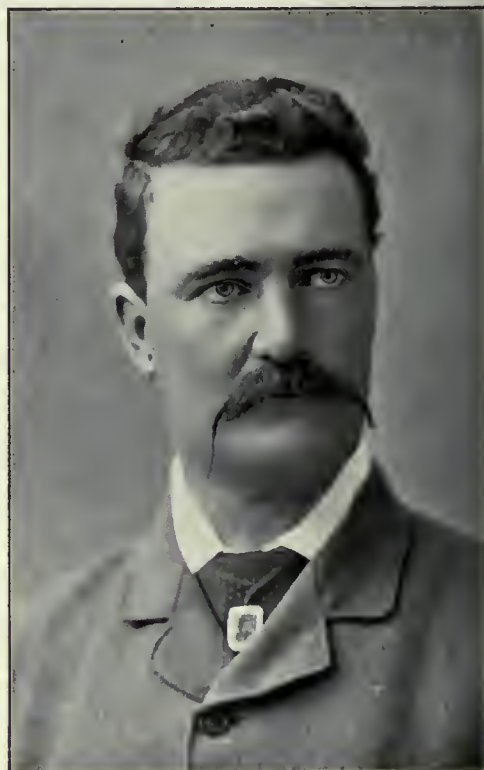
holds by purchase from the Crown, and added largely to the area by the purchase of adjoining properties, continually improving the land and stock, and bringing under cultivation all land fit for that purpose, thus making the property one of the most valuable on the Upper Hunter.

In 1889, W. E. Abbott was elected member of the Legislative Assembly for the Upper Hunter, but was defeated at the next General Election in 1891. He never made any further effort to enter politics, devoting all his energy to pastoral work. He was a member of the Pastoralists' Association of New South Wales from its inception in 1890, serving as President of that body for 13 years, and also was President of the Federal Council of the Pastoralists of Australia at many of their most important meetings. He has been a prolific writer on matters of pastoral and scientific interest, a member of the Royal Society of New South Wales since 1877, and a frequent contributor. He was awarded the Society's bronze medal in 1884. W. E. Abbott, who still owns the land first taken up by the Abbotts in Australia, was never married.

Thomas Kingsmill Abbott, third son of John Kingsmill Abbott, on leaving the Sydney Grammar School, spent a few years on the station at Wingen, then entered the civil service as Clerk of Petty Sessions at Gunnedah, was promoted to

be Police Magistrate at the same place, then transferred to Maitland, and later on appointed one of the Stipendiary Magistrates of Sydney. He was Chairman of the Sydney Stipendiary Bench when he died in 1891. He married Marion Lydiard, eldest daughter of Charles Lydiard, Inspector of Police in charge of the Bathurst district of New South Wales, and left one daughter, Dorothy Frances Louise Abbott, who married A. P. Parbury, of Scone, and two sons, Charles Aubrey Abbott and Thomas Kingsmill Abbott, who both enlisted as privates in the Australian Imperial Forces in 1914. Lieutenant C. A. Abbott is still at the front, and Sergeant T. K. Abbott, wounded at Gallipoli, returned to Australia unfit for further service. John Henry Abbott, fourth son of John Kingsmill Abbott, was killed by a fall from his horse on the station, at the age of nineteen. Lydia Abbott, only daughter of John Kingsmill Abbott, married Joseph James Shaw, a cousin, who came out to Australia with his grandfather, Thomas Abbott, in 1838. She has one son, John Abbott Kingsmill Shaw, solicitor, of Scone, New South Wales.

Joseph Abbott, the second son of Thomas Abbott, the head of the migrating family of Abbotts, entered the civil service of New South Wales, soon after landing, married Alice Rumley, and left one daughter, Josephine Eliza Anne,



The late Thomas Kingsmill Abbott, P.M.,
Third son of John Kingsmill Abbott



House built by John Kingsmill Abbott, at Wingen,
On the first 330 acres of land purchased by the Abbots in Australia in 1843

who married T. W. Harriott, late chairman of the Metropolitan Land Board.

Thomas Kingsmill Abbott, third son of Thomas Abbott and Eleanor Kingsmill, after leaving Cape's College, entered the Post Office, Sydney, then an Imperial institution, reached the position of Under-Secretary, but retired on account of ill-health at forty years of age. He was twice married, but left no children surviving. He died in London, England, about 1882.

Henry Palmer Abbott, fourth son of Thomas Abbott and Eleanor Kingsmill, after leaving school, entered the Australian Joint Stock Bank, retiring from that institution after having attained the position of General Manager in Queensland. He married Elizabeth Lord, and left surviving him two sons, Henry Abbott, solicitor, of Sydney, Thomas H. Abbott, stock and station agent, of Sydney, and three daughters. He died at 80 years of age in Sydney about 1904.

Benjamin Abbott, fifth son of Thomas Abbott and Eleanor Kingsmill, on leaving school, went into pastoral work, married Sarah Barnet, and left two sons and daughters surviving him.

Robert Palmer Abbott, of "Barsham," near Murrurundi, eldest son of Benjamin Abbott, married Matilda Martin, of Glen Innes; he is still living and has three sons and three daughters,

the eldest son, Thomas Kingsmill Abbott, serving at the front in France.

The second son of Benjamin Abbott was Archdeacon Thomas Kingsmill Abbott, Principal of the Armidale Grammar School, who married Annie MacDonald, of Sydney, and died without issue about 1913. Emma Abbott, eldest daughter of Benjamin Abbott, married R. D. Allen, of Cuerindi station, Manilla. Lydia Frances Abbott, of Armidale, the second daughter, is unmarried. Benjamin Abbott died at Tamworth, 83 years old, in 1912.

Robert Palmer Abbott, youngest son of Thomas Abbott and Eleanor Kingsmill, who came to Australia with his father in 1838, took the law as his profession, practising in Sydney as a solicitor, and was elected to the Legislative Assembly for the seventh Parliament in 1872, was appointed Minister for Mines in 1874, and continued in the Legislative Assembly until 1882. He was appointed to the Legislative Council in 1883. He was unmarried, and died, 68 years old, in 1898.

A short time after John Kingsmill Abbott bought his first 330 acres of land at Wingen in the early 'forties of last century, John Abbott—a nephew of Thomas Abbott—bought land on the Manning River, north of the Hunter, and

called his property "Laurel Hill." That property, which is near Taree, is still in the hands of his descendants. John Abbott, of "Laurel Hill," the last survivor of the pioneer Abbotts who came from Ireland to Australia in 1838, died in 1915, aged 96 years, in full possession of his faculties to the last. He married Jane Mills, who is still living, and had four sons and seven daughters, all settled on the Manning and along the North Coast Rivers of New South Wales. John Abbott did not go in for politics, but devoted all his energy to farming and grazing. When his descendants had increased to scores and he was in his 91st year, the first death occurred in his family—a grand-daughter, 3 years old.

Another member of the Abbott family who came to Australia from Ireland in the late 'thirties and early 'forties of the nineteenth century was Joseph Abbott, a cousin of Thomas Abbott, the head of the pioneering family. After finishing his education in Sydney, Joseph Abbott went in for commerce, joining the firm of T. S. Mort and Co., woolbrokers, Sydney, at the bottom of the ladder. Later he became partner in the firm, which ultimately was floated into a Joint Stock Company under the title of Goldsbrough, Mort and Co. He was elected to the Legislative Assembly of New South Wales for Newtown in 1888 and again in 1889, 1891, and 1894, giving up politics in 1895. Joseph Abbott left a large family. He died about 1907.

Lieut. Chas. Lydiard Aubrey Abbott,
Eldest son of Thos. Kingsmill Abbott

Private Thos. Kingsmill Abbott,
Son of Robert Palmer Abbott,
of Barsham, Murrurrundi

Sergt. Thos. Kingsmill Abbott,
Second son of Thos. Kingsmill Abbott



Lieut. Joseph Palmer Abbott,
Youngest son of Sir Joseph Palmer
Abbott

John Henry Macartney Abbott ("Tommy Cornstalk"),
Eldest son of Sir Joseph Palmer Abbott



The Old Tank Stream at Sydney Cove
(From a Contemporary Print)

“BELL'S LINE” AND AN EARLY AUSTRALIAN FAMILY

AWAY back in the year 1807 the stout ship, *Young William*—sea-stained and wearing the marks of ocean travail—one day dropped anchor in Sydney Cove.

The arrival of any vessel was an exciting event to the new settlement. Cut off by thousands of water-miles from their homeland, occupying a still precarious foothold upon Britain's remotest possession at the Antipodes, the rugged band of early colonists hailed the advent of a white sail at Port Jackson Heads with quickened heart and moistened eyes.

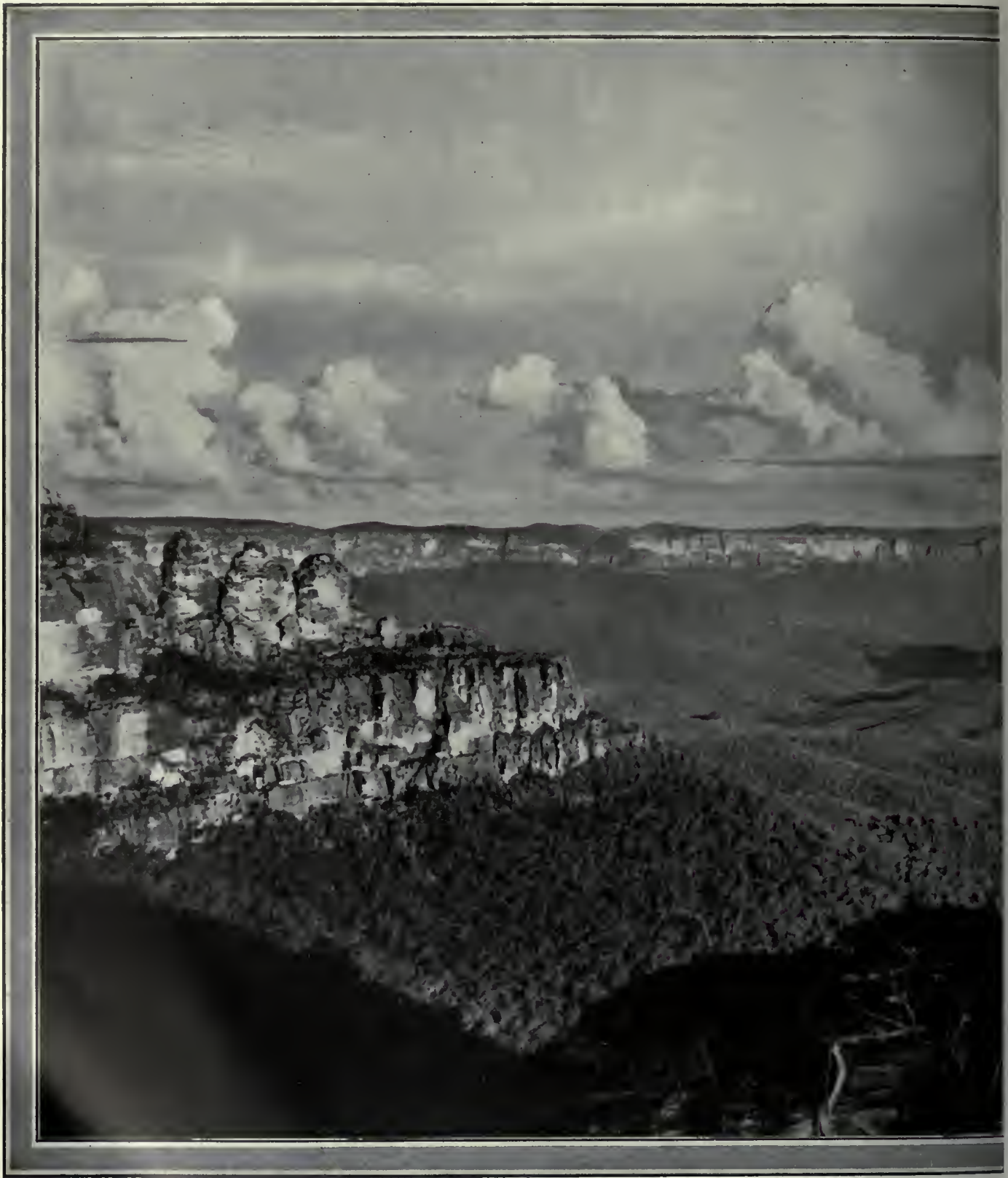
The incoming voyagers in their turn looked with curiosity, mayhap anxiety, upon those strange Australian shores which held for many of them future homes—or graves. After the anxieties and perils of four or six months' voyage they beheld at last the crude beginnings of settlement, with feelings of hope or despair as the case might be. For some that cluster of wattle-and-dab huts by Sydney Cove was to become a magic postern to prosperity and content. For others it was but a door between one prison-cell and another.

Among the “free” voyagers by the *Young William* was an ensign of the 103rd Regiment, named Archibald Bell, wearing the uniform of his

Britannic Majesty, King George the Third. This officer, as he walked the decks of that old wooden sailing ship, never probably imagined himself as the progenitor of a long line of Australian families.

It was on December 6th, 1806, that Ensign Archibald Bell left England by the *Young William*. He was accompanied by his wife and family of seven children—five daughters and two sons, William and Archibald—another daughter Sophia (who afterwards married Mr. H. P. Dutton) was born on the voyage, thus leaving a family of ten (Bells), who landed in Sydney from that vessel on 12th July, 1807, hale and hearty.

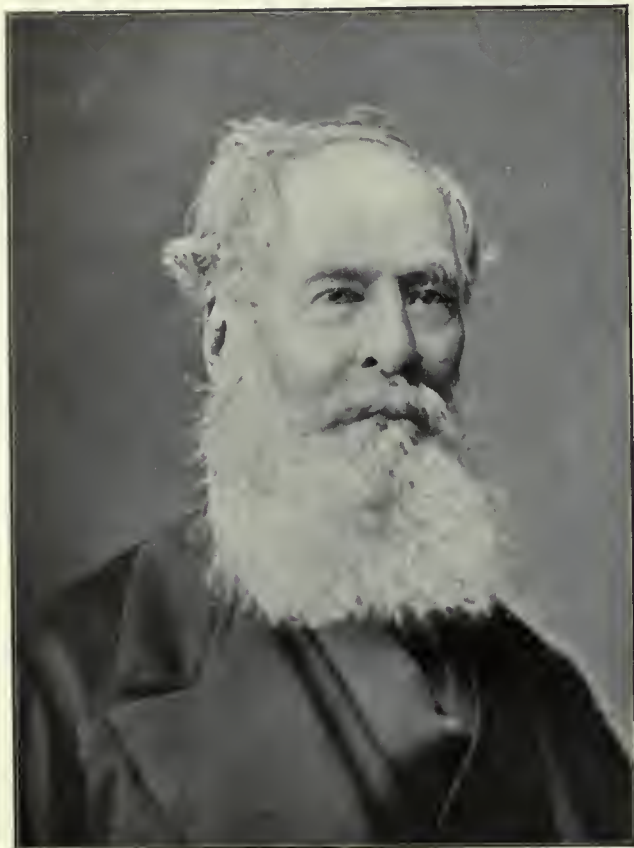
In the following year, 1808, he is one of the prominent figures in the arrest and deposition of hot-headed Governor Bligh, which sensational event set the colony in an uproar. He was called to England as a witness in the Bligh-Johnston trial, and did not return until 1812. The earliest Australian land grant to the Bell family was a block fronting the old Tank Stream (which is now only a memory) right in the heart of Sydney. This block he regarded as “too far away,” so Archibald Bell exchanged it for a block nearer Government House. Part of the land secured



Jamieson Valley,



Blue Mountains



The Late Hon. Archibald Bell, M.L.C.

in exchange was the site on which Parliament House in Macquarie Street now stands. Owing to his absence in England on the Bligh business, the title to this land was not made clear. Lengthy litigation followed. It was not until 1870 that the matter of this title was finally settled, and the heirs of the Bell Estates received £1,000 as compensation.

The young ensign carried with him a letter of introduction from the Hon. Wm. Wyndham, Secretary of State, to Governor Bligh, in which the writer requested the Governor to do all he could for the bearer and to grant to him 500 acres of land and a necessary number of assigned servants, etc. These instructions from the Secretary of State being complied with, Belmont Estate, on the Hawkesbury River, near Richmond, became the home of the Bell family. On the death of Lieutenant Bell this Estate was bequeathed to J. Thomas Bell, his youngest son, who was born in Australia, afterwards passing to Mr. Frank Little, who married Mrs. Fennell, widow of late Captain Fennell, A.D.C. to Governor Brisbane, and who was fourth daughter of Archibald Bell, eventually passing into the hands of Major Phillip Charley, who has erected a palatial residence on the site of the old house. By Archibald Bell's will a portion of land almost in the centre of the estate was reserved from sale

for a burial-ground of any of his descendants, and where he and two of his youngest children are buried.

The subsequent history of Archibald Bell can be traced from the early records of the colony. He figures prominently in many happenings. In 1812 he was raised to the rank of lieutenant. Afterwards he was attached to the Royal Veteran Company.

Lieutenant Bell acted as barracks-master in 1818. This was only a temporary appointment. We find him in charge of the military in Windsor district from 1813 to 1818. He was appointed chief magistrate of the Hawkesbury in 1820. With him in this latter capacity were associated Captain Brabyn and Mr. William Cox, two well-known pioneers and members of the Council (Legislative) in 1832. In these days the magistrates had a strong body known as the Grand Jury associated with them (of which Mr. John Dight was foreman). Lieutenant Bell held office as chief magistrate until 1831. In his official capacity he resided for a part of the time at Government House, Windsor. His family residence was at Belmont. In 1820 Governor Macquarie addressed him as "Magistrate for Cumberland." He was for many years the pivot of early colonial society in the district, and was one of the founders of the Hawkesbury Benevolent Society, which was brought into existence in 1818. He was a member of the old Legislative Council before the institution of responsible Government.

Archibald Bell's family soon became distributed over the country. William, the eldest son, left the paternal home, "Belmont," as a very young man in 1815 to make his own way in the world. The youngest son, J. Thomas Bell, married Miss North, daughter of Colonel North, of Queensland. One of the daughters married Mr. George Cox, of Wimbourne, Penrith, son of William Cox, senior, of Clarendon—one Mr. Faithful, of Windsor—one Mr. Coley, of Windsor—another Captain Fennell, A.D.C., and afterwards Mr. Frank Little, of Scone, and another married Mr. H. P. Dutton, who also came of the early Australian stock. Many of their families settled down in various parts of Queensland, and played a prominent part in the pioneering of the northern State.

The historic property known as "Belmont," on the Hawkesbury, originally consisted of a number of small holdings which were purchased and consolidated by Lieutenant Bell. In his day the tide, which now only comes as far as Windsor, used to rise as far as Belmont. He constantly improved the estate and built a fine old homestead, fortified against the inroads of blacks or bushrangers. A



The Homestead, Pickering

portion of the original building still stands as a monument to the excellent work of the builders of a century ago. The greater part of the old building was, however, demolished in 1892, when it had passed out of the possession of the family.

Lieutenant Bell died at Belmont in 1837, and his grave, with that of his wife and granddaughter, is still to be seen on the Belmont estate in a clump of oleander trees on a hill between the homestead and the main road.

His son, James Thomas Bell, continued to reside on the Belmont estate. He was for many years a leading Australian landed proprietor. He was a local magistrate from 1839 to 1844. The property afterwards passed into the hands of Mr. Henry Newcomen, and was subsequently purchased in 1891 by Major Philip Charley, who made many valuable improvements, including the erection in 1893 of a fine modern residence which he called "Belmont House."

Lieutenant Bell's son, Archibald—who married Frances, a daughter of Captain North, of the Imperial Army, who was a respected citizen and for many years a leading magistrate of New South Wales—won fame by his exploring feats in the early days. A few years after Blaxland, Lawson, and Wentworth crossed the Blue Mountains (in 1813), young Archibald Bell discovered another road known to this day as "Bell's Line." This crossed over the Kurrajong Mountain, opening out toward Wallerawang. This was in 1823. Mount Bell and the village of Bell (on the western line near Mount Victoria) are named after this explorer.

Bell's Line provided a safe and easier track for stock. When pastoralism was moving out to the promised land across the mountains a large proportion of the settlers' sheep and cattle went *via* Bell's Line, and all fat cattle and sheep to Sydney market until the railway carried them.

Bell's Line held more facilities for resting stock than the original route. It avoided the

difficult track down from Mount York, which had to be negotiated before the Victoria Pass road was made. Visitors nowadays who look askance at the precipitous old track down the mountain side at this point wonder how any living thing made the descent. They can realise why the stock-owners preferred to travel by Bell's Line. In this way they can appreciate what the value of its discovery was to the colony in early days.

The coming of the railway naturally robbed Bell's Line of its usefulness. Its fame as a colonial highway has departed, but it was one of the highest achievements of pioneering days, and associated its discoverer for all time with the development of the pastoral industry.

Archibald Bell, junior, was the first to have stock taken from the Hawkesbury to Hunter River. It was he who, after discovering and marking Bell's line of road over the Blue Mountains from Kurrajong towards Bathurst, meeting the Blaxland-Lawson line near the Western Fall of the mountains' at a place since named Bell after him, immediately started on another exploration from his father's home, "Belmont," to the Hunter River, following on the track of Howe and Singleton, and came upon them, camped on the banks of the Hunter at Patrick Plains, afterwards called Singleton. The explorers were out of rations and supplies. For this work he was granted 1,000 acres of land on the Hunter River, which he took up and occupied and named "Corinda." This property was seven miles below Patrick Plains.

We have before us a copy of the original diary which Archibald Bell, the younger, kept during his explorations when he discovered the track over the Blue Mountains. His first expedition started on August 1st, 1823, when he climbed over the Kurrajong Mountain and plunged into the unknown interior. So rough was the way, that only six or seven miles' progress per day could be made. For five days they pushed on and then

had to give up the attempt, being unable to find a safe descent from Mount Tomah. They returned to Belmont, re-equipped, and set out again, on September 1st of the same year, determined to attempt a passage to Cox River from Richmond. From Kurrajong they travelled north-west about four miles to Picture Hill, and then made westerly till they reached Tomah. Here they found their previous error had been in trying to open a passage to the west. Bearing south, they discovered an easy descent, which brought them over to level country. In some places this early exploring expedition had to cut its way through brush for miles. They pushed on as quickly as possible, and marked out a road. The diary speaks in glowing terms of the character of the soil on Mount Tomah, and of the advantages of the new track for stock traffic. This discovery proved of immense advantage to stockowners in the early days.

During his stay at "Corinda" Archibald Bell, junior, explored the country about the heads of some of the main tributaries of the Hunter River, and secured a considerable area of freehold land called "Milgarra." His was the first vehicle driven on the Hunter, the country being very mountainous and rocky. Frequently he had to take the horses out of the vehicle and let it down rocky precipices with ropes and chains fastened to trees. Later he made another exploring expedition further up the Hunter River and took up other grants on the Wybong Creek, in the Scone district for himself, his father, Captain Fennell, and Captain Bedwell. He also took

up St. Helliers, adjoining Mussellbrook, for Colonel Dumaresq.

Owing to the drought and generally depressed state of the whole country during the 'forties—when sheep inland were only worth one shilling to three shillings, and bullocks seven or ten shillings—he felt it necessary to leave his comfortable "Corinda" and take charge of his estate of "Milgarra" in 1849. Ten years later he purchased "Pickering," on the banks of the Hunter from Captain Pike, and lived there with his family until his death in August, 1883.

During his term at "Pickering," he represented the Upper Hunter district in Parliament and, on his voluntary retirement, he was appointed to the Upper House, of which he was a member until the time of his death.

He bequeathed his property, "Milgarra," to his two eldest sons, Archibald and George, leaving "Pickering" to the two younger surviving sons, F. S. and H. W. Bell. The new owners of "Pickering" shortly after taking over the property, joined two of their immediate neighbors in the first experiment of shipping live cattle to England. It was, however, anything but a financial success, though the animals shipped in Sydney arrived well and sound in England. The expenses consumed about 70 per cent. of the proceeds.

Pickering Estate this year (1917) has passed into the hands of the sons of F. S. Bell, great-grandsons of Lieutenant Archibald Bell. The other property, "Millgarra," is one of the very few estates still owned by descendants of the original grantee.



Pure-bred Red Durham Cattle at Pickering

“COX'S PASS”

AND SOME ACCOUNT OF AN EARLY PIONEERING FAMILY.

THE history of the Cox family in Australia dates back to the first years of settlement—almost to the days of the First Fleet—for it was in 1800, and in the first month of that year, when Lieut. William Cox (with the duties, if not the rank, of Captain commanding) landed at Sydney Cove, where the first Australian settlement had its quarters. He was born in England, at Wimbourne, Dorsetshire, on December 19th, 1764. He was educated at Queen Elizabeth's Grammar School in his native town, the school standing on the site of Saint Cuthburga's ancient nunnery.



Lieut. William Cox

William Cox moved to Devizes, Wiltshire, when he attained manhood, and married Rebecca Upjohn, of Bristol, when he was twenty-five years of age. He was a man of good estate, and served in the Wilts Militia with many other country gentlemen, who thus showed their desire and capacity to serve their country. In 1795 he joined the regular army, being gazetted an ensign in the 117th Foot. About eighteen months later, having meanwhile exchanged into the 68th Foot, he was promoted to a lieutenancy. In 1798 he received the important appointment of paymaster

at Cork Harbor. In that historic year of '98 the Rebellion in Ireland broke out and the Irish "rebels" were being transported, on capture, to Botany Bay, the settlement in that recently founded British possession on the continent of Australia, that had been discovered in 1788 by Captain Cook. One of the parties of prisoners was sent out in the *Minerva* (Captain Salkeld), under the charge of Lieut. William Cox as commanding officer, with Lieut. Maundrell, of the New South Wales Corps, as second-in-command. The *Minerva* reached Port Jackson safely on 11th January, 1800.

Thus it was that Captain Cox came out to Australia, where he at once joined the New South Wales Corps, which afterwards became the 102nd Regiment. He received the appointment of Paymaster of the colony in succession to Captain John MacArthur. The terms offered to these officers were very good. They were to be first officers and then colonists. Most of the large holdings of land in those days, indeed, were originally Crown Grants to army and navy officers, freely given by the Government of the period with the idea of inducing settlement in the new British colony. Heavily timbered for the most part, it required pioneers of the right stamp, who were prepared to live in virgin country, risk the treachery of natives, and undertake the Herculean task of clearing and improving a forested wilderness. Those were the days of privation and hard living. Capital was scanty, and a man's best assets were health, strength, and unbounded energy. The pioneers often had little or no money to devote to their strenuous tasks. Labor, however, was cheap, being comprised for the most part of "assigned" servants, that is, convicts placed at their service.

At this time—the figures actually represent the position in the previous August—the settlement had not made much progress; the entire live stock consisted of about 150 horses, 700 cattle, 5000 sheep, 2700 goats, and 3500 pigs, while the land under cultivation was less than 10,000 acres, wheat and maize being the principal crops. But it was men of the stamp of William Cox who improved the production of the new colony. He did not wait any time before starting his career as a colonist and producer, and in so doing made a characteristic move.

He purchased Brush Farm, on the Parramatta River, which was then for sale. It was only a hundred-acre place, but at that time there was so little cleared land in the colony that it seemed spacious. He had "assigned" servants handed over to him, and with them he set resolutely to work, and soon turned Brush Farm into a model property. We read in his biography of his early



William Cox, Junr.

struggles against the enemies of the farmers—rust, blight, floods, hailstorms, fires, and insects—but he succeeded in spite of all. In the twenty months or so to October, 1801, the farm had been much increased, and is thus referred to in the Public Records: "Mr. Cox purchased from settlers 1380 acres—400 cleared, 248 acres wheat and maize, 24 horses, 20 head of horned cattle, 1000 sheep, and 200 hogs." It will thus be seen that this pioneer had early become a considerable property owner.

He also purchased Canterbury Farm, adjacent, from the Rev. Mr. Johnson, who made a fortune early—not exclusively out of the oranges—and retired from farming. In 1802 Mr. Cox was employing 110 men, the largest establishment in the colony, and they were a contented and prosperous community. The Government was always glad to purchase all the wheat grown at 10s. the bushel, and stock was also very dear. A brood mare was quoted as being worth £100 to £150, a cow from £30 to £50, and sheep from £3 to £4. So farming and stock-raising were profitable.

Captain MacArthur had taken up the celebrated "Cowpastures" estate, where the herd of wild cattle was found, and Camden Park in 1805, but the valley of the Mulgoa was still unoccupied. Two sons of William Cox—George and Henry, fine strapping young fellows—heard of good agricultural and pastoral country there, and went out to view it. They were attacked by blacks, but eventually reached and took up the country with their father's help, calling it "Littlefields" and starting a dairy farm there in 1810.

When Captain Waterhouse, who had a very valuable flock of Spanish merinos which he had imported from the Cape of Good Hope, left the colony, he sold part of his flock, which had done well, to William Cox, who took them to his property at Canterbury until he sent them to Mulgoa. There Mr. George Cox then started sheep-breeding as the premier industry, and bought some excellent Rambouillet merino ewes from Sir John Jamieson, of Regentville, and a number of rams from Mr. Riley, of Raby. Thus was laid the foundation of the fine breed of sheep which made the name of Cox prominent in the list of sheepbreeders, and this at a time when there were not more than 6,000 sheep in the colony, chiefly of the hairy Bengal breed, useful only for meat, and not more than 500 prime merinos.

At this period, too, the limits of the colony of New South Wales were arbitrarily fixed by the great range of the Blue Mountains, which rose from the Nepean River close to the Mulgoa Valley, and had defied the efforts of many intrepid explorers to cross the barrier. In 1813,



John Cox

however, Blaxland, Lawson, and Wentworth achieved the hitherto impossible. Governor Macquarie then sent Surveyor Evans to report on the lands thus revealed, and when a favorable report was received he looked about for a man capable of superintending the making of a road across the mountains.

William Cox had sold his Brush Farm and Parramatta properties and had moved to Clarendon, near Windsor. He was then the Chief Magistrate of the district, and when he offered his services as superintendent of the road they were readily accepted, as he was *persona grata* with the convicts who must supply the necessary labor. To him, then, in 1814, the Governor entrusted the task of constructing a carriage road from Emu Plains, on the left bank of the Nepean River, across the Blue Mountains, to "that fine tract of country to the westward of that discovered lately by Mr. Evans." He was given thirty laborers and a guard of eighty soldiers, adequate provisions, stores, and implements. On July 11th, Mr. Cox prepared for his task by converting a cart into a caravan to sleep in, as well as to carry his personal luggage; on July 17th he left Clarendon, and two weeks later he was able to report that the workmen were going on with much cheerfulness and doing their work well, though the timber was both thick and heavy, the bush strong and thick, and the roots hard to grub up. The weather proved generally fine, except for occasional hurricanes, and during most of the time cold; there was some sickness among the men but no fatalities, in spite of the great rocks of the mountains, which proved "uncommon hard and flinty." The task was completed satisfactorily on January 14th, 1815, and in April of that year Governor Macquarie drove his carriage over the 101½ miles of the new highway, from Emu Ford to Bathurst, 145 miles from Sydney. Then began a new era in the history of New South Wales and, indeed, of Australia.

When the Governor, on that inaugural drive, reached the river on the far side of the range, he named it, after the man who had bridged it, the Cox River. He also gave the name of Cox's Pass to that precipitous part of the road that winds down 676 feet of the ridge of the mountain at Prince Regent's Glen, leading to a valley of good pasture land and soil fit for cultivation. He made to Mr. Cox, in consideration of his gratuitous services as superintendent, a grant of land on Bathurst Plains, on the right bank of the Macquarie River, which the new owner named "Hereford." He also sent him an official letter of thanks. Mr. William Cox accompanied the Governor and Mrs. Macquarie

on their official drive over the new road. Mr. Oxley and Mr. Evans were also of the party.

William Cox's sons also took important parts in the development of New South Wales. When William Lawson returned to Bathurst after his unsuccessful attempt to cross the Liverpool Range, he gave a glowing account of the grand country he had seen. This stirred the ambition of George and Henry Cox, and they volunteered to join Lieutenant Lawson in taking up the land. The agreement made between them was that the Messrs. Cox were to take all the land on the south bank of the Cudgegong River and Lawson would take all that was on the north. This was ninety years ago, and the party set out courageously into the strange, roadless domain of the wild blackfellow, on horseback, and with their flocks and herds, their waggons and household goods, and a goodly store of provisions and other necessaries. These were indeed the pioneers.

The party moved down to a waterhole which the blacks called Mudgee and camped there in 1822. The town of that name now covers the site of the old camp, which is 190 miles from Sydney. Nowadays Mudgee is a considerable town, and a busy one, the thriving centre of a great district devoted to sheep-breeding and agriculture, with a population of 4,000 prosperous people. George Cox made his home at Burrandulla, one of the finest places in the colony. Some three miles down the Cudgegong River a hut and yards were erected as an outstation by George Cox on a pretty place of park land which he called "Menah."

In the meantime, William Cox had established a station near the junction of the Cudgegong and Macquarie Rivers and called it "Burrandong," and his son George made his home there. William Cox also took up land at Coolah in association with Lieut. Lawson, and his son George was soon across the range, by the Pandora Pass, where he took up "Garrawilla" and "Nombie," which Oxley, the Surveyor-General, had first seen and named Lushington Valley.

In 1819 Mrs. William Cox died, leaving five sons, and two years later Mr. Cox married again, adding to his family three sons and a daughter. William Cox died in 1837 at the age of 72 years, leaving behind him a reputation second to none among those grand old pioneers who laid the foundations of the Mother State. His numerous sons, too, left their names on the records of the early pastoral development of the State, and themselves left large families of worthy descendants to the present generation. It may be briefly stated that of William Cox's first family William Cox, junr.—who had remained in England and served as a young officer in the Peninsula War—came out to New South Wales and married the

daughter of Captain Piper, after whom Point Piper, Sydney, was named. He founded Hobartville, near Windsor, and afterwards took up station properties near Muswellbrook and near Warrialda. George inherited Clarendon (which



Chas. H. Cox, J.P.

was afterwards sold by his son, Charles Clarendon, to Mr. Arthur Dight), and himself founded Wimbourne. He married Elizabeth, the daughter of Lieut. Archibald Bell, of "Bell's Line" fame. James went to Tasmania and founded Clarendon, near Launceston. Henry possessed much property in the Mudgee district. Edward lived and died at Mulgoa. Of the second family, Edgar inherited "Hereford." Thomas became a clergyman and went to England; he inherited some Sydney city property from his father. Alfred became the owner of "Burrandong," but sold it and settled in New Zealand. The daughter married Captain Isherwood and moved to England.

All of William Cox's family left many worthy descendants. A few of these only can be mentioned—E. K. Cox (the stud-breeder), Dr. James C. Cox (President of the Fisheries Commission), sons of Edward Cox, one of whose daughters married the Earl of Lindsay; the Hon. George H. Cox, J. D. Cox (of Cullenbone), A. T. Cox (of Mudgee), and Chas. Clarendon Cox (of Broombee), all sons of George Cox. Of the third, fourth, and fifth generations there are fully five hundred. Burrandulla and Oakfields, at Mudgee, are still held by members of the Cox family, but the pressure of population around the inland towns has forced the pastoralists to take up more distant country. Descendants of Wil-

liam Cox the elder are now settled in Queensland and in the northern parts of New South Wales.

Charles Hobart Cox, J.P., of "The Oaks," Muswellbrook, is the third son of John Cox, who was the second son of William Cox, junr., of Hobartville. The latter married his cousin, Georgina, the daughter of George Cox, of Wimbourne, who had married Miss Bell and had eight sons and four daughters. John Cox had Negoa, near Muswellbrook, which still belongs to his three daughters, and also the Well Station, also near Muswellbrook, of which his son, Charles Hobart Cox, bought half at his father's death and named "The Oaks," there being many oaks growing in the creek which runs through the property. It is nine miles from Muswellbrook, and consists of 3,500 acres of basalt country, undulating, with creek flats, and is timbered with box and currajong, with a sprinkling of ironbark. It carries a good flock of Lincoln crossbred sheep, and a few cattle and horses.



John Alan Hobart Cox

The owner of "The Oaks" has three sons and a daughter, the two elder sons being abroad on active service. The eldest, John Alan Hobart, enlisted in 1915, was in the Gallipoli campaign to the evacuation, and is now serving in Palestine with the gun squadron of the 4th Light Horse Brigade. Charles Hobart Cox, junr., enlisted in January, 1917, and is with the Australian Field Artillery in France. The youngest son, Rex Hobart, is 18 years of age, and is assisting his father at "The Oaks." Mr. Cox, indeed, comes of a military family, several of his immediate ancestors having served in the British army besides those already mentioned, and there are now fully fifty members of the Cox family on active service abroad, while many have made the great sacrifice.

THE
AUSTRALIAN PASTORAL INDUSTRY



Wool Store, at Port Adelaide, South Australia



THE history and romance of ranching have become a feature of American literature. The romance and history of the Australian stations remain largely unwritten. But there are volumes in them, full of adventure and brave human effort. They have their heroes and heroines—as interesting as the fine lads and fair ladies of Texas and Old Virginia.

When the commonplace of a pioneering everyday has been mellowed by time, Australian writers of the Winston Churchill type will turn as naturally to station life for theme and inspiration as American authors have turned to the planters' life of Old Virginia. They will find in it pabulum for stirring verse and story, while magazine and book artists of the future will decorate their dainty pages with many a happy picture typical of our sunlit Island Continent.

Australia has been, is, and will doubtless continue to be, the greatest pastoral country in the world. On this foundation the early prosperity of the colonies was laid by enterprising minds of the Captain MacArthur type. On this foundation it is based to-day.

In every State of the Commonwealth wool and stock are now staple products. One-sixth of the world's wool is grown in Australia. The export of beef, mutton, and by-products is an enormous and constantly-increasing quantity. Australian fleeces have long been famous. In the marts of industry and commerce our staple product has made us well and favorably known.

Every season buyers from all parts of the world assemble at various wool exchanges of the Commonwealth to bid for our fleeces. Being a rural industry, it has in it more romance than ordinary modern industrialism.



Reserve Stock-Feed on a Riverina Station



Hand Shearing in a Riverina Woolshed: Merribee

The pastoralists form the richest and most influential body of employers, and workers connected with this industry have the largest and most powerful union.



A Beef Shorthorn

There is no scene more typical of Australian life and character than a big shearing shed in operation.

Since the introduction of machines these establishments have undergone a great change, which is reflected in the habits of shearers and their associates. A shed such as Yanco covers ten thousand square feet of space. Clean pens, modern fittings, sanitary surroundings, lifts, electric light and power make a shed nowadays more like a barber's shop on a large scale.

At these emporiums in the remote Australian interior there gather annually regular companies of shearers, rouseabouts, offsidiers, and fillers of various functions in the economy of the trade. Then begin a great bustle, a burr of machinery, a yapping of sheep-dogs, the shouts of drovers, the ascending song of human effort.

Across open plains, where grow the bright green drooping wilga and the dark green cypress pine, sheep by the thousands are being driven, with long greasy fleeces ready for the shears.

Each silly-looking sheep in turn sits for a little time with crossed feet in the shearer's arms, while the cutters are applied to his surface by expert hands. Then, his natural covering removed—mayhap sections of his skin with it—bare, humiliated, and monotonously comical, he is turned out down the shoot to go back and grow wool for another season, or to be converted into mutton, as fate ordains.

Close to the wall of the shed a long line of shearers, with stooped backs and bare arms, greasy with animal fat and perspiration—the long shafts of the machinery constantly singing overhead—hour by hour work the cutters, up and down among the woolly bodies of the most stupid and profitable of domestic animals.

Boys with baskets, "pickers up," as constantly rush the freshly-shorn wool to the tables, where it receives its first classification.

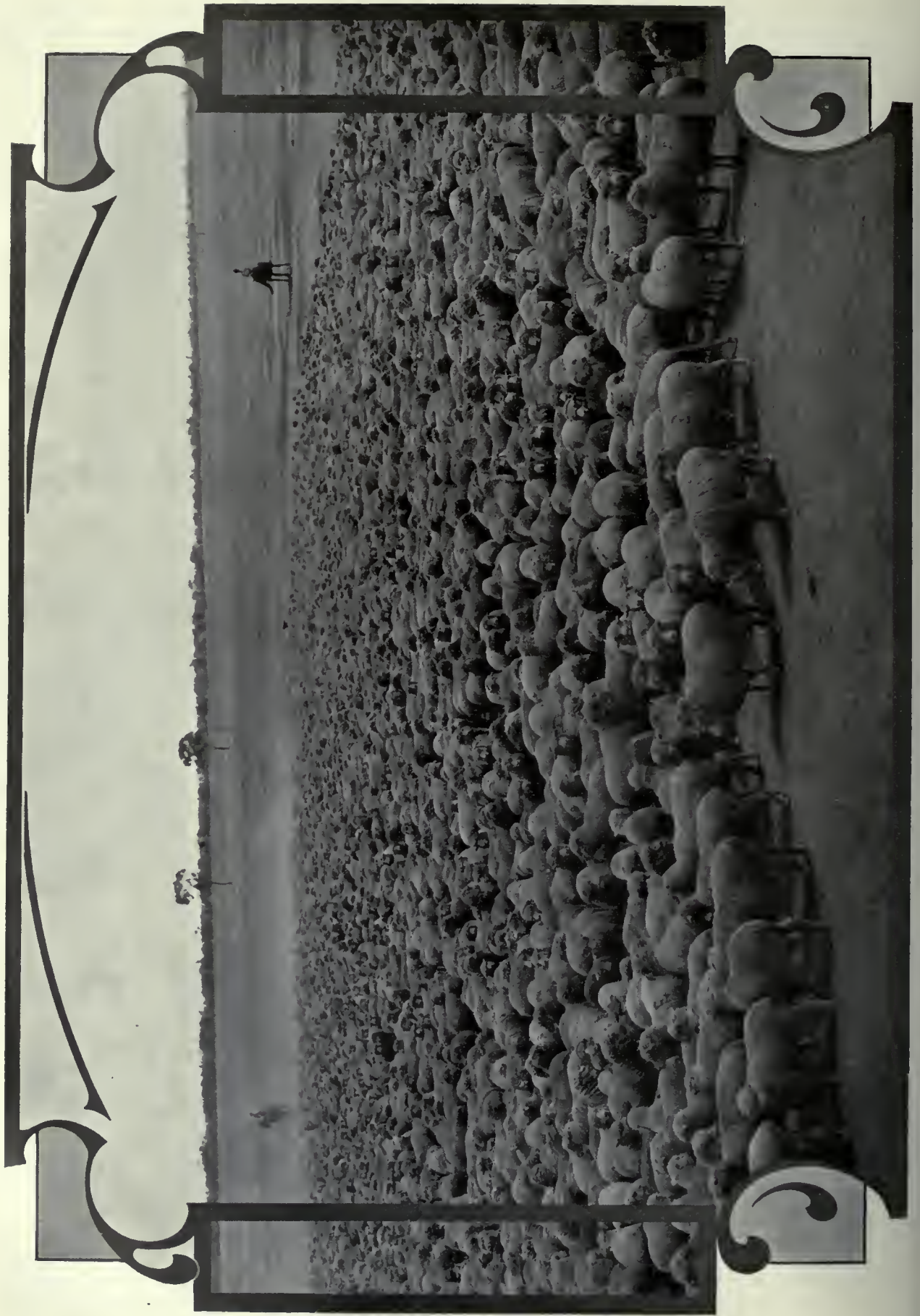
Then comes in turn the baling up of the wool, its departure from the shed, by railway truck, or team, or motor lorry, towards whatever port it is destined for.

Then begins, with the major portion of our most valuable national product, the excitement of the wool sales, the dumping and stevedoring and shipping—all delightfully interesting and gratifying to Australian eyes.

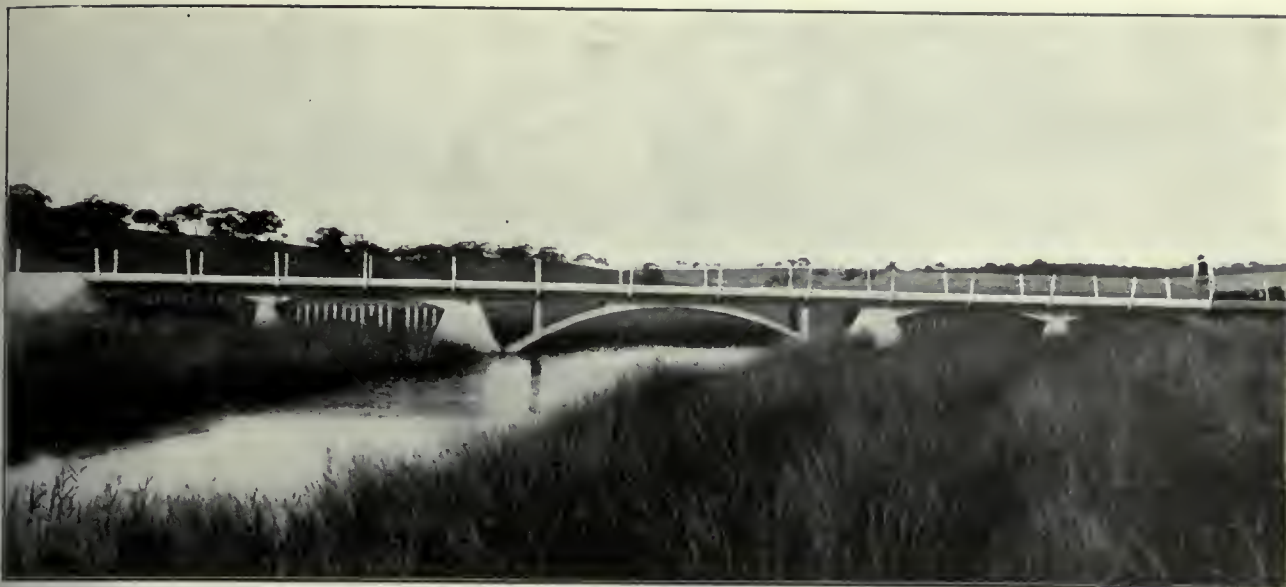
The wool season for 1914-15—the first year of the war—was entirely satisfactory, a proof that the foundations of our wool trade are solidly based.



Windmill and Sheep-Trough, Yoorobla, N.S.W.



A Mob of Merino Ewes in the Riverina, N.S.W.



Private Bridge over the Light River, Anlabby Estate, S.A.

No matter what calamities have overtaken civilization, people must have clothes, blankets, and other essentials of woollen manufacture.

The value of the Australian wool clip for the season ending 30th June, 1916, was well over £26,899,000 sterling. Record values for sheep obtained owing to shortage of lambs and increased requirements. All the wool produced in Australia, saving only about $3\frac{1}{2}$ per cent. used in the local manufactories, is exported.

So far the State of New South Wales has led the Commonwealth in sheep production. 4,176,000 of the 10,239,000 sheep slaughtered in the Commonwealth in 1915 were bred in the Mother State.

"In all the States," says our Federal Statistician, "considerable attention is now being paid to the breeding of a class of sheep that will best meet the requirements of consumers. Crosses between the Merino and the Lincoln, or between the Merino and the Leicester breeds, have proved exceedingly valuable, as they furnish both a good quality of wool and also an excellent carcase for export purposes. The breeding of Shropshire and Southdown sheep with a view to combining meat production with that of wool is also on the increase. Special attention is being paid to the raising of lambs for the home markets, as it is becoming very widely recognised that with suitable breeds, the export trade in lambs is a very profitable one."

Under a Federal Act of 1907 bounties are payable on Australian combed wool or tops exported, £10,000 per annum being the maximum sum available to any exporter.

In 20 years—1895 to 1915—the quantity of Australian wool sold locally more than doubled, and the export vastly increased. Sheepskins to the value of over £9,000,000 sterling were exported during the last five years of that period. The next twenty years should see an enormous expansion of the industry.

Were it not that this compilation has a definite mission before it, its author would have delighted to present a less serious aspect of the great primary industry on which the prosperity of Australia largely rests. Down our mighty Southern plains, along our cool tablelands, over our Northern downs and out across the Centre and the West, the sheep and cattle runs, which make our wealth and pride, await the pen of artistic description and historical interest.

But that story may not be fully told within the covers of our present volume. Unable therein to compile a complete history of Australian pastoralism, the publishers have confined this section to a limited number of examples of enterprise and success.

The families, of whom a brief personal history is given here, have done well by Australia and deserve well of it. They have been among our strongest and most resolute pioneers, and such rewards as they may have won are no more than their due.

Although a persistent advocate of closer settlement, the author recognizes the incalculable asset such men and women make to a new country. Furthermore, he is gratified to think that, by materially recognising a publication which has been intended for the benefit of all Australia,



A South Australian Pastoral: Keyneton

these good Australians have become *de facto* active agents for immigration and settlement, and have in a majority of cases expressed a willingness to supply information and advice through correspondence or otherwise to intending settlers.

As the Pastoral Industry is in many aspects of a highly technical nature, the author has had associated with him in the compilation of this section Mr. R. J. Withers, Secretary to the Sydney Wool-Selling Brokers' Association, and an expert writer on the kindred subjects of stock and wool. Mr. Withers has spared neither time nor effort to bring to the pastoral pages of this book the exactness without which they would be of little value to those who are interested in stock-breeding and the qualities and values of Australian sheep and wool.

To Mr. P. J. Nally, of Queensland Government Tourist and Intelligence Department, the author is indebted for some of the data concerning Queensland pastoralists.

Mr. H. N. Maitland acted as pastoral interviewer throughout, and has travelled thousands of miles through the sheep and cattle districts, enlisting the support and assistance of prominent pastoralists.

The articles may be accepted therefore as a correct record of the life and labors of those leading spirits whose enterprise calls for inclusion here, and an exact result of costly experiments made by enthusiasts in the improvement of flocks and fleeces which have made Australia famed as the foremost producer of mutton and wool in the world. That part may prove somewhat technical to the average reader, but it is of intimate interest to thousands of Australians, and a section under this heading would be incomplete without its inclusion.



Romney Marsh Ewes and Lambs, Victoria



The Homestead, North Yanco Station

SIR SAMUEL McCaughey, M.L.C. NORTH YANCO

S QUARE-SHOULDERED, with a strong head set firmly, I can see the figure of this remarkable man as he sat in an easy-chair in his fine dining-hall at Yanco before a bright log-fire one winter's evening six years ago. I had come down from the great storage basin at Burrinjuck with a Commission from the Government of New South Wales, to inspect and describe the second biggest irrigation proposition in the world. For years I had made a close study of irrigation and, during a 1,500 mile motor-boat journey down the Murray River, had but recently examined some of its possibilities.

The name of Sir Samuel McCaughey had been, of course, pre-eminent among the pastoral kings of Australia, but it was also well and honorably known in the history of pioneer efforts to make irrigation in Australia a practical success. The man had a vivid human interest for me, as he sat there in his chair with the firelight on his face. He had risen by sheer brains, courage, and financial genius from the position of station overseer to the much-criticised but universally-coveted prosperity of a millionaire.

As I studied the face—a strong North of Ireland face (he was born in Ballymena, in the County of Antrim in 1835)—I saw therein certain lines which betokened the qualities of the man. Here was a staunch, inflexible type which would achieve success anywhere, but in a country like Australia, where the best man is given every chance to win, its success was only a matter of time.

Such men as Sir Samuel McCaughey create opportunity, if it happens to be denied them. Rich enough to be independent of criticism, they are free to pursue national ideals or personal philanthropies as no party-politician or paid advocate is permitted to do. Strong enough to defy public opinion where they consider public opinion to be in error, their worldly success makes finally for the benefit and betterment of a community. The good work they frequently do is unknown to a hydra-headed public, but their marks must be indelibly impressed upon the plastic material of a nation still in the making.

No man has occupied a more prominent position in the pastoral industry of the mother State

during the past half-century than Sir Samuel McCaughey. Few men have displayed as much enterprise or achieved such material results. Although he has gradually retired from pastoral pursuits and disposed of a large number of his station properties owing to advancing years, he

young manager determined to gain all the experience possible. In those four years in the Wimmera district he acquired the "colonial experience" which alone was necessary to supplement the energy and resourcefulness native in him. In 1860 he purchased Coonong, Narrandera, as well as an interest in Singorimba, a property of 40,000 acres adjoining Goolgumbra, his partners being the late Mr. David Wilson and Mr. John Cochrane.



The Hon. Sir Samuel McCaughey, M.L.C.

has lived to see the successful outcome of his efforts and the materialisation of many of his industrial schemes.

His uncle, Mr. Chas. Wilson, preceded him as a settler in Victoria, where he had been associated with his brothers, John and Alexander, for fifteen years before revisiting Ireland in 1855. On his return to Australia he was accompanied by his nephew, Samuel McCaughey, then a young man of twenty.

He was placed by his uncle on Kewell, a station in the Wimmera district of Victoria. For two years he filled the position of overseer, and for a further two years he made an efficient manager. His whole heart and soul were in the work. He early displayed a particular aptitude for pastoral pursuits. It was his *metier*, his inspiration, his gift. Genius gains strength by knowledge. The

The Coonong property was not very highly improved. It had been a cattle station exclusively. Owing to a very serious slump about that time in the value of cattle, it was decided to sell off and stock up with sheep. The herd was cleared out at ruinous prices. A few years later Mr. Wilson sold his third interest to Mr. Cochrane, who for a year longer held a two-thirds share in the properties and then sold out to Mr. McCaughey.

Becoming sole owner, Mr. McCaughey put forth his best endeavours to improve the place. In the face of great financial difficulties he constructed tanks and dams, erected fences, and stocked up. It was some years before Coonong became a profitable proposition. The key of the whole matter lay in improving the water supply, as the Colombo and Coonong Creeks were frequently dry, the latter for a dozen years at a stretch. Thus the place in its original state was a rather risky pasturage for sheep. Mr. McCaughey, however, set to work to improve the natural resources in this respect. In conjunction with the late Sir Samuel Wilson, he started out to deepen the intake of the Yanco (of which Colombo Creek is a branch) from the Murrumbidgee.

He persevered in the work of water conservation, and eventually proved what splendid results could be achieved by irrigation in the more arid districts of Australia. This may be ranked among the greatest achievements of Sir Samuel McCaughey's life. It was due to his efforts that the great Burrinjuck irrigation scheme finally emerged from theory to reality.

His work in water conservation has earned him a place as a seer—one who plans for generations unborn. He was appointed to the Legislative Council of New South Wales in 1899 and was created a Knight Bachelor in 1905.

As a sheepbreeder, Sir Samuel McCaughey has shown the greatest enterprise and a determination to spare neither trouble nor expense in improving the breed of merinos. The first purchases of importance in connection with the Coonong flock were made from Widgiewa, then owned by Mr. Cochrane. These were old ewes of large frame and excellent quality of wool. To



The Homestead, Coonong

improve the flock he purchased rams from the late Nicholas Paget Bayly, of Havilah, one of the most celebrated breeders of his day, also from the late Mr. R. Q. Kermode, of Mona Vale, Tasmania. In 1866 he followed up these purchases by securing a couple of renowned Ercildoune rams, the wool of which was conspicuous for its lustre and softness. Mr. McCaughey, however, considered the fleeces too open for central Riverina, and the Ercildoune rams were succeeded by two Tasmanian rams bred by the late Hon. James Gibson, of Belle Vue, Epping, Tasmania, the breeder of the celebrated ram, "President," sold for 1600 guineas.

In 1873, having acquired extensive stations in the Riverina, Mr. McCaughey returned to the Bayly blood for a further infusion by buying 200 rams. In 1874 he made a further purchase of 1,000 rams, and in 1875 he bought the whole of the season's output—2,000 head.

Exhaustive experiments followed for the purpose of ascertaining the best type of sheep for his country, and extensive purchases were made of the finest specimens of sheep raised in New South Wales, Tasmania, Victoria, and Queensland, price being a secondary consideration when a good ram was offered. Rams were bought from Mount Fyans, Jellallabad, Nareeb Nareeb, and East Talgai. The best results were obtained from the rams from East Talgai and Nareeb Nareeb.

In 1882 he purchased an excellent sire from Messrs. Austin and Milleur, of Wanganella. The hoggets by this ram were so satisfactory that Mr. McCaughey purchased ten two-tooth Wanganella rams, which had been exhibited at the Deniliquin show that year, for 4,000 guineas. The next purchase was a number of young rams from Boonoke. In 1885 three stud sheep exhibited at the Deniliquin show gained three first,

two champion, and two grand champion prizes, besides innumerable other prizes, at Wagga and Narrandera. The exhibit of Coonong sheep at the Philadelphia Exhibition in 1876 was awarded a bronze medal.

In 1883 Mr. McCaughey bought at the Sydney stud-sheep sales ten Californian rams—three of Rambouillet strain and the balance of pure Vermont blood. So pleased was the flockmaster with results, that he visited America for the purpose of securing the best sheep he could purchase. With the aid of Mr. E. N. Bissel and Mr. Wm. Chapman, he went round the best flocks and secured some of the finest sheep in the State of Vermont. It was admitted that he devastated the stud flocks of the very finest specimens of their pure full-bloods. In only one instance did he fail to secure an animal selected, and in that case no money would tempt the owner to part with the ram in question. Mr. McCaughey's first shipment was 120 ewes and 92 rams; his second shipment numbered 310. Among the sheep selected were some from the Stickney stud, which dates back to 1834. Besides these direct shipments Mr. McCaughey secured the pick of several shipments of American sheep, in all about 100, for the Coonong flock.



Turbine Windmill, Coonong

With the progeny of these sheep he became invincible in the show ring, and for years he occupied the premier position at the Sydney Sheep Show—winning championships every year. So great was his success that the show came to be regarded by many as a “one-man affair.” In the interests of the Association Mr. McCaughey generously decided to stand down for a few years and allow others to secure the coveted honors.

comparing favorably for size of carcase, length of staple and plain bodies with the best in Australia. For many years he bred all the rams required for his own stations, which meant something like 2,400 rams a year, and also sent drafts for sale at the Sydney Stud Sheep Fair, which realised satisfactory averages.

Coonong, the central pivot of Sir Samuel's sheepbreeding operations for many years, is on



Blacksmith's Shop, Upper Yanco Station

As years went on, the Coonong flockmaster found that other considerations besides wool were coming to the front in the pastoral world. Instead of making the weight of fleece the all-important consideration, Sir Samuel realised that a larger carcase must be grown, because mutton was becoming a great factor in profitable sheepbreeding. He set to work therefore with characteristic enthusiasm to evolve a larger-framed type and, by extensive purchases of Wanganella, Boonoke, and South Australian sheep, he achieved his object, the resultant sheep soon

the Riverina plains, ten miles from Urana and thirty miles from Jerilderie. He transformed it from a cattle station into one of the most highly improved sheep-stations in New South Wales.

Goolgumbra, until recently the property of Sir Samuel McCaughey, comprised 120,000 acres, and was purchased in 1872 from Sir Samuel Wilson. It lies forty miles from Jerilderie. Its successful management is largely due to Sir Samuel McCaughey's enterprise in providing water facilities to what was once a waterless district with no permanent creeks. Large tanks,



Era Grader, making Drains, Upper Yanco Station

dams, and sub-artesian bores and wells solved the problem.

The tanks, provided with suitable drains, are dependent on rain water, while a big supply is pumped from the wells. At one of these a 5 in. centrifugal pump is installed, with a capacity of 2,600 gallons per hour; while at the other is a 4 in. water-lifter with a capacity of 10,000 gallons per hour. Eighteen of the tanks can be filled from these two wells.

Sir Samuel recently sold Goolgumbra to Mr. G. E. Stuart. The Goolgumbra flock, when Sir Samuel owned it, comprised 82,000 sheep. Originally it was of the Vermont strain, but subsequently Boonoke and Wanganella rams were used with marked success. In 1880 Sir Samuel purchased Toorale and Dunlop on the Darling, together with other leases in that district, amounting in all to three million acres, and carrying 260,000 sheep. After holding these places for thirty-two years he sold out in 1912 for £250,000 to Messrs. Robinson and Vincent, who had managed the properties for him for many years. In 1881, in partnership with Messrs. H. and J. Stuart, he purchased Rockwood in Queensland, and subsequently added Barenya, Antrim, and Tower Hill, in all about 600,000 acres.

In 1911 these properties were sold for £260,000. In 1882 he purchased Coree, Deniliquin, and about eight years later sold it to his brother, the late Mr. David McCaughey. He also owned 2,000 acres north of Narrandera and Bonus Downs station in the Mitchell district of Queensland.

In 1900 Sir Samuel purchased North Yanco, situated 15 miles from Narrandera, and comprising 100,000 acres, from Messrs. H. and C. Douglas. Recognising its peculiar adaptability

for irrigation, he concentrated all his energies in this direction, constructing over 200 miles of channels, by which means he was able to irrigate 40,000 acres when there was a good flow of water in the Murrumbidgee. During the spring months he usually had sufficient water to flood from 10,000 to 20,000 acres. He illustrated in such a practical way the possibilities of irrigation, that the Government was induced to take up the Burrinjuck reservoir and Northern Murrumbidgee canal scheme, which has since been carried to successful completion.

In connection with this scheme Yanco was resumed by the Government; but in recognition of the good work Sir Samuel had done, the Government granted him the use of a block of 30,000 acres during his life-time at a rental. On this portion he had built himself a noble mansion some years ago, placed in the midst of beautiful



Men's Quarters at North Yanco.

surroundings. He intended this to be his home for the rest of his days, and spared no expense in making it comfortable and a desirable place in every way. The eight acres immediately surrounding the mansion were carefully graded for irrigation. As a result the grounds, garden, and orchard have made marvellous progress. Today, where once the occasional sheep grazed undisturbed, there is a flowering oasis, fed by many fountains and sweet with the odor of fruit and flowers. It forms a verdant illustration of what can be effected by brains and enterprise, and points to the green and glowing possibilities which lie ahead of Australia when water-conser-

He carried out more sheep-breeding experiments than most people in his desire to secure the very best type for his properties. Instead of clinging tenaciously to one type through thick and thin he was anxious at all times to experiment. If he made mistakes he was the first to profit by them.

He has been a very active member of the New South Wales Sheepbreeders' Association ever since its foundation, and has occupied the position of vice-president for many years. Although advancing years naturally restrict his operations and movements, he is always a prominent figure at the annual Show. No sheepbreeder in Aus-



Sawmilling Plant, North Yanco Station

vation and irrigation are generally accepted as a gospel of economic salvation.

From an agricultural point of view, Sir Samuel in his experiments proved the district to be admirably adapted to the cultivation of wheat, oats, and lucerne.

The outstanding feature about the career of Sir Samuel McCaughey is his courageous enterprise, his desire at all times to do everything he turned his hand to thoroughly and well. He has grudged neither time nor expense in attaining the desired end. His action in going to America and paying over £25,000 for Vermont sheep, buying the best animals he could secure, regardless of price, is an illustration of this.

tralia notes more carefully the points of the exhibits. He is pre-eminently a judge of sheep, which means something in Australia.

Here are two characteristic incidents in his interesting career. At an annual dinner of the Sheepbreeders' Association some years ago, a Ministerial speaker was not enthusiastic about the construction of certain irrigation works. Sir Samuel quietly offered to lend the Government a quarter of a million sterling to carry out the work. He did not fear to back his faith with his gold—a characteristic feature of this remarkably successful citizen of the Commonwealth.

A few years ago a great rivalry existed in the show ring between the late J. S. Horsfall, of



Woolshed at North Yanco (45 stands)

Widgiewa, and Sir Samuel McCaughey, of Coonong. For years Mr. Horsfall had to play second-fiddle to the champion Vermont ram breeder, but he bought some of the best Coonong sheep, and eventually succeeded in rivalling his veteran competitor, who had, however, the satisfaction of knowing that the sheep which had beaten the Coonong stud were of the same blood.

The first Coonong sheep when the station was stocked with sheep came from Widgiewa. Many years later when the then owner of Widgiewa wished to breed prize sheep he had to go to Coonong for his stock.

These are matters of the greatest historical importance among men who aspire to be champions of sheep and wool in Australia. The country has benefited far more by their friendly rivalry than the people know. True, they have made personal successes, but they faced, many of them, in the possibilities of failure, anxieties that might often have broken the nerves and spirits of lesser men.

It may justly be said of Sir Samuel McCaughey that he never sat down to bewail his fate when conditions were against him; nor did he follow the old blind style of stocking up to the hilt in good seasons and trusting to Providence that favorable conditions would continue. He went rather on the principle that Heaven helps those who help themselves, and instead of praying for rain he constructed dams to save the rain when it fell. When the rainfall was not sufficient to fill his surplus storages, he set to work to tap artesian supplies and erect windmills to lift the water from the wells, and canals to carry it where it was required.

Goolgumbra, for example, when it came into his possession, was a waterless property with no permanent creeks.

By means of dams and drains constructed at enormous expense, there is now an abundance of water for all the sheep this property is capable of carrying. At Coonong it was the solving of the water problem which made the station the great success it became. Irrigation channels in every direction pay tribute to the thoroughness of Sir Samuel's work. At North Yanco, of course, irrigation is the strong point. The change which has been brought about is entirely due to the foresight of the veteran irrigationist in recognising the suitability of the land for irrigation.

Sir Samuel has acted on the idea all along that it is man's privilege and duty to complete the work that Nature leaves unfinished. Instead of the olden-time cry—heard even now—of "what a grand place Australia would be if we could only regulate the rainfall," he proceeded, like a practical patriot, to conserve the rain that fell and eliminate waste and loss by improving the methods of conservation, storage, and distribution.

In the earlier days of pastoral pursuits, it was just a question of making the most of good seasons and being ruined by the bad ones. A few dams were constructed to store some of the rainfall; when they dried up the squatter shifted his sheep or gave up the struggle and watched them die. But Sir Samuel McCaughey went further than merely digging dams. He attacked water-courses, altered channels, widened the intake of creeks and increased the flow of water throughout his properties; where there were no creeks to carry the water he constructed channels. At first the ideas were crude; but so successful were the schemes that he was encouraged to look further ahead and evolve bigger plans for water-conservation and irrigation. He selected properties that were reduced in value and carrying capacity on account of their comparative dryness, and by

his brainy schemes of water-conservation and irrigation converted them into heavy carrying country. Herein lies the secret of his greater success.

Naturally, he reaped his reward, the result of his policy being to convert large arid areas, which in their natural condition were mere death-traps, into well-watered properties—a policy which, so far as water-supply was concerned, enabled him to defy practically any drought. It transformed pastoral enterprise in dry districts from what were really reckless gambles, into reasonable business propositions. Few, if any, men connected with the pastoral industry spent money upon improvements with such a liberal hand, and, if the proof of the pudding be in the eating, the course adopted was a very wise one. In connection with this point, it is a matter of much interest, both public and private, to note that the wealth accumulations of Sir Samuel McCaughey are represented by little or nothing of what is called "unearned increment." In other words, if to the price he paid for a property (either to the Crown or a private person) be added the amount he expended upon improvements, it would be found that the aggregate of the two sums would at least equal, in probably every instance, the price at which he sold—or could sell—the property. The history of Sir Samuel's enterprise contains no instance of where, having bought land at a low price, he has secured, on sale, a largely increased price as a result of enhanced unimproved value. That is to say, Sir Samuel's money has been made, not out of successful land speculations, but out of breeding stock and growing wool.

Sir Samuel McCaughey has not been slow to appreciate and encourage brains and enterprise wherever he has come across them. The fact that several of his managers and overseers became his partners in pastoral ventures, is an instance of this. Some of the deals which turned

out his best investments were those into which he admitted men in his employ as partners and financed them in large unimproved properties.

The continual improvement was not confined to the properties, by any means. Sir Samuel was experimenting all his life to produce the best type of sheep and wool. In this direction he showed quite as much enterprise as in improvements. No expense was ever spared to secure sheep which he thought might benefit his flock. No man has ever conducted more sheep-breeding experiments; probably no one has ever stood in such a pre-eminent position as he did during the years that the Vermont type was highest in public favor.

Sir Samuel was always open to conviction. When in the fulness of time he was shown that the Vermont type was not destined to suit Australia as well as other types, he immediately set about purchasing the best Boonoke and Wanganella sheep available to build up his sheep to the popular ideal. In this connection he showed his ability to move with the times, and so retained his position in the front rank of successful stud-sheep breeders.

Though advancing years now limit Sir Samuel's personal activities, he is still enthusiastic on the subject of sheepbreeding in Australia, and no one realises better that the future possibilities of the pastoral and agricultural industry are boundless, that we have as yet but scratched the surface of Australia, and that the real development of the country is still to come. He has played his part in working out the destiny of our Commonwealth, and, after a life of unusual activity and interest, he is content to look back upon a successful career of extreme usefulness to his country and to look hopefully to the future to see others continue the great work of development that he has initiated on the lines which he has shown to be correct.



One of Three Haysheds at North Yanco (capacity 800 tons)



Mr. and Mrs. James Mitchell

TABLE TOP ESTATE.

IN the pioneering sense, the true spirit of romance and stern reality were intimately associated from colonial beginnings in connection with the famous Table Top Estate, a passing view of which is familiar to passengers between Melbourne and Sydney by the main trunk railway. The property lies some few miles north-east of the pretty border town of Albury, and is within easy reach of the historic Murray River, crossing-place of the greatest of Australian explorers, Hamilton Hume. Curiously enough, the family whose name has become indelibly associated with the Table Top Estate, and also with the early history of settlement in this country, became indirectly connected by marriage with the descendants of the discoverer of the Murray. Rawdon Hume, the brother of the explorer, married Mr. James Mitchell's sister Emma, and William Huon, brother of Mrs. James Mitchell, married a granddaughter of Rawdon Hume.

The real romance of the Mitchells and the Huons, however, had its beginnings away back in the tempestuous period of the French Revolution. Among the fugitives from France at this time was Gabriel Louis Huon de Kerilleau—a member of the French aristocracy, in whose veins flowed the blood of the Bourbons—and his young wife, who sought refuge in England, and eventually came to Australia with Captain MacArthur's

second fleet. The man of royal descent had concealed his identity by taking the name of Louis Huon, and as Louis Huon he enlisted as a private under MacArthur. Soon after arrival in Australia, the commander of the fleet, having discovered that Private Huon was a personage of some consequence, the *emigre* was given his discharge, together with a grant of land; and he subsequently settled in the Shoalhaven district and devoted himself to the raising of sheep. In that district Mr. Huon and his wife founded a family whose history is largely the history of pioneering and pastoral development in New South Wales, and more especially the Riverina.

One of Mr. Louis Huon's grandsons, Mr. William Huon, took up Wodonga Station—just across the Murray from Albury—and thus became the first of the pastoralists to follow in the track of Hume and Hovell and acquire a holding on the southern side of the river. A daughter of the same family—Miss Elizabeth Huon—was born at Parramatta in the last decade of the nineteenth century, and in 1813 was married to Captain Mitchell, a retired naval officer. In the time of Governor Brisbane they settled on a Crown grant in the region of Goulburn, and the late Mr. James Mitchell, who built up and developed Table Top, and made it one of the finest pastoral properties in the Commonwealth, was their fourth son.



View from Verandah, Table Top Homestead (looking North)

As boys, Mr. James Mitchell and his brothers, accompanied their mother (then a widow) to Mungabareena, on the Murray, which station originally embraced the area which is now the site of Albury. This property was first taken up by Mr. Charles Hobson Ebdon, a well-known Victorian, but was sold in 1836 to Mr. Charles Huon, who presented it to his sister, the widow of Captain Mitchell. Mr. James Mitchell, and his brothers—Edward, Thomas, and John Huon F. Mitchell, who is still alive (1917) at the great age of 86, and resides at Ravenswood, Victoria—were the first white boys seen on the Murray, and during their early years were brought into intimate association with the blacks. The region at that time was one of the head centres of the great Woradgery tribe of aborigines. The white boys soon made friends with different members of the tribe and were privileged to accompany them on hunting and fishing expeditions. In this way they acquired a considerable inner knowledge of the habits, tribal rites, and general character of the blacks, and learnt to speak the Woradgery tongue with both fluency and accuracy.

For some years Table Top (or Mungabareena, as it was then called) was managed for his mother by Mr. Thomas Mitchell, her eldest son. Eventually this gentleman took up Tanganbalanga Station, on the Kiewa River, across the Murray, but some years later established himself on what is now another well-known station, Bringenbrong, picturesquely situated at the junction of the Swamp and the Indi Rivers, and which is the beginning of the Murray. It was on this property, which in recent years was celebrated for the production of cattle and thoroughbred horses in the ownership of Messrs. P. and W. Mitchell, that the surviving members of the once great tribe of Woradgery blacks were given a home to live in comfort and safety until the end of their days—an act of generosity and humanity which was but in keeping with the attitude of the whole of the Mitchell family towards a wild race inherently unequal to the task of adapting itself to the change of conditions and whose extinction was consequently only a matter of time. The sole survivor of this tribe died some years ago on the Murray.



Table Top Homestead, looking South

In the meantime the station had been given over to Mr. James Mitchell by his mother after he had completed his education at the celebrated King's School, Parramatta. At that period it was comparatively an insignificant holding, embracing only about 3,000 acres. In the years which followed, Mr. Mitchell gradually extended the area, until it contained some 50,000 acres of beautiful undulating country, varied by hills, valleys and mountain ranges—the whole presenting one of the finest landscape scenes to be met with in all the fertile region of the Riverina.

At first, Table Top was capable of carrying only 3,000 sheep. Even after it had been considerably improved and increased in area, it was still only equal to running from 8,000 to 10,000 sheep; and whenever a dry season of unusual severity occurred, it was the practice to send the stock to the mountains for the summer months. However, with the acumen and the foresight which he brought to bear upon all his pastoral undertakings, Mr. Mitchell systematically set about the task of overcoming all natural disabili-

ties and making the station one of the safest and most consistently productive in the whole of Australia. By degrees, all superfluous timber was disposed of, natural watercourses were dammed in suitable and convenient situations, capacious tanks were excavated, and everything that was humanly possible was done with the object of making Table Top self-contained and self-sustaining, even in the most unpropitious of seasons.

With shrewd judgment and practical ability, inspired by the great confidence which he always had in the future of the district and the country, Mr. Mitchell went on applying himself energetically to the purpose of producing high-class sheep, cattle, and horses; and eventually he had the satisfaction of realising his aims and his ambitions to the fullest extent. In due course, Table Top became famous all over Australia, not only for its sheep and wool and its magnificent herd of Devon cattle, but for its thoroughbred horses, some of which made the Mitchell colors popular and familiar on the principal racecourses of Melbourne, Sydney, and other parts of the country.

With extensions of area and improvements, Table Top—which in the course of a decade or so was made to present more the appearance of a splendid and spacious park than of a pastoral holding—was increased to about 50,000 acres and for many years it carried no fewer than from 50,000 to 60,000 sheep, some 3,000 head of cattle and a considerable number of horses. As a matter of fact, it possessed this great capacity right up to the time when a large portion of the estate was subdivided and sold for agricultural purposes.

Mr. Mitchell's thoroughness and practical foresight, aided by sound judgment, enabled him to make Table Top famous alike for its merino sheep, its noble herd of Devon cattle, and its high-class blood-horses. In recent years Mr. James Mitchell received valuable assistance from his sons. In connection with the building up of the fine classes of sheep produced on Table Top, and whose fleece is frequently to be noted at the head of the city price lists in the market reports, Mr. Mitchell was very ably assisted by Mr. Fred. J. Mitchell, his eldest son. Like his father and other members of the family, Mr. F. J. Mitchell is a very keen sportsman. He trains a large number of horses of his own, and his colors are well known in Victoria and New South Wales, but he also takes a great interest in sheep, and to his skill, judgment, and knowledge is largely due the distinguished place which the Table Top flock has won by consistent merit during the past quarter of a century.

Mr. James Mitchell never took any active part in public life. But he took a very real interest in public questions and affairs, and gave generous aid to every movement which he conceived to be likely to advance the welfare of the community and the country. He unostentatiously devoted much money to charitable purposes, and his benefactions to the Albury Hospital alone aggregated thousands of pounds. Mr. Mitchell died in 1914 in his 79th year. He is survived by his widow, who was Miss Sarah Jane Huon, a relation on his mother's side, two sons and six daughters. The sons are Messrs. F. J. and Herbert F. Mitchell; and the daughters are Mrs. J. J. Hore, Mrs. Ray Tovell, Mrs. John Hill, Mrs. R. A. Houston, Mrs. James Stephen, and Mrs. A. C. Macmillan. A third son (Reginald) was killed in a riding accident in 1888.

A man of generous and genial nature and hospitable instincts, the late Mr. James Mitchell was held in widespread esteem. Like most of the men who have lived for many years in intimate relationship with the great heart of Nature, he had a genuine love for the bush and wild life.

The fine estate of Table Top will stand for generations to come as a fitting and noble monument to the memory of an Australian of the best type—the type which went forth with invincible spirit, regardless of hardship, personal discomfort, and peril to conquer the wilderness and to render incalculable service to the nation by developing the natural resources of the country.



Table Top Mountain
(Looking North from the Horse Paddock, Table Top Estate)



Some Murgha Stud Rams

MURGHA AND ITS PEPPIN-WANGANELLA MERINOS

ABOUT the year 1825, when Australian wool first came prominently before British manufacturers—with the prospect of adequate future supplies, to render them independent of foreign countries—grave anxieties arose in the minds of experts whether the warmer climate of this country would seriously depreciate the fleeces before long. Experience had previously shown, they contended, that when the fleeces of sheep were carried within a certain distance of the equator, the character of the wool was invariably lost, and it gradually assumed that of hair.

Time proved the pessimists entirely wrong. To-day—nearly a century since the “warning” was written—our finest wool is coming from the hot, dry interior. If there is a tendency to breed a more robust type of wool at the present period, it is because our heavy, robust sheep can best withstand the vagaries of climate and cut a heavy fleece of medium wool—which is very acceptable to the trade. In other words, it has been found that it does not pay to push the ideal of fineness too far, and the popular sheep to-day is the hardy “doer” and bale-filler.

Probably, had the sheep been left to themselves, the old-time experts might have been right in their prognostications. The secret of success

in Australian sheep-breeding has been the principle of selection and the strict, impartial, and regular culling of the flocks. By this means, pitfalls which beset the path have been avoided, and the constitution of our sheep has been built to fit the land they have to live in.

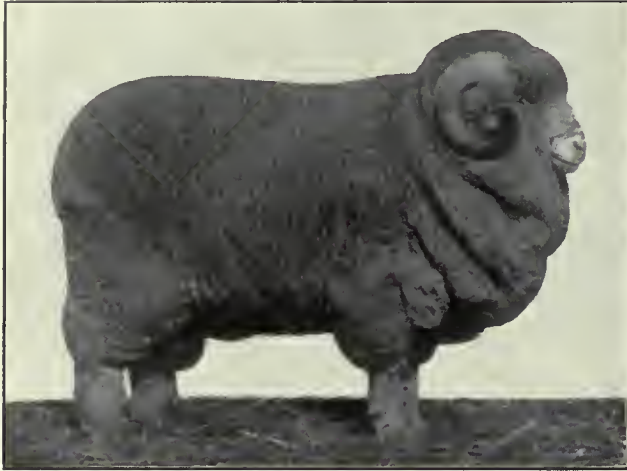
The sheep raised on Murgha, a stud-station of 36,700 acres, on the Edward River, about 45 miles west of Deniliquin, may be regarded as typical of the class of animal which yields the biggest dividends to-day. This is one of the purest of the Peppin-Wanganella studs, having been originally founded by the old-time partnership of Austin and Millear, who were the purchasers of the Wanganella estate from Peppin and Sons in 1878.

The Murgha stud was actually founded on a choice draft from Wanganella, and subsequently became the property of the late Mr. Albert Austin, one of the most prominent figures among the early stud-sheep breeders of Australia. He in turn disposed of it in 1906 to his sons, A. J. and H. L. Austin, who secured 75 ewes—being a fair run of some of the best ewes on Wanganella. Three special stud rams were also purchased from A. Austin, senr., then sole proprietor of Wanganella. The stud was owned and controlled by the brothers for some years, but the

partnership was eventually dissolved (in 1912), and the late Mr. A. J. Austin retained Murgha.

This property consists chiefly of black-soil plains. It is permanently watered by large creeks, which run through it and provide ample

the highest point being 450 guineas in 1917. The sheep have a reputation as great "doers." They are not pampered in any way, but paddock-fed and bred to stand the peculiarities of the Australian climate.



Murgha Stud Ram, No. 7



Murgha Stud Ram (pure Wanganella)

water for irrigation. The homestead, a large brick building, is pleasantly situated, surrounded on three sides by fertile gardens. At the rear flows a large stream, on the banks of which is erected a large pumping station that gives the home all the water required.

The Murgha sheep have achieved a great reputation, and have been in strong and increasing demand in all the Australian States and in New Zealand. They have also been taken in large numbers for South Africa, giving the very best results. Considerably over a thousand head have gone to South Africa, ewes averaging up to 75 guineas. It was Mr. A. J. Austin, indeed, who was largely instrumental in creating the present large demand for Wanganella sheep in South Africa.

The most noted sire on Murgha has been No. 94, a Wanganella ram which produced very high-class progeny. This ram had a big influence on the flock. The progeny of Murgha stud are in the front rank of the big-framed, hardy, robust, merinos, so generally popular of recent years.

The Murgha stud now has a basis of 6,000 breeding ewes, divided up into the following denominations: 600 special stud ewes, 1,200 double stud ewes, 900 long-stapled double stud, 1,200 second double stud denser than the first double stud, 480 of Sir Charles blood—kept separate—and 1,980 single stud ewes.

Murgha sheep have made some excellent averages at later annual stud sheep fairs in Sydney,

The property is now in a highly improved state, and is conducted by the administratrix of the late Mr. A. J. Austin.

As the Murgha stud has been built up from the original Wanganella type, it is interesting to note a few facts not generally known about the pioneers of these sheep. The Peppins, father and sons, came from Dulverton, Somerset, England, and arrived in Australia in 1850. In March of the following year they purchased Minaluke station, Mansfield, Victoria, but this venture was not a financial success. In 1858 they secured the



Murgha Stud Ram (pure Wanganella)

Wanganella property, then a squatting lease, and founded their famous Wanganella stud in 1861. After the death of Mr. Peppin, senior, the brothers Peppin carried on the property. They had had experience with merino sheep in England before coming to Australia. Their grandfather

in the front rank of popular favor. They are noted for weight of fleece and quality of wool, and are hardy in the extreme.

The late Mr. A. J. Austin was a man of great enterprise, who inherited largely his father's ability to handle high-class sheep. When Mr.



Murgha Stud Ram No. 94 and one of his Sons

was one of those who procured some of the merino sheep imported into England from Spain by George IV., and had bred these animals for some years with more or less success, although they did not attain anything like the results that were afterwards secured in Australia.

Some years after the purchase of Wanganella by the Peppins, they secured Boonoke and stocked it with sheep from Wanganella, so that the Boonoke and Wanganella strains—the two most famous in Australia to-day—had absolutely the same foundation stock. On the death of his brother in 1878, Mr. Frederick Peppin, the surviving partner, sold both properties to wind up the estate. Wanganella, with its stud flock, was sold to Messrs. Austin and Milliar, and Boonoke to the late Mr. F. S. Falkiner.

In the early 'nineties Messrs. Austin and Milliar, who had in the meanwhile achieved wonders in the further development of Wanganella sheep, founded Murgha stud with some of their best stock. Subsequently the late Mr. Albert Austin took over this station. Its history since has already been dealt with.

No expense has ever been spared by its owners in carrying out improvements on Murgha, and in developing its high-class flock on the most up-to-date lines. Their sheep to-day are deservedly

Albert Austin disposed of Murgha to his sons, Mr. A. J. Austin took second pick with his father in selecting the flock. All his pick produced heavier fleeces than those selected by his father. The special ram picked out by Mr. A. J. Austin turned out the celebrated "94," which is admitted to have been one of the best Wanganella-type rams ever bred.

When, in 1914, a new sire was sought for the Murgha stud, the choice was No. 838, a high-class ram from the late Albert Austin's stud. Although he did not live long, he left nearly 200 descendants, among which were some "top-notch" animals. He has been described by the expert writer, "Bendleby," as "one of the most impressive and valuable of all rams bred in the old Wanganella stud. He deservedly ranks among the most famous of all Australian merino sires from President, Sir Thomas, Donald Dinnie, Boonoke No. 1, and Sir Charles onwards." Already one of his sons, Clinker, has been sold for 600 guineas as a yearling. Among the other sons of 838, the young 15.1 has already made his mark as a sire, several fine youngsters standing to his credit in the Murgha stud.

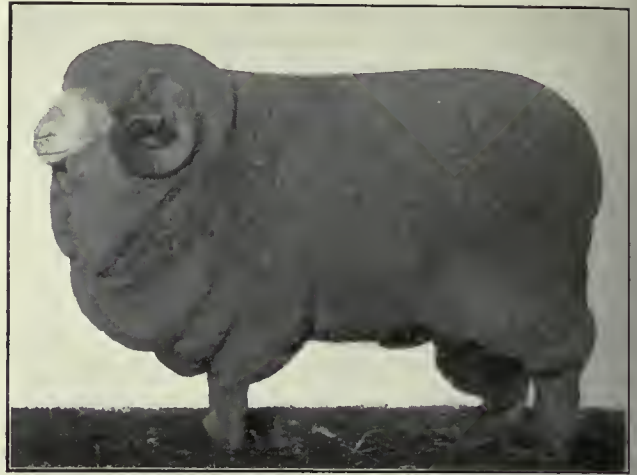
The Murgha sheep are in strong demand nowadays. Large numbers are bred and sold. They have gone all over the Commonwealth, and have

invariably given satisfaction. In South Africa they have established a name second to none, and as a result there is a large and steadily growing demand for this market.

The development of the Murgha sheep was a matter of brains, enterprise, and experience. The late Mr. A. J. Austin was born and reared in the cult of high-class merino stud-sheep breeding. He possessed a peculiar native ability which he developed by long experience and constant practice. He was a man who aspired to a practical ideal, and was satisfied with nothing short of its complete attainment.

He bought part of Goolgumbla from Sir Samuel McCaughey in 1911, a freehold property of 14,361 acres named Neyliona. He was also for a time part owner of Wanganella and Bringagee stations, and had pastoral interests also in Queensland.

In tracing the history of these successful Australian sheep stations, it can be seen that individual courage and initiative have almost invariably met with their due reward. The Commonwealth owes permanent recognition to the patient efforts of enterprising citizens, who, generation after generation, have devoted their labor and



Murgha Stud Ram (pure Wanganella)

capital to the building-up of a foundational industry on which the prosperity of the whole population is firmly based.

The owners of Murgha have each in turn demonstrated that Australia is a good country for those who will approach its industrial problems with a wise determination to win.



Some Murgha Stud Ewes



Uardry Homestead

UARDRY, ON THE MURRUMBRIDGEE

*It breeds no wasters on its lands—
These wide Australian plains
Are held by strong Australian hands
That firmly grasp the reins;
Wild horsemen these, who race and wheel
The clustered gums between;
They keep the stirrup to the heel
'Way down in Riverine,
Far out in Riverine;
Undaunted souls and hearts of steel
Are found in Riverine.*

—“BELLS AND HOBBLER.”

THOUGH explorer Oxley found in it only an “impenetrable morass,” and other pessimists saw it as a “drought-stricken waste,” this glorious Westland has long become a storehouse of wealth for Australia. Its suitability for sheep was established in early Colonial days.

Losses have occurred, mainly through lack of foresight or knowledge of Nature's laws, but as the years fell these losses grew less or, at least, in the light of experience, men learned to provide against the accident of season.

Fine fortunes have been made in Riverina, fine holdings reclaimed from virgin wastes, and fine Australians born and reared beneath its clear invigorating suns.

And we are yet but at the beginning of the story. The Future must be brighter still.

Whether that Future is to be less wheat and more wool, or more wheat and more wool, does not matter.

Nothing can alter the fertility and productivity of this great Western storehouse of natural wealth. In no other part of Australia have better results been obtained in the breeding of large-framed, sound-conditioned merino sheep—carrying bulky fleeces of combing wool of high character—than on these great saltbush plains unsuited in the beginning for agriculture, which have been converted into ideal merino sheep country. The pioneering studs have attained, by sheer merit of the sheep produced, the proud position of being recognised as the aristocracy of the present-day sheep-breeding industry.

In the central west of the Riverina, on the edge of the saltbush plains, lies Uardry, the property of Charles Mills (Uardry) Ltd., one of the first-flight studs of Australia. It comprises some 70,000 acres, and has a frontage of twenty-

passed (1917). The shed is equipped with twenty-four stands and a Ferrier wool-press. Adjacent are well-constructed and comfortable men's quarters, and many wood and iron cottages for station hands.



Uardry Homestead

seven miles to the Murrumbidgee. Flat plains fall back five miles or so from the river, the frontage country being composed of red soil with a clay sub-soil, a fringe of red-gum timber running along the river bank.

On a slight eminence overlooking a wide stretch of the river stands the Uardry homestead, surrounded with fruit, flower, and vegetable gardens. Willows, sugar-gums, silky oak, and other trees give ample shade. The homestead is a comfortable old-fashioned bungalow containing some fifteen living rooms and stores; it is practically encircled by a twelve-foot verandah.

The woolshed is of iron, and is passed on the way from the Uardry railway siding, about three miles from the homestead, and is nearer the river than the railway so that, should the roads be bad in wet weather, the wool is taken to the river bank and loaded direct into steamers and sent to the Melbourne market via Echuca, as was done during the season just

Here for upwards of four decades the late Mr. Charles Mills devoted his life to continuous and far-sighted improvements in the property. He determined that the most profitable sheep, not only for the Riverina, but for all the hot dry districts of Australia, was a large-framed, roomy animal of robust constitution. He recognised in the Peppin strain the type of sheep he wanted, and stuck to that blood through thick and thin. His faith in his ideal never wavered, and he lived to see the type he had done so much to develop and perfect come into the front rank of popularity, where it has stayed.

The life story of the grand old man of Uardry is that of a typical Australian pioneer. He was born in Selkirkshire, and brought up on his father's Horsburgh Castle farm in Peebleshire. He was educated at Edinburgh Academy, and subsequently had eight years' farming experience before leaving in 1863 for Australia. Mount

Pleasant station, in the north-east of Victoria, where 30,000 sheep were run on rough mountainous country, gave him his first insight into Australian sheep methods, and he later secured an interest in Morton Plain and Watchem, on the

improved properties in Riverina. The "old man" saltbush has practically all died out, but creeping saltbush is plentiful, and, together with sweet grasses and herbs, irrigated on scientific lines, make the property an ideal one for merino sheep.

The Uardry flock has the merit of being pure Peppin blood. It was founded in 1864 by the purchase of 5,000 four-year-old ewes direct from the Peppins, of Wanganella, by Messrs. Wragge and Hearne, who owned Uardry at that time. This historic purchase also included some very select rams for use with the ewes, and the new flock was established at Uardry in 1865. In the following year the finest ewes were selected to form a stud flock, and in this manner the owners bred up to 1876, when Mr. Mills came upon the scene. From that time to the present day the same policy of breeding has been followed.

While acknowledging that the Uardry sheep owe their origin of type to the Peppin strain, there

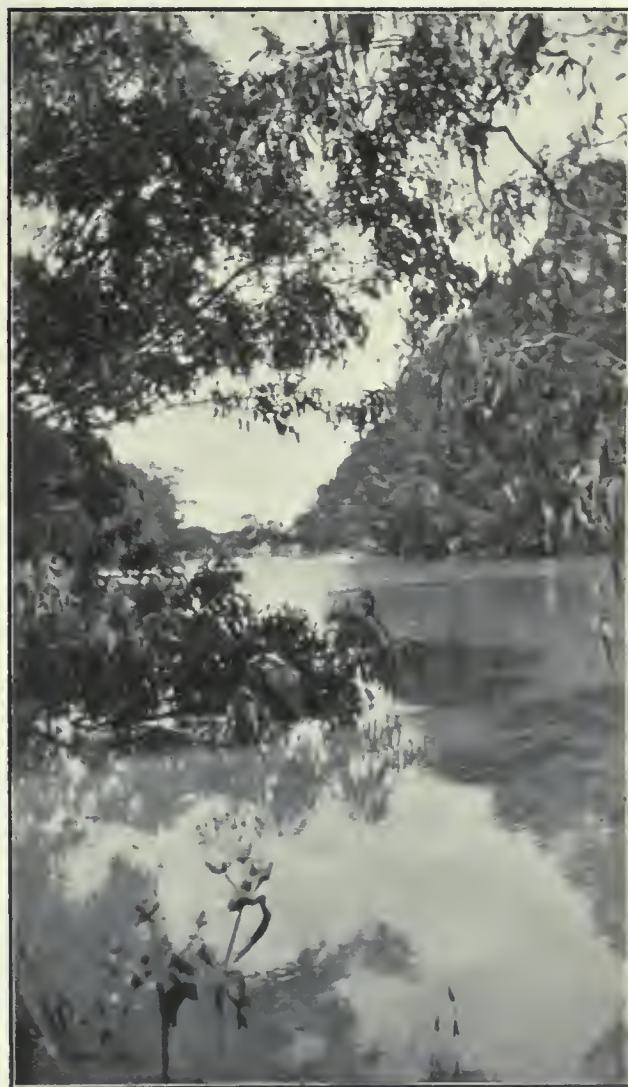


Mr. and Mrs. Chas. Mills

fringe of the Mallee in north-western Victoria, in partnership with Messrs. Andrew Neilson and J. J. Smart. Selling his interest in 1873, Mr. Mills took a trip to Scotland, and there married a daughter of the late Mr. John Ainslie, of Fairfield, near Edinburgh. On returning to Australia he, with his old partners, purchased Uardry, and devoted all his abundant energy to improving the property and its flock. Upon the death of his partners he bought all the interests in Uardry and became its sole proprietor.

The late Mr. Charles Mills died full of years and honors at his Melbourne residence, Toorak, in 1916. Although in his 84th year, he maintained his connection with and interest in Uardry to the day of his death.

The transformation in Uardry as compared with the old days, has been accomplished by brains and capital, and plenty of both. Once the back country was badly watered, but nowadays Uardry is one of the best watered and most highly



The Murrumbidgee at Uardry, in Flood

is a vast difference between the sheep of to-day and the type when the Peppins pioneered it. The Uardry sheep of the present day are wonderfully uniform, approaching perfection in constitution, frame, and fleece. The experience, skill and

The breeding flock consists of about 1,200 stud ewes, classed into the following grades:—Extra-special studs, special studs, long-woolled special studs, medium-woolled special studs, double studs, first studs, and second studs. From these ewes



Loading Wool for Echuca at Uardry from the bank of the Murrumbidgee River

ability of Mr. Charles Mills and his sons achieved great things. The late Mr. Ainslie Mills—the elder son—managed the property for about eight years after the retirement of his father and upon his death in 1908 his brother, Mr. Neilson Mills, took over the management and has carried out its duties with conspicuous success.

The principal business of Chas. Mills Ltd. is the breeding of stud sheep. The production of wool is a secondary interest, though always a feature necessarily in the dominating characteristics of the flock. For that purpose the property has been subdivided into over 100 paddocks, each of which is permanently watered. There is on the property an irrigation plant that waters about five hundred acres divided into small sections, where the *extra-special studs* are bred. Altogether there are 38 ground tanks, 11 wells and 15 sub-artesian bores on Uardry, all being equipped with windmills, supply tanks, and troughs.

some 4,000 rams are bred annually and—after some rejects and the *special reserves* are taken out, the remainder—which are nearly always booked up well ahead—are ready for delivery to their purchasers.

The usual prices for Uardry flock rams run from 4 to 10 guineas. Each year Charles Mills (Uardry) Ltd. sends to the Sydney Ram Sales a draft of two-year-olds, which are readily sold up to high figures.

During the last decade or so a revolution has been wrought in the character and softness of Uardry wool, the result of the persistent process of scientific selection. No outside blood has been introduced for over 50 years. The success of the stud is a triumph for in-breeding on careful lines, and the splendid development in the character of the wool is due to careful and expert selection with a definite aim in view.

The Uardry wool is very soft and bright and of pronounced character. It may be best



Annual Classing of Young Rams at Uardry



Young Rams brought in to be Classed, Uardry



A Typical Uardry Stud Ram

described as a bold combing wool of medium to strong quality.

Uardry sheep have not appeared in the Show ring for many years, but at one time were regularly shown at Hay and won 104 champion and first prizes and 60 seconds.

Experts have agreed that there are no better-shaped or better-conditioned merino sheep in existence than those of Uardry, whilst their prepotency is most remarkable. Perfection in the form of Uardry sheep is due to three causes—the excellence of the foundation stock, the constant personal supervision of one man (whose idea of what a merino sheep should be has stood the test of time), and the suitability of the country and climate. Experts have been impressed with the breadth of the Uardry sheep across the top of the shoulder and the depth and roundness of the barrel.

The owners of Uardry are determined not only to maintain the present high standard of excellence of their stud, but to even improve it, if possible, and they will continue to breed for character in the wool.



Kismet

Uardry Special Ram, 2 years old, grass-fed



The Homestead, Yooroobla

GUM SWAMP AND YOOROOBLA.

NO district in Australia has contributed more to the prosperity and stability of the pastoral industry than the famous Riverina plains, on which millions of sheep have produced their fleecy wealth for many a year.

Eminently suitable for merino-wool production, large tracts of land have been almost exclusively devoted to pastoralism. Despite fluctuating seasons, the pioneering pastoralists of Riverina have steadily improved their properties. Their flocks have also been brought as near to perfection as science and experience can bring them.

Among the celebrated properties of this great district is Gum Swamp Station, which lies about fifteen miles to the south-east of Jerilderie, and thirty miles to the south-west of Urana. It originally comprised 30,000 acres of freehold, and was taken up by the Kennedys in the early days. After many changes of ownership, it fell into the hands of the late Mr. George Ferguson Simpson, whose name was identified with its development for many years. Trustees now control the property. In 1915 the trustees sold 12,800 acres to George Ferguson Simpson, the elder son of the founder, with the homestead and one-third of the sheep. This portion has been named Yooroobla. The balance (17,000) is still known as Gum Swamp Estate and is owned by the Trustees, but has been offered to the Government for the repatriation of returned

soldiers, it having been approved by the Advisory Board as suitable for agriculture.

Gum Swamp is a typical Riverina Station. The property is one of the most valuable in the district. Its broad plains, alternating with strips of well-timbered country, are liberally grassed. It is in every way suitable for sheep. Mr. Simpson has recently purchased 4,000 acres from the Wunamurra property of Messrs. Peterson and Sargood, almost adjoining Yooroobla, with a frontage to the Billabong Creek.

Mr. Simpson has over 12,000 sheep with breeding ewes and the yearly increase of 4,000 lambs, bringing the shearing up to 16,000 sheep.

Originally Nowranie also was run in conjunction with Gum Swamp. The late Mr. G. F. Simpson was the guiding genius of the two properties. After the death of the founder, they were carried on by his trustees, until 1903, when they were divided and the management of Gum Swamp was undertaken by Mr. George Ferguson Simpson, eldest son of the founder. Under his management the character of the flock has been fully maintained, and the development of the estate continued.

The late Mr. George Ferguson Simpson was a man of foresight and enterprise. He devoted his life to bringing the property to an advanced state of development. The problem of providing an adequate water supply was one of



The Late George Ferguson Simpson

the first that had to be tackled. Yooroobla Station now luxuriates in a splendid supply, obtained from a number of wells and bores. Altogether twenty-two bores have been sunk on the estate at a big cost, but the expenditure has proved a sound investment. Water is indeed to be found anywhere on the estate. The watering facilities are so arranged that in each of the twenty paddocks, into which the property is divided, there is a separate and permanent supply.

The boundaries of the estate are all wire-netted. The cost of this improvement was naturally a big item, but it has given the property immunity from the rabbit pest—an enviable position in pastoral Australia.

The homestead, woolshed, and station buildings are supplied by a big dam, from which the water is pumped by engine power. In early days the drought was always a serious and dreaded possibility, but a good deal of the pastoralist's anxiety has been eliminated in the scientific 20th century by improved watering facilities, and the provision of a "standby" in the shape of dry fodder or ensilage. The policy of Yooroobla Station is to carry a "standby" of as much as a thousand tons of hay. The homestead is surrounded by a fruit and vegetable garden of about three acres in extent, which affords one of the many examples of the exceeding richness of Riverina soils.

Yooroobla and Gum Swamp flock is as celebrated as the station. The sheep have been developed on practical lines by a pastmaster in breeding. To-day it represents a payable, popular type, demand for which is far in excess of supply. With an average total of 30,000, the annual sales of rams run to about 500. Good figures are realised, and orders come from all the States of the Commonwealth. The stud was founded on Tasmanian blood; the greater number of the rams were obtained at high figures from the leading studs of that favored island.

Mr. Simpson believed in paying big prices for the best rams procurable. An instance of this was his purchase of the ram, Admiral, bred by the late Mr. Thomas Gibson, of Esk Vale, Tasmania, the price of which was 1,500 guineas. This ram in his day represented the finest Tasmania could produce, at a time when its merino stud sheep-breeding industry was at zenith.

Having obtained the highest strain available in the Southern Hemisphere, Mr. Simpson set to work to improve his flock by careful selection. His object was to build up frame and constitution while giving every care to the maintenance of a high quality of wool. Soon the flock was so well established that outside purchases were discontinued, and a system of inbreeding and selection adopted, from which splendid results have been obtained.



Mr. George F. Simpson



The Woolshed, Yooroobla

The Yooroobla sheep of to-day stand out in every way as a most desirable type. They are big-framed, and of robust constitution. The wool is a long-stapled class of about 64's quality, the whole flock cutting an average of about ten to eleven pounds per head.

One of the noted rams on Yooroobla was Jumbo, who secured first, champion, and grand champion prizes at the Wagga Show in 1908. This was a fine big, bold type of ram, who stamped his characteristics on the flock to a very marked extent.

The lambing on this estate generally takes place in April-May, and 80 per cent. is about the average marking. The sheep have enjoyed such immunity from the various ills that merino sheep are heir to, that it has not even been necessary to dip the flock. The only trouble experienced of late years has been with the fly, but this evil has been greatly minimised by timely attention and crutching.

Horse-breeding has been carried on at Yooroobla for many years, and the station draught horses are a credit to the breeders. Several well-bred mares were brought out by the late Mr. Simpson from Scotland, together with the celebrated stallion, Marshal Keith. This animal cost the late Mr. Simpson a thousand pounds; but he proved a very good investment, winning innumerable prizes at shows throughout New South Wales and Victoria, besides establishing a type of draught horse that would be hard to beat anywhere.

Stock-breeding activities at Yooroobla were not, however, confined to sheep and horses; the Shorthorn dairy herd is one of the best in the country. The herd was founded on stock purchased from the late Mr. William McCulloch, the

well-known Victorian breeder, and the herd has been carefully bred up until it now holds a position of distinct merit.

The late Mr. George Ferguson Simpson was a Scotsman, a native of Aberdeenshire, who traced his descent from a long line of successful farmers. For generations, his ancestors have been among the foremost prize-winners in the cattle sections of the best Scottish Shows. He received his early training with stock on a Scotch farm, and came out to Australia as a young man. He settled near Melton, in Victoria, and for a number of years followed agricultural pursuits. In 1870 he moved to New South Wales, and settled at Nowranie. He became, as already noted, the presiding genius at Nowranie and Gum Swamp.

The present-day position of these stations is largely due to his constructive ability, his energy, far-sightedness, and enterprise. A man of pronounced public spirit, he was in the forefront of every movement for the advancement of the district in which he had settled, and of the pastoral industry in general. His earnestness and great capacity made him a pillar of strength in any movement with which he was identified, and as President of the Urana Hospital he did much to establish and maintain that institution.

His son, Mr. George Ferguson Simpson, who now manages the estate, was born at Nowranie in 1873, and received his education at Toorak College, Victoria. After a successful school career, he secured a position in the office of a prominent Victorian wool valuer. During his connection with the wool-buying branch of the industry, he naturally obtained a close insight into its technical and commercial side. A few years later, he was recalled to Nowranie, where he com-



Typical Sires, Yoorobla Sale Rams. (All Prize-winners)

pleted his practical education in pastoral matters under his father's able tuition. Upon the death of his father in 1896 he assumed the management of the two stations, and continued to manage both until 1903, when the properties were divided and he took over the management of Gum Swamp as trustee. In 1898 Mr. Simpson

were to a large extent undeveloped, and the improvements of the most modest proportions. It required men with big hearts, unbounded energy and perseverance, and withal a substantial amount of capital to carry the struggle through, and at the same time build up their flocks and develop the carrying capacity of the stations.



'Perfection'
Yoorobla-bred Ram. (Champion and Grand Champion)

Mr. Simpson was designed by nature for a pioneer. No difficulty was too great for him, no task too strenuous. Reverses only fired him to greater efforts. As we have said, drought conditions to-day lose much of their severity owing to the fact that dams, bores, and irrigation plants have enabled the pastoralist to combat nature with every hope of success; but all these improvements had to be brought about by pioneers. The success which ultimately crowned the efforts of such men as Mr. Simpson was very richly deserved. He did not attain it as a result of a gamble with conditions, but as the outcome of a fight to better the adverse conditions which nature had imposed as her fee to fortune.

married Miss Agnes McLarty, youngest daughter of the late Mr. Donald McLarty, of Bundure, a well-known pastoralist.

The whole of the improvements on this station are of a substantial character. The station is up-to-date in every particular. Efficiency and thoroughness are marked features in the management of the estate. The wool-shed is constructed on modern lines, and is fitted with twenty machines, the power necessary being supplied by an eight-horse-power steam-engine.

The conditions prevailing in the Riverina district when the late Mr. Simpson settled there, were very different from those of to-day. The battle was far more strenuous, the properties



Yoorobla-bred Ewes (under 18 months)



Typical Nowranie Stud Rams

NOWRANIE

RIVERINA stud sheep appeal to buyers because they are able to withstand hardships and have abundance of constitution. Years gone by, sheep-men gave big prices at the Sydney or Melbourne stud-sheep fairs for stylish rams in the pink of condition. These showy animals were "got-up" for sale in first-class style, but the buyer sometimes found that a ram which had been pampered by rugging, feeding, and shedding from infancy was frequently unfitted for the battle of the seasons in the dry interior. The wool, too, was apt to change in character with the change of locality. Although the sheep had been brought to a high pitch of perfection, it could not maintain its quality and stamina under adverse conditions. It became necessary to evolve a class of animal that could be guaranteed to thrive in hard seasons. Riverina sheep, which very largely fill the requirement, have never been housed or pampered in any way. They are all exposed to the elements, run in paddocks and grass-fed; so the risk of loss to buyers has been very largely removed. This is the index to that remarkable success which has been gained by the old Australian type of late years. It is a factor which specially appeals to Queensland buyers.

The Northern State has become one of the best customers for Riverina stock. Competent authorities do not attempt to belittle the value of

the Tasmanian importations of stud sheep which were frequent during the closing quarter of last century, but results obtained since then by the Riverina sheep have conclusively proved that the modern buyer has a preference for the resilient, acclimatised sheep bred under dry conditions—sheep that can be relied upon to battle bravely through unfavorable seasons.

The sheep bred on Nowranie possess in a marked degree the characteristics which have made Riverina sheep famous. This property, which belongs to Messrs. Ferguson Simpson & Co., lies midway between Urana and Jerilderie, New South Wales. It is bounded on the north by Cocketgedong, and on the west by South Yathong and Gum Swamp. Nowranie is a typical Riverina holding, comprising 40,000 acres freehold, mostly open plain country, with belts of timber and forests (chiefly boree and box) and is highly improved, having been systematically developed since it came into the possession of its present owners in 1903, from the trustees of the late G. F. Simpson. With a rich soil and a well-distributed rainfall, Nowranie supports 30,000 to 40,000 sheep on the valuable grasses indigenous to the district. It is completely fenced with rabbit-proof netting.

The principal water supply is the Nowranie Creek, to which there is an extended frontage.



A Flock of Merino Ewes, on Nowranie

This is supplemented by water pumped from wells by windmills. Each of the 26 paddocks, into which the property is subdivided, has its water supply. Bore water has been struck at a depth of 150 feet, and rises in the bores to within 115 feet. Tanks and dams have been made freely, and contain sufficient water to stand at least two years of drought.

The Nowranie flock is founded on the Gum Swamp strain, dating back to 1870. Mr. Ferguson Simpson—who has been managing partner since 1903—has bred the flock entirely within itself. The rams as a consequence have great prepotency. They are large-framed and possess great constitutions. The wool is of the robust

type, with a good length of staple, generally free and bright. Nowranie sheep—which have never received any pampering, but are raised entirely on the natural nutritious grasses of the estate—cut heavy fleeces of very profitable wool. Mr. Simpson makes a speciality of breeding rams for sale, generally disposing of 500 to 600 each year.

Lambing on Nowranie takes place in April and May, and the percentage marked in normal times is from 75 to 80. Shearing generally takes place in August, when 30,000 to 40,000 sheep are put through. Hundreds of thousands of sheep have passed through the old wool-shed, which, although erected many years ago, has been brought right



Herd of Cattle on Nowranie

up-to-date and is fitted with twenty-five shearing-machines, driven by an eight-horse power steam-traction engine, an engine, by the way, which is put to a variety of profitable uses. The wool

and Brighton Grammar School, he took up station work under the guidance of his father. On the death of the latter gentleman in 1895 he continued to work the properties in conjunction



The Woolshed, Nowranie.

goes to the Melbourne sales and invariably realises well up to the top level for Riverina wool, being of a type for which, of late years, there has been a very strong and consistent demand.

Although grazing is the chief aim at Nowranie, a few hundred acres are now cropped annually for station use. Mr. Simpson believes in making ample provision for unfavorable seasons, and generally has about 800 tons of hay stacked on the property, each stack being protected from the weather by a galvanised-iron roofing. This supply is a sound insurance against drought losses. As a rule, there is sufficient for a two years' siege.

There is a small but select Shorthorn stud at Nowranie, which was founded by Mr. Simpson's father. Mr. Simpson also makes a speciality of brood mares; and a stallion, a son of Marshal Keith, was imported at a cost of a thousand guineas. Marshal Keith was a splendid type of horse, and took champion and first prizes at Narrandera, Wagga, Sydney, and Melbourne Shows. The dam of the present stallion, named Rose, was a very high-class mare, purchased by the late Mr. Simpson for 120 guineas from Mr. Brady, of Kyneton, Victoria. This was the champion mare at all the shows in Riverina and had an unbeaten record in the show-ring. An Arab stallion named Sleet, bred by the late Mr. J. D. Cox, of Cullenbone, was also used on Nowranie.

Mr. Ferguson Simpson is the second son of the late Mr. G. F. Simpson, and was born at Nowranie in 1876. Educated at Toorak College

with his brother George, until 1903, when he took over Nowranie.

Nowranie House is the old original homestead; comfortable, commodious, and modernised in every possible way. It is an ideal country home, pleasantly situated in and surrounded by well-cared-for gardens.

As already indicated, Mr. Simpson is finding a splendid field for his sheep in the northern State,



“Rose,”
A Champion Brood Mare, Nowranie



Mr. Ferguson Simpson

where he can dispose of more than he can breed. No less than 300 stud rams have gone to Queensland in one order. They have given every satisfaction to their purchasers, as is evidenced by the fact that repeat orders are frequent.

Modern improvements on Nowranie include a number of bores which give a good flow and greatly add to the carrying capacity of the place. The woolshed is fitted with 25 stands of machines. It is supplied with acetylene-gas lighting, which enables a full day's work to be obtained at shearing time.

Mr. Simpson has proved a highly progressive station-owner. He has cleared and had under cultivation 1,500 acres of land, but after achieving this and purchasing up-to-date machinery, he has been compelled to give up agriculture on a large scale, owing to the scarcity of labor. The same trouble is being felt everywhere in the country. There is no doubt that the future of agriculture in Australia depends largely upon how far the labor problem can be solved.



Nowranie Stud Merino Ram



The Homestead

THE WANGAMONG ESTATE

THE PROPERTY OF W. B. SANGER, DAYSDALE, N.S.W.

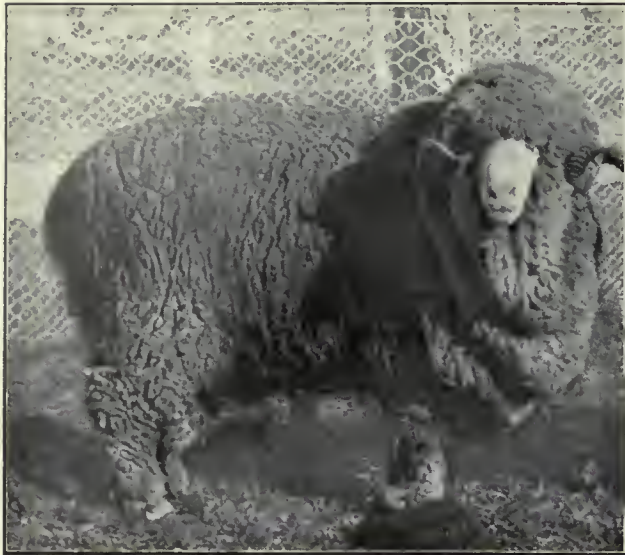
WANGAMONG—a native name meaning “pigeon plains”—is 34 miles from Jerilderie and 35 miles from Corowa, thus being situated in the southern centre of the country of the big, robust-bodied Riverina merinos. It was founded by the late John Mildred Sanger in 1853, with the very biggest framed ewes obtainable, of MacArthur’s Camden blood, to which were added some Learmonth rams. That was the foundation of the Wangamong stud flock, which is nowadays recognised as not only one of the oldest of Australian stud flocks, but one of the best developed and most up-to-date.

In 1863 Mr. Sanger went to Wanganella and saw Peppin and Son’s historic imported Rambouillet ram, Emperor. He was so impressed with his magnificent type that he bought ten stud rams of Emperor’s, which were regarded as the pick of that season. These sons of Emperor (certificate No. 75 Royal Rambouillet Farm, which cut as four, six, and eight-tooth respectively, 21, 22, and 22½ lbs. of very bright, strong, dense wool, a very big, plain-bodied sheep, with square frame and massive neck), were the pick of the entire dropping of 1862 of stud ram lambs by Emperor out of pure Wanganella stud ewes. This introduction further improved the Wangamong type, previously large-framed, and gave all the size wanted. No further infusion of blood was necessary, nor was any made. The man and the country did the rest; Wangamong sheep developed a type of their own.

The late Mr. J. M. Sanger lived to see his deal perfected, and a type of Merino sheep evolved which was in the front rank of its class. He was identified with the flock right up to the time of his death in 1904. In 1907 the stud flock was divided, Mr. W. B. Sanger, the eldest son of the founder, taking the homestead, and his brother, Mr. C. D. Sanger, the southern portion. The stud flock was divided by the simple expedient of the brothers picking out the sheep turn about, according to their judgment.

The founder of Wangamong was born in Gloucestershire, England, in 1816, and was a man full of independent thought and action. He was a member of the Royal Geographical Society and placed before that body in England a scheme for the Panama Canal, which many years after has been adopted. He arrived in South Australia in 1837, among the first settlers, bringing with him letters of introduction to influential people. These, however, he did not use, preferring to follow his own bent in starting various concerns. Finally, after managing Messrs. T. and J. P. Bear’s various properties, he settled at Wangamong in 1850.

Mr. William Brent Sanger was born at Wangamong in 1864, and educated at Mr. J. Henning Thompson’s Kew High School. At the early age of sixteen he took an active part in classing sheep and recording individual results. For about



A Wangamong Riverina Ram

(Big, plain-bodied, long-stapled, robust type of 60 years' standing)

four decades he has never left the helm at the stud, always adhering strictly to the chart mapped out by the founder. He is a well-known sheep judge and has, since 1887, been appointed to judge at leading shows in Australia over seventy times. His son, Lieut. John Mildred Sanger, born in 1888, and educated at the Geelong Grammar School, took an active part with his father in the management of the estate, until he enlisted for active service in the war. In 1915 he joined the Royal Field Artillery, serving in France. He has been recommended twice for the Military Cross and mentioned in General Haig's despatches.

Mr. W. B. Sanger married Isobel Kate, daughter of the late R. W. Larritt, C.E., of Melbourne, who was for many years Inspector-General of Roads and Bridges in Victoria. He has also three daughters, one of whom is married, being Mrs. Frank Austin, of Avalon, Victoria.

The Wangamong country is partly open-timbered box, interspersed with myall and salt-bush plains and sandy loam rises, with natural grasses. The average annual rainfall is $15\frac{1}{2}$ inches. There is no green grass from November till April.

Wangamong holds, and has always held, the best all-round, all-wool average price per lb. greasy wool record for Central Riverina, wherever conditions are against the high prices—burr and dust under at least six months' dry conditions. A noticeable feature is that with this bold combing (staple $3\frac{1}{2}$ to $4\frac{1}{2}$ inches in rams and 4 to 5

inches in ewes) there is practically only one class, viz., AA combing.

In 1914, the driest year on record, with a 6-inch rainfall, all Wangamong sheep averaged $12\frac{1}{2}$ lbs. of wool. On November, 1916, the following Australian record was scored:—

Wangamong over S (with arrow through) in diamond.

Sold by N.Z.L. & M.A. Co., Melbourne.

$28\frac{1}{2}$ d. (in grease) 50 bales.

All Fleece averaged 28.03d. Record to November 14.

All Broken, 1st & 2nd Pieces, 25d. Record to date.

All Bellies, $19\frac{1}{4}$ d.

Locks, 8d.

All Wool, 20/- per sheep. 94% breeding ewes.

The flock rams from Wangamong are in great demand, being sold to buyers all over the Commonwealth, and also in South Africa and New Zealand. The yearly output is about 1,000 to 1,500 rams.

Of historical interest in the pastoral sense, one of the earliest stations of Riverina (still retaining the old original homestead and surroundings), famous for its fleeces, Wangamong is a fine example of pastoral enterprise, courageously initiated and cleverly maintained, and, with the other old-established, still-existing studs, should be recognised as helping to establish the present position held by the sheep and wool industry of Australia.



Double-Stud Ewe, Wangamong



The Homestead, from the Lake

THE "BIG SPRINGS" ESTATE, WAGGA WAGGA

BIG SPRINGS, situated nineteen miles northwest of Wagga Wagga, comprises a large natural depression, interspersed by slopes which tend to break the monotony of the landscape. The name of the property supplies the key to its special feature—the big springs which provide an all-important element in stock-raising, and equip each paddock with a permanent water supply. Nature has been generous in her treatment of this station. Its owners have supplemented Nature by Science with successful results.

The property originally contained 18,000 acres. Subsequent additions increased it to 25,000 acres. It is all undulating country, highly improved. The average rainfall is 27 inches.

Mr. George Paterson Wilson, under whose ownership the estate has been developed, is a native of the Vale of Leven, Scotland. He came to Geelong, Victoria, when seventeen years of age. After working a year for a Geelong firm, he put in twelve months on his uncle's property at Narambool, near Buninyong. Next he went to Ararat, and at the age of nineteen undertook the management of Wonga Lake, ninety miles from

Horsham, for his brother William. These were pioneering days, when station work was mostly "ringing," clearing, and building. Two years were spent in improving the latter property before it was sold. The next two years of Mr. Wilson's life were spent in New Zealand. On returning to Victoria, he put in eighteen months in a Melbourne business, trading as Wilson and Crosbie, general merchants. In conjunction with an old partner of his brother, named George Wilson, although no relation, he purchased Big Springs. In the year 1865 they paid £15,000 cash for the property and 12,000 sheep. The flocks were steadily increased until 67,000 head were carried, in 1893.

Big Springs had been first taken up in 1855 by the late Mr. John Peter, of Tubbo, who held it till 1860, and then handed it to his stepson, Mr. James Bourke. In 1863 it passed by sale to Mr. John Donnelly, of Bywong, Gundaroo. The Wilsons held it conjointly until 1872, when both partners wished to become sole owner, but a difficulty arose, as neither cared to name a price for his share. By mutual arrangement, a visit to a lawyer's office followed. Here seated each

side of the man of law, the partners wrote down a figure on the understanding that the writer of the higher offer was to become sole owner. Mr. George Wilson's bid exceeded that of Mr. George Paterson Wilson by £700, and the property passed to the former.

in sole possession ever since, steadily improving the place until it has long since been regarded as one of the finest stations in a celebrated pastoral district. As an example of its values one paddock of 2,200 acres has carried up to 7,000 sheep all the year round. The clip from this flock has



The Woolshed and Huts

Leaving Big Springs in 1874, Mr. George Paterson Wilson took a trip to Europe, and on his return purchased Pomingalarna, Wagga, increasing its area and greatly improving it. Selling out a few years later, he went to Melbourne and joined Mr. John Todd, of William-street, Melbourne, in a general merchant's business. He severed his connection with the business later on and took another trip to England. On his return, he formed a syndicate with two of his brothers for the purpose of developing the sugar industry in Levu, Fiji. To that end £35,000 was expended in machinery alone, and a mill erected and fitted which cost £110,000. Making some progress at first, the fall in sugar brought about reverses which, after four years of struggling, necessitated the abandonment of the mill. The experiment cost each of the brothers a fortune.

In 1886 Mr. George Wilson, who had become the sole owner of Big Springs, wishing to realise all his properties, opened up negotiations with his old partner. This resulted in the property once more changing hands. Mr. G. P. Wilson has been

reached 110 bales; the price gave an average return of 11/- per acre. In the 'nineties, wheat-growing was successfully inaugurated. In 1895, there were 400 acres on the creek under wheat.

Gregadoo, an adjoining station, was leased by Mr. Wilson in the 'nineties and carried about 12,000 sheep. It has since been purchased by the owner of Big Springs. In 1894, 640 bales of wool were turned out. The following year a scouring plant was added and the wool scoured—natural water facilities tending to effective treatment of the wool.

The never-failing water supply on Big Springs renders it an oasis in the Riverina in droughty times. Its owner has provided agistment for as many as 55,000 sheep, in addition to his own flock of 35,000. This was done three or four years in succession. The general carrying capacity of the property was about 1½ sheep to the acre, but in summer as many as four sheep to the acre have been carried for a stretch of four months.



In the Centre of 'Big Springs' Station, looking West from the top of Sugar-Loaf Hill



A Good Field of Wheat

Extensive wheat-farming has been the more recent development on Big Springs, and has proved signally successful. During the last two decades the area under crop has been steadily increasing, operations being principally conducted on the share system. Naturally, the inroads on stock have been great, and the numbers carried have come down. Of late years the sheep have been of the comeback type, producing good fleeces, with big carcasses which fatten readily. Mr. Wilson has also been successful with Shorthorn cattle and as a horse-breeder.

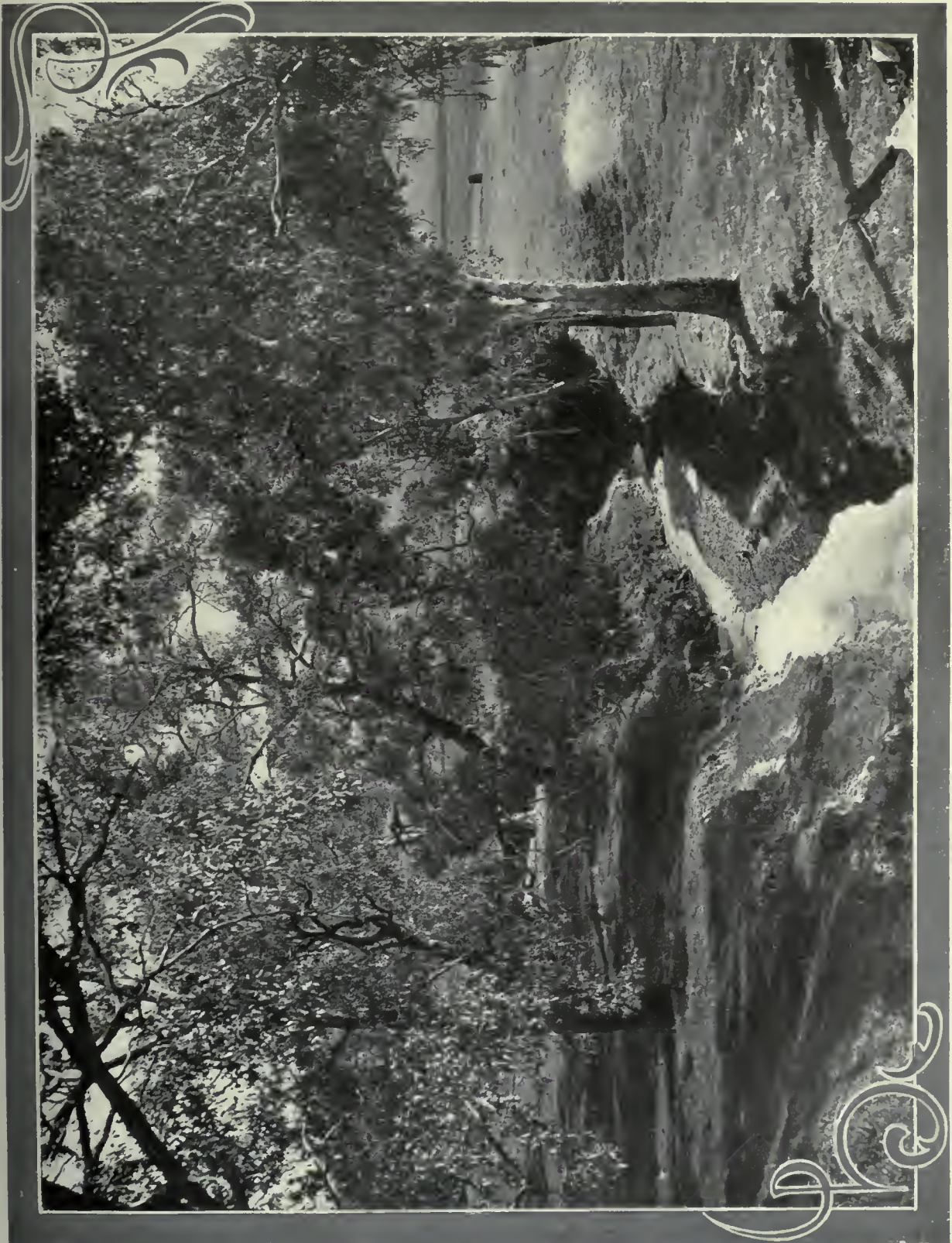
Although it has attractions and possibilities beyond most pursuits, Australian pastoralism cannot be regarded as a long series of unbroken successes. Flood, fire, and drought have, in the earlier stages of its development, taken each its disastrous toll.

In common with other river-stations, Big Springs has had some experience of flood. Its wonderful natural water supply has kept it immune from drought; but the great bush fire which swept through the Wagga district in 1905, inflicted heavy damage on the station. Big Springs

was right in the track of the fire, and had no possible escape. The run was completely burnt out. Every acre of grass, together with the standing crops, and thousands of bags of wheat which had just been harvested, were burnt. Mile upon mile of fencing, the woolshed, and about 3,000 sheep were destroyed.

Every cloud has its silver lining. Even in his reverses Mr. Wilson was not downhearted. More fortunate than many of his neighbors, who were compelled to send their sheep away for agistment owing to every vestige of grass being destroyed, he was able to retain his flock. This he did by feeding them for four months on roasted wheat. The sheep did well on the novel diet; in fact, they fattened on it. Australian Nature has her compensations.

Although the fire inflicted so much damage, it did a certain amount of good, inasmuch as it rendered great help in clearing up the property. Areas which were densely timbered and littered were left almost open plains after the visitation. There was hardly a hollow log left on the property to shelter a rabbit. In this clearing-up



O'Brien's Creek, on Big Springs Estate

work it has been estimated that the fire made good to the extent of about 2/- per acre.

Big Springs homestead is a commodious brick building of ten rooms, lighted with acetylene gas throughout, and surrounded with labor-saving appliances of every description. A fine billiard-room has been erected a little apart from the main building. In front of the homestead is a beautiful lake—eight feet deep in places—which covers an area of about seven or eight acres.

The big springs, from which the place takes its name, are physically remarkable. The water from one has great medicinal properties, being very similar to the Perrier water of the Pyrenees. It is not unlikely that it will be converted to a more practical use in the future. One spring supplies all the requirements of the homestead for household purposes. From another spring a supply of 80 to 100 gallons per minute can be obtained. One of the springs irrigates twenty acres of lucerne.

One rather unusual improvement on the station is a large swimming basin, 20 feet by 10 feet,

which has a depth of five feet. Here a refreshing bath can be obtained all the year round. The temperature is a uniform one of sixty degrees.

Rabbits have been troublesome on this estate, but the pest has been attacked in a very systematic manner. There are more than sixty miles of wire-netting fencing on the station. Altogether there are eight netted blocks, from which the rabbits have been cleared out. This has been a long and costly operation.

The sheep-dip is of modern type. It provides the sheep with a 60-ft. swim, the water for which is pumped up from the adjoining creek. The policy of Mr. Wilson is to dip the sheep six weeks after shearing, when the wool has made a start to grow. Experience has proved this policy to be an efficacious one, because it kills ticks and other vermin, bursts the grass-seeds, and is a splendid preventive of the fly pest.

The shearing shed—in keeping with the other station improvements—is fitted up with twenty shearing-machines driven by an eight-horse engine.



A Part of the Garden



Merribee House

MERRIBEE.

*"But when the Spring comes green,
She puts her feet a thousand miles
Across the Riverine."*

—BELLS AND HOBBLER.

TO thoroughly appreciate the richness of Australia, one must see the Riverina at its best. Many of the station properties described in this section of the book, are located either in the heart or upon the borders of the western river system of New South Wales. They are, as a rule, highly-improved properties, stocked in these days to the fullest carrying capacity, and contributing greatly to the national wealth. Either as present pastoral areas or future farms they can be classed among the best lands in the Commonwealth.

Merribee, formerly known as North Gogeldrie, lies about fifteen miles west of Barellan. The south-western portion of the estate skirts the Burrenjuck irrigation area. It comprises 33,000 acres of valuable well-grassed pastoral lands, of which 22,400 acres are freehold. Timbered with horee, for the most part, with a proportion of pine, box, yarran, and currajong, the estate presents picturesque panoramas of alternating hills and flats, the red soil being fertile and luxuriantly grassed; the principal grasses are white-top, barley, trefoil, corkscrew, and crow-

foot. The country is specially suited for fattening stock and stud breeding. There are numerous tanks and dams which provide ample water during seasons when the rainfall, averaging 16 inches, is normal; and there are also wells and bores, from which the water is raised from a depth of about 150 feet by windmills, which provide a permanent supply in dry seasons. Most of the better supplies have been obtained by use of the divining rod, sinkings made without it having generally been failures.

The estate, which was purchased in 1908 by Mr. William Wilson Killen, was formerly owned by Mr. Godfrey Mackinnon, who worked it in conjunction with North Goonambil. Mr. Killen had just disposed of his Bull Plain estate, between Corowa and Berrigan, for the purposes of closer settlement, and he transferred to Merribee some 7,000 of the pick of the Bull Plain sheep. Thus the Merribee flock is founded on the well-proved Bull Plain stock. The sheep, for about twenty-five years, have been bred mainly to the South Australian strain, with an original foundation of Wangamong, Quia-

mong, and Wanganella blood, and a few of the pick of the old Bull Plain flock. There were, later on, some valuable additions of ewes from Rhine Park and Cappeedee. This line of breeding has evolved a type of sheep eminently suited to the Riverina, carrying heavy fleeces of long-stapled wool ranging from medium to strong. In normal times the flock totals about 15,000 head of merinos, all of which are studs.

The original introduction of South Australian rams was of the Pitt's Levels blood, but for the



William Wilson Killen

past twenty years the fresh strain has been obtained from Mount Crawford, Rhine Park, Cappeedee, and Wirra Wirra—all pure Murray blood. Mr. Killen's ideal all along has been a uniform type of hardy animal, giving a combination of a heavy fleece of profitable wool with weight of carcase, and he has always done his own classing and the purchasing of stud sires. He has had the satisfaction of winning practical approval of his policy. This is evidenced in the large and increasing demand for Merribee rams and repeat-orders from breeders who have found the type profitable. Some indication of this is shown in Mr. Killen's correspondence, especially from northern New South Wales and Queensland. One stock agent writes: "Your rams are getting an exceedingly good reputation here. Their progeny cut well and that, after all, is the best proof of value." A Queensland buyer says: "Your rams have earned a very good name

in this district, and what I have seen of their progeny are fine, big, active sheep, well suited to battle through a drought."

Merribee is devoted solely to stud-breeding, and the annual output of rams is about 2,500. The top rams have cut over 31lbs. of wool, and the general average in ordinary seasons of the whole flock, about 4/5ths of which are ewes, has been well over 13lbs., with twelve months' growth, the lambs averaging 5lbs. 2ozs. at 5½ months. The wool brings good prices on the London market, considering the dusty character of trefoil in the district, and at the Sydney wool sales this year (1917) Merribee greasy fleece realised 22¾d., while first greasy pieces fetched up to 18½d., and second greasy pieces to 16d.—the top prices in the A. M. L. and F. Co.'s catalogue of over 3,500 bales sold on November 28th, 1917. The principal aim at Merribee, however, has not been to produce a high quality of wool, its owner holding the conviction that, over the larger part of the sheep country of Australia, the best type to produce is a strong-woolled sheep combining weight of carcase with weight of fleece, together with robustness of constitution, and that this type is more profitable to growers generally than the more delicate lighter-fleeced and more attractive fine-woolled sheep. Length of staple is a leading feature of the wool, and it is safe to say that no longer-woolled merinos are to be found in Australia.

The experience of Mr. Killen, which is confirmed by many other breeders, is that the fine-woolled sheep do not carry their wool to so great an age as the strong-woolled animals, and that they deteriorate much more in their yield of wool after middle age. He has always bred a plain-bodied sheep, and would have nothing to do with the wrinkly type, even when they were most fashionable. He preferred to keep steadfastly to the large-framed plain-bodied type, positive in his own mind that they were the more profitable, and that the craze for the wrinkles would be short-lived. The Vermont craze had a longer life than he prophesied for it, but in the end Mr. Killen had the satisfaction of seeing the type he had always believed in, and had stuck to through thick and thin, win its way into first place in the favor of the bulk of sheepbreeders.

Mr. Killen is likewise convinced that the popularity of the large-framed, robust type is no mere passing fancy but has come to stay. The great aim in breeding the Merribee sheep is to secure a heavy fleece of wool on a big animal of symmetrical proportions and great constitution. The goal has been the production of the most profitable combination of wool and mutton, regardless of



Merribee House.

minor points and show-yard fads. It takes some courage in sheepbreeding to stick to one's opinion and continue to breed a type of sheep which is not popular, when it would be an easy matter to change the type to the popular one by an infusion of outside blood. Mr. Killen all through believed in the pure Australian type, and went through the years of the Vermont craze absolutely confident that the majority were wrong and that the craze for wrinkles was going to work its own cure.

Events proved that he was right. He has since reaped the reward of his loyal adherence to the big-framed type. It is now some years since the pendulum swung back to the old Australian form. Each year has seen a tendency to intensify the popularity of these sheep. The result has been that the demand for all such sheep has been keen, and Merribee has enjoyed to the full its share of the increased demand. The outlook for sheep of the Merribee kind appears bright. During recent years of high wool-values, the big bale-fillers have proved splendid investments. The demand is now in excess of the supply. This is likely to be the normal state of affairs in the future.

A special contest carried out for some years at the Corowa Show was based on the commercial value of the sheep. The competing animals were shown at one Show, and came up the following year, when they were again shorn and

the wool scoured and valued. The sheep were weighed, one-third of their weight being allowed for offal and the balance valued at 1½d. per lb. The prize was awarded to the sheep returning the most valuable combination of wool and mutton. Mr. Killen was successful in winning the contest six times out of seven.

Mr. Killen adheres to the old system of hand-shearing. He has tried the machines, but his experience is that the results are not so profitable with the machines as with the blades, consequently machines are not installed at Merribee. A two-years' trial was given to them by Mr. Killen at Bull Plain, but they were discarded in favor of blades.

The herd of pure pedigree Shorthorn cattle until lately maintained at Merribee, which was descended from the Madowla Park and North Gogeldrie herds, has been removed to Blowering station, only a few Jersey milkers being now kept at Merribee.

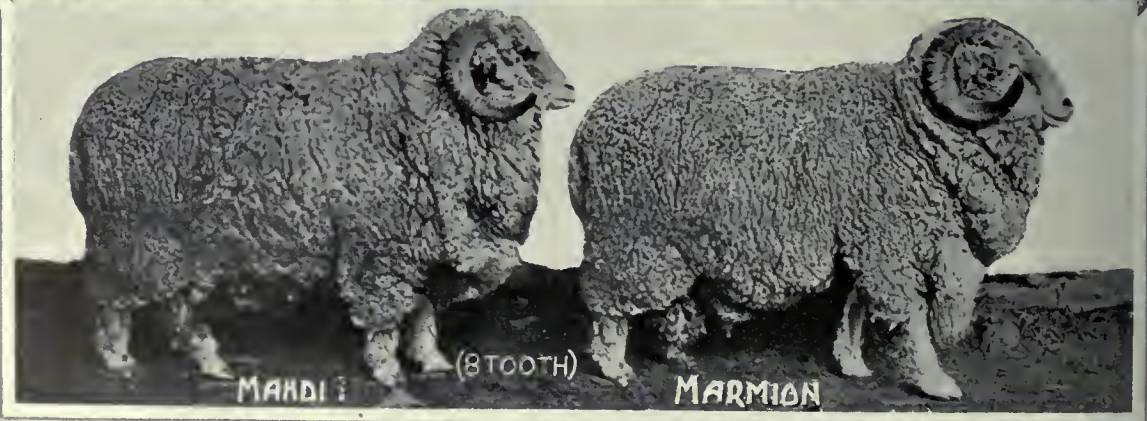
Although he considers the Merribee property to be outside the safe wheat area, Mr. Killen has been cultivating a considerable area of cereals. Taking advantage of the present good seasons, he is conserving a quantity of the natural grasses and also of wheat, oats, barley, and lucerne, in the form of ensilage stored in pits, and also in the form of hay, so as to provide against the inevitable future dry seasons. The principle he has adopted for the storage of ensilage is to make



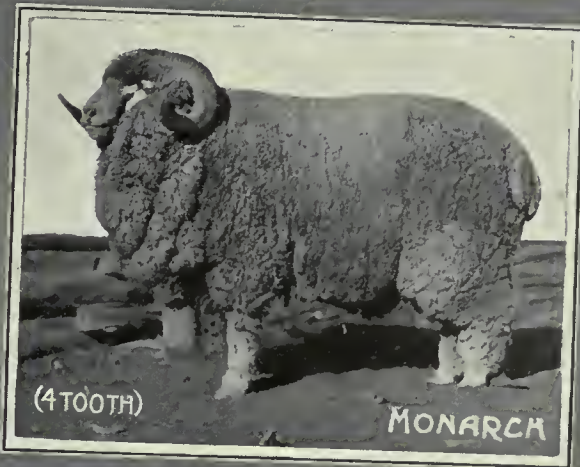
The MERRIBEE
STUD MERINOS



TWO-TOOTH
RAM MAHOMET



MARDI (8TOOTH) MARMION



The
MERRIBEE



STUD
MERINOS



pits on slopes of the rising ground, about $6\frac{1}{2}$ feet deep and 80 feet by 20 feet on top, with almost perpendicular sides and slopes on the ends, about four to one, to admit of carts or drays being loaded when taking out the ensilage. A pit of this size



Merribee Merino: A Good Staple

holds about 120 tons; the grass or crop is filled into the pit and stacked about six and a half feet above the surface, and is allowed to project about 18 inches outside the side-edges of the excavation. The teams are not driven over the ensilage, as is sometimes done, but it is well trampled down by horses, after the pit is nearly full, and then afterwards covered to a depth of three to four feet with the earth from the excavation, which is formed dome-shaped over the ensilage, taking care to leave no inlet for water. The cost is somewhere about 6s. per ton of ensilage, including the excavation of the pits by means of plough and scoop, which costs 9d. per cubic yard. The pits are, of course, placed near the crops to minimise cartage.

In addition to Merribee, Mr. Killen has a leasehold, Dumossa, in the Hillston district, about forty-five miles from Merribee, consisting of about 69,000 acres. He is a principal partner in the firm of Killen and Armstrong, of the Blowering station, in the Tumut district, consisting of about 19,000 acres and carrying about 10,000 sheep and 500 cattle; and he has also a third share with relations in Killen, Ekin & Co., which controls Nariah and Malonga stations, of about 120,000 acres in the Wyalong district. These two properties carry between 25,000 and 30,000 sheep, and are worked in conjunction with Goo-bragandra (29,000 acres) in the Tumut district, to which a number of the sheep are sent during the summer and dry seasons.

Another of Mr. Killen's interests is the firm of Killen & Co., in which his brother, Mr. Edward Killen, and others are also partners. This firm controls Mooculta, near Bourke, comprising

122,000 acres; Marra on the Darling River, near Tilpa, of about 310,000 acres; Talyealye, on the Paroo, which abutts on the Queensland border, comprising 255,000 acres; and Willara (188,000 acres) adjoining Talyealye on the south. The flocks at present (1917) on Killen & Co.'s stations (now much understocked) comprise about 50,000 sheep, and there are also 1,500 beef cattle and 250 horses. The cattle are principally descended from South Comongin Shorthorn herds, and are some of the finest cattle to be found in that part of the country. The sheep were originally founded on the Canowie strain of South Australia, in which Boonoke and Wanganella blood has been largely infused, and latterly the South Australian blood has been reverted to. Mr. Killen has recently taken the members of his family—his wife, daughter and three sons—into partnership in all his properties, the new firm having the title of The Merribee Company Ltd.

The new homestead, Merribee House, is a very handsome and most up-to-date building on a picturesque site, occupying the slope of a low hill near the centre of the estate. It is constructed of sandstone, quarried on the property, and consists of three stories and a tower. The rooms are large and lofty, and there are all the comforts and conveniences of a city home. The extensive grounds include a plantation of shade trees, and there is also a large orchard, a vinery, and vegetable and



Mr. and Mrs. W. Killen and Family



Merribee Country, with Mount Binya in the Distance



A Flock of Merribee Ewes and Lambs

flower gardens, laid out very attractively. From the house very fine views of the surrounding country are obtainable, that from the front of the house looking over the station towards the Bynya mountain being especially beautiful.

Mr. Killen married in 1891 Marion, the third daughter of the late Hon. Charles Young, who for nearly twenty years represented Kyneton in the Victorian Parliament. One of their sons Edward, joined the Royal Flying Corps in England, and on his return after being incapacitated, his only other brother, Harold, of military age joined the corps, and has received a commission.

Mr. Killen has always taken his share in any movement for the advancement of the district, and for the betterment of pastoral conditions

generally, serving on the executive committees of the New South Wales Graziers' Association (Pastoralists' Union), the Stock-Owners' Association, and Farmers' and Settlers' Association. He is also a member of the Yanco Shire Council and the Narandera Pastures' Protection Board. Mr. Killen has also taken a keen interest in State affairs, and was recently approached with a view to his representing his district in the State Parliament. His sole recreation is fly-fishing, every season seeing him enjoying a holiday on the Monaro tableland or on his own fine trout stream on Goobragandra.

Mr. Killen has recently purchased a seaside villa, Burnham, on the cliff at Manly, as a summer residence.





Tantallon Country, with Homestead

THE TANTALLON LINCOLNS

THERE is much fine pastoral country in the Orange and adjoining districts.

For the most part hilly, and, in fact, mountainous, the temperatures are moderate to cold, the rainfall is good, and the soil is a rich red, which means not only succulent pasturage, but prolific vegetation when cultivated. About Orange there are many orchards, yielding fortunes in cherries, apples and pears especially, and the potato-fields give their abundance. The town is one of the best in western New South Wales, its handsome mansions and villas, its prosperous business firms, its factories—and its numerous hotels—affording abundant testimony to the high productive value of the country surrounding it.

Only some thirteen miles from Orange, and located equally in the Orange and Molong districts, is a property of 3,200 acres on the Bell River, which has of recent years developed from a somewhat neglected out-station into a sheep-breeding station of note. Now known as Tantallon—historic Scottish name!—it was purchased in 1905 from Major Claude Smith by Mr. and Mrs. William Hood; under Mr. Hood's able

and experienced management it has become a valuable possession, and its future is assured.



Mr. and Mrs. William Hood

Mr. Hood has had the advantage of practical experience in some of the most difficult parts of this vast and varied continent. He came out from East Lothian, Scotland, at the age of seventeen, fresh from school and eager to try his fortune as a pastoralist. His father, James Hood, who had been a farmer, followed him in the next year, 1868, his brothers Robert and Alexander having previously established themselves here. Robert became well known in the Western District of Victoria as the owner of Merrang, as did his father when he rented Woollaston,



Tantallon Lincolns

near Warrnambool, in the same district, afterwards and until recently the home of the Hon. Walter S. Manifold.

William Hood went to the Paroo, in Queensland, and in those days of his youth became known as "Paroo," a dashing horseman. He later took his share in establishing the game of polo in Victoria, which became so popular among the young pastoralists of that State and South Australia, and led to the establishment of many fine polo pony studs. On the Paroo his father, James Hood, his uncle, Alexander Hood, and James Wise Torrence had taken up country in partnership at Currawinya, about a million acres in extent, and there kept merino sheep and Durham Shorthorn cattle. Mr. Hood remained there until 1876, when the property was sold to Hector



Yearling Filly by Earlston (imp.)—La Tosca

and Norman Wilson. He then went to Cooper's Creek and established a station there with his cousin, Walter C. Hood, who had been "jackerooing" with him on Currawinya. It had a twenty-mile frontage on both sides of the creek. They stocked it with Shorthorn cattle from the Barwon, but only remained there twelve months, when they disposed of the run to Henry Collis, of Innamincka. They took their stock to Eyre's Creek, founding the now well-known station of Annandale, on the Queensland and South Australian border. There they remained until 1894, but the price of cattle being then very low they took some bullocks to Wodonga, on the Victoria-New South Wales border, selling Annandale to Sidney Kidman.



"Wentworth," 4-year-old Draught Stallion



Three Lincoln Ram Lambs, 9 months old,
Bred by William Hood, Tantallon

This closed the more adventurous period of William Hood's career. He was then content to become an employee of Thos. Edols and Co., at Burrawang, near Forbes, where he had charge of the stud of pure Durham cattle, for which he imported some fine stock from England, and made it one of the most famous herds in Australia. There he married Miss Emily Edols in 1898, and in 1905 Mr. and Mrs. Hood purchased their present property near Orange, which they called Tantallon, building a fine homestead and establishing themselves there permanently. The estate is exceedingly picturesque, as well as providing good pasturage, and is well timbered with box and gum trees, the Bell River affording permanent water.

Finding the country eminently suitable for the breeding of pure-bred Lincoln sheep, Mr. Hood purchased, in November, 1908, a choice selection of 96 Lincoln ewes from his cousin, R. A. D. Hood, of Merrang, Hexham Park, and also a ram, "Merrang" (No. 864, Merrang). With these he founded a stud which has been uniformly successful, and which has been built up solely on the Merrang strain. In June, 1910, he purchased another Merrang ram, "Bar None II." (by Bar None), No. 60, Merrang. An addition to the flock was again made in October, 1912, in the shape of two rams, Nos. 199 and 209, Merrang, grandsons of Bar None, and fifteen selected ewes; these seventeen additional sheep were all bred at Merrang and purchased from Mr. R. A.

D. Hood. Of the fifteen ewes, two were by the imported rams, Quarrington Langton and Southern Star, four with rings taken from the Merrang selected ewes and five without rings. Though he keeps the flock fresh with new purchases from Merrang, Mr. William Hood is already finding in-breeding possible, and in the



Gunner Tom Edols Hood



Welsh Mountain Pony Stallion, "Tantallon"

near future will probably breed his flock entirely within itself, a system that has been proved highly

successful with many of the most notable Australian sheep studs.

Besides the sheep, for which there is already a demand far exceeding the available supply, Mr. Hood fattens a number of cattle on Tantallon, and has for the past seven years grown wheat on the estate on the share system, which has proved very successful. He keeps a fine Clydesdale draught stallion, "Wentworth," which secured first prize as a two-year-old, and has in the past two years won two first prizes and championship at the local show; also a very neat little pure-bred Welsh pony stallion, the only one of its class in the district.

Mr. Hood has had associated with him in the management of the station his only son, Tom Edols Hood, who is at present serving in the Australian Field Artillery on active service in France.



The Homestead, Tantallon



Burrawang House and Lagoon

BURRAWANG

BURRAWANG, situated on the River Lachlan, is one of the oldest and best-known stations in New South Wales. It has been developed from a tangled waste into one of the most highly-improved properties of the Mother State.

This beautiful holding was taken up in the brave old colonial days. Its earlier history is exceedingly interesting. Its first owner was Mr. Lloyd, a Sydney merchant, and an early proprietor of the Sydney Sugar Works. He sold out to Mr. Augustus Morris, who in turn passed the property on to Dr. Youl and Mr. Wm. Martin, of Melbourne. Dr. Youl later sold out his share to his partner, and Mr. Wm. Martin was joined in partnership by the Hon. J. G. Francis.

Burrawang was purchased in 1873 by the late Mr. Thomas Edols, from Messrs. Francis and Martin, and has remained in the possession of the Edols family since that date. At the time of the Edols' purchase, Burrawang comprised 520,000 acres, and was practically unimproved, the wild dogs and marsupials being very troublesome. Burrawang had been a speculative property, rather than a productive proposition. The

late Mr. Thos. Edols enthusiastically undertook the task of improving the place.

Colossal as the task appeared in the beginning, he carried it stage after stage to ultimate success. Vast sums were expended in fencing, clearing and killing scrub and timber, in the sinking of wells and making dams. A great expanse covered by swamps, such as caused Explorer Oxley to declare the Lachlan "an impenetrable morass," was transformed into good pasture-land by the potent agency of over a hundred miles of drains. The entire property was subdivided into about 150 paddocks for stock.

Years of patient endeavour gradually brought Burrawang to a very high state of perfection. Coevally with the material improvement of the estate, the development of its flocks was carefully carried out. When the run was owned by Messrs. Francis and Martin, its sheep bore a good flow of South Australian blood in them. Most of the ewes had been purchased from Mr. Hurtle Fisher, Mount Schank and Mount Gambier, South Australia, while some came from the Liverpool Plains.

In 1875, five hundred rams were purchased from Mr. Nicholas Bayly, in his day a pre-eminent breeder, who made the Havilah sheep celebrated. In the Havilah purchase there was found a ram of such high character that it was decided to use it in the stud flock. This decision proved to be a wise one, for the experiment, if such a display of sound judgment can be so termed, proved completely successful. Competing at Forbes Show



The late Thos. Edols

this ram beat one bought in Tasmania for three figures.

Later Mr. Edols was induced to purchase rams from the late Hon. James Gibson, of Belle Vue, Epping, the doyen of Tasmanian breeders. The Tasmanian strain did not, however, prove suitable. The progeny was discarded, and the rams sold.

In 1880 six rams were purchased from Austin and Milliar, Wanganella. One of these rams, old "Bestwool," laid the foundation of the present high reputation of the flock. At the same time some 700 two-tooth rams were purchased from the same source, being mostly of the Premier and Warrior strains, considered two of the best rams on Wanganella. Two more high-class Wanganella rams were purchased in 1887. Since that year no further purchases have been made, but the aim of the stud has always been to produce a sheep of the Wanganella type and improve it if possible.

The late Mr. Thos. Edols made the development of Burrawang his life's work. A native of Bridgewater, Somersetshire, where he was born in 1819, he came to Tasmania at the age of thirteen, and spent some years in the island State, after-



C. Hedley Edols

wards engaging in farming pursuits in Victoria. For some years he owned and worked a farm known as "Edolstone," at Cowie's Creek, near Geelong. In 1857 he was awarded a prize for the best managed farm in the district. Subsequently, Mr. Edols purchased a station known as "Upper Regions," Bonnigar, near Dimboola, in Victoria. He remained there for some years, afterwards selling out and migrating to Burrawang.

In 1895 the property was formed into a limited liability company, with the shares apportioned among the family. During the later years of his life, Mr. Thos. Edols gradually relinquished the



Thos. Reginald Edols



Typical Burrawang Stud Rams

active management of the estate to his four sons, Frank, Hedley, Ernest, and Edward, who continued in their father's progressive footsteps. The last-named died in 1906. A few years later, Hedley and Frank bought out the beneficiaries under their father's will. Subsequently, they dissolved partnership and divided the estate and its flock equally, taking pick for pick of the sheep. Mr. Hedley Edols retained the old home, and his brother took the upper part of the run.

Burrawang to-day consists of 42,000 acres, carrying 30,000 sheep, and is divided into a dozen sections, all rabbit-proof netted. Most of it is open country timbered with belah, myall, box, and pine. The black and red soils insure valuable pastures, and a large portion of the estate is suitable for agriculture, a good deal of wheat being grown, while the rich black soil of the river flats and the drained swamps afford excellent fattening areas for stock. Besides the Lachlan River, the property is liberally watered by creeks, and there is a large lagoon of some three miles in length, which gives a picturesque water frontage to the homestead and provides the family with swimming and boating.

The Burrawang woolshed is among the largest in the State, and is fitted with 88 sheds of electric machine shears, the electricity being generated by a steam engine.

The Burrawang sheep are of a most valuable type, deep-framed and roomy, carrying heavy fleeces of a class of wool much sought after by buyers. The sheep are unhoused and purely grass-fed, and have a uniform and robust appearance, with bold fronts and level well-topped frames, well-sprung ribs, and a great depth of body. The stud sheep are greatly sought after, not only in New South Wales and Queensland, but

also in South Africa, to which latter country large shipments have been made with very satisfactory results. Their highest average at auction was made at the Sydney Stud Sheep Fair in 1910, when £167 per head was netted. The demand nowadays is greater than the supply.

As many as 273,000 sheep have been shorn at old Burrawang off 300,000 acres, returning wool within seven bales of 5,000. Its show-ring record is an excellent one. Between 1882 and 1890 150 Burrawang sheep were shown at Forbes, winning fourteen championships, forty-six firsts, fifteen seconds and twenty-four special prizes, these being about equally divided between rams and ewes. Twenty thousand sheep were shorn in two days by eighty-eight shearers in Burrawang woolshed.

South African appreciation of Burrawang sheep is well expressed in the following letter which appeared in the "Farmers' Weekly," published in Bloemfontein, signed by Messrs. W. D. Hilder and Co., of the Transvaal, under the heading, "A suitable type for South Africa":—

"About 18 months ago we imported from Australia thirty Burrawang sheep, originated from the Wanganella type. When they arrived we were very pleased indeed with them, for they were covered with beautiful long wool of very good quality, and the rams were of a large robust type. Shortly after we got them they became beautifully fat: South Africa undoubtedly agreed with them. They showed themselves a very handy sheep, and sheared from 18 to 23 lbs. of fine clean wool. The following season, on a very poor pasture, they sheared from 17 to 20 lbs. On the arrival of these rams we asked the opinions of many farmers, which were anything



Mount Burrawang

but encouraging. Had we listened to them, we should no doubt have soon parted with our rams. We have now 1,300 lambs from them, and a finer set of lambs we have never had since we started sheep-farming. The wool of these lambs was recently sent to Durban. The seven months' wool, unsorted, fetched 9¼d. and the four and a half months' wool fetched 8⅝d. The bales averaged 380 lbs., so their wool is not so light, after all. The lambs have shown themselves very hardy up to the present, and get fat on any ordinary pasture. We have also imported twenty-five Burrawang ewes, which lambed here when we had no provision for them. They made splendid mothers, had any amount of milk, and reared their lambs with absolutely no trouble. The ewes clipped from 12 to 14 lbs. . . . We

are convinced this is the true type of sheep for South Africa."

As a result of the demand in South Africa for his sheep, on top of the big output to Queensland, Mr. Edols finds it difficult to keep pace with his market. This has led to prices being increased for his stud sheep.

Apart from the improvements on natural values, which have made Burrawang a model Australian station, its stock have brought credit and advertisement to the Commonwealth.

Mr. C. Hedley Edols, the master of Burrawang, has a family of three sons and three daughters. The eldest son, Thomas Reginald, joined in 1916 the howitzer brigade of the Australian Field Artillery, and has since been transferred to the Royal Flying Corps.



Shearing Sheep by Machinery: Burrawang Wool-shed

THE Tocal HEREFORDS, AND SOME NOTABLE THOROUGHbred HORSES

ALTHOUGH the Tocal Hereford herd was not the first to be established in Australia, its history links up the greatest herd of the very early days. The names of Hobbler, of the Hunter River, and Reynolds, of the Paterson River, are very prominent among the pioneers of the industry.

Charles Reynolds was himself the son of a great breeder of stock and prize-winner in England. He had for some years managed his father's stud of horses and cattle at Raddon Court, Exeter, and when in 1839 he decided to transfer his interests to Australia, the stud was disposed of.

Fired with the ambition to take a high place among Australian breeders, his fine practical ex-

perience stood him in good stead. Soon after his arrival from England in 1840, Mr. Reynolds rented Louth Park, near Maitland, and purchased from Mr. Geo. Hobbler, some Hereford cows and the bull, Captain, a son of Trojan (imported). This bull was used until 1849, when he died from snake bite, his place in the herd being taken by his son, Thurlow. He also kept a few Leicester sheep.

In 1841 C. Reynolds and his brother Richard purchased the Mooki Station on Liverpool Plains and at the outset lost 80 per cent. of their cattle from drought. Mr. Reynolds retained his interest in the Mooki station until 1848 and then sold out to his brother, Richard.



Champion Tocal Hereford Cow: Minerva



The late Charles Reynolds

At that time the pioneer breeder of Hereford and Devon cattle in the Hunter district was George Hobbler, who had previously imported good specimens of the breeds from England to Tasmania in the earliest days of that colony, and from there to New South Wales. He remained at Louth Park until 1848. On January 1st, 1844, he leased the Tocal Estate, on the Paterson River, 9 miles from Maitland, and removed his Hereford cattle and horses from Louth Park to Tocal, which has since, under himself and his son, won and maintained a reputation as one of the greatest breeding-grounds for cattle and thoroughbred horses in Australia.

This fine estate comprises 4,360 acres on the Paterson River, with numerous creeks, dams, and springs, so that there is abundance of water. It is ideal stock-raising country.

When he first established himself at Tocal, Mr. Charles Reynolds, in 1856, imported from England, the Hereford bull, *The Captain* (1409)—a Royal prize-winner in England—also the cow, *Wanton*, with the heifer-calf, *Columbine*, at foot. Two years later he bought the imported bull *Thrupton* (1422), and then followed *Lord Ashford* and *Royal Head*, the latter, a big winner in England, becoming the sire of *Triumph* and *Sir James*. *Sir James* was a phenomenal sire. *Lord Ashford* produced some grand stock. Next Mr. Reynolds used in turn *Wanderer* (*The Captain*—*Wanton*), *Calendar*, *Young Carlisle*, a phenomenal bull by *The Captain* out of *Columbine*.

In 1860 he had purchased the estate of Duninald, on the opposite side of the Paterson River, which he had leased for some years previously, and there established his herd of Devon cattle, while the Herefords were bred at Tocal. He was seldom beaten in the Hunter district, and he and his son since have raised many Hereford bulls and cows which have carried off championships and first prizes in Royal Shows. It is, indeed, impossible to do more than refer briefly to that fact—of trophies and medals there are cabinets full at Tocal, championship ribbons, and cups. The Tocal Herefords were winning prizes at the H.R.A. and H. Association Show in Maitland in 1845.

As a breeder of thoroughbred horses, Mr. Charles Reynolds was destined to make a great success. The Tocal stud soon became known far and wide on the turf and in the breeding stables. He had brought together some good mares of the then most famous breeds, and the sires *Auron*, *Akbar*, *Emigrant*, and *Gratis*—all the best procurable. In 1854 he purchased *Cossack*, the son of *Sir Hercules* and *Flora McIvor*—who was the most renowned colonial racehorse of his time, and from this infusion of crack blood the Tocal stud dates its fame. *Cossack* also sired the Champion Stakes winner, *Talleyrand*.

His purchase in 1864 of *New Warrior*, a performer of note in England, resulted in the acquisition of a fine progeny, including *Tim Wiffler*, *The Pearl*, *Warrior*, *Tarragon*, *Tinfinder* (the dam of *The Assyrian*), *Romula*, *The Prophet*, *Volunteer*, *Juanita*, *Detection*, *Lottery*, *Phyrrus*, *The Spy*, *Titania*, and others of equally high repute. In 1869 he bought the famous racehorse, *The Barb*, from Mr. Tait for 2,000 guineas for stud purposes to follow *New Warrior*. Of this horse, that good judge, James Wilson, senr., said, "The Barb was a Shakespeare among horses."

Mr. Charles Reynolds died in 1871, owing to an accident, at the age of 65 years. His widow lived until 1900, when she died at the age of 82 years, her family consisting of four sons. At Mrs. Charles Reynolds' death the studs were dispersed. Mr. Frank Reynolds, who took on the Tocal property, bought the pick of the Herefords. Mr. Frank Reynolds' sons are Charles, *Darcie Frank* (who is now the manager of Tocal for his father), *Henry Ernest*, and *Arthur Rens*; the last-named is serving with the 6th Light Horse in Palestine.

In 1873, the Hereford cows *Lioness*, *Constance*, *Chloe*, *Careless*, *Circe*, *Josephine*, and *Carissima*, were purchased from J. D. Toosey, of Cressy, Tasmania. They were all descended

from Matchless and another cow imported from England by the Cressy Co. in 1825. In 1876 the yearling heifer, Last Day, descended from Rebecca (imp.), was purchased from Mr. George Loder. From this cow descend the famous Last Day family. In 1879 15 Hereford cows, all descendants of Minerva (imp.) were purchased from Mr. A. A. Dangar.

In 1881 Dale Tredegar, a winner at the Royal Show in England, was purchased, and his influence on the herd was noteworthy; his sons Bondsman and The King of the Vale, were in their turn successful sires at Tocal. Pearl Diver 4th, by Pearl Diver (imp.) out of Leonora 2nd (imp.), an English Royal Show winner, was next introduced. In 1884, Lord Warden was purchased for £300, and among later importations were Prince, Sarchedon, Three R's, Chippendale, Silurian, Knight-Errant, Rossmore, Duke of Albany, who won the Championship at the Royal Sydney Show in 1903, 1904, and 1905, M'nevis, bred by Mr. James Stuckey, of New Zealand, Blenheim and Major from the noted English breeder, Mr. John Tudge. Blenheim was three-parts brother to Princess May, the English champion. Then we come to the great sire Wonder, imported at the end of 1907 by Mr. Frank Reynolds, and which is well remembered by breeders as one of the finest Hereford bulls that ever came to Australia.

Wonder produced in Australia a fine list of bulls and cows, champions all. Prince Edward

was also contemporary with Wonder, and he was an example of what could be done in breeding bulls at Tocal. In 1912 Prime Minister came from the Tudge stud and proved a very successful introduction. In the following year Mr. Reynolds began to use the Tocal-bred Manifesto, by Rossmore-Maritana. Duplicate (imp.) went into the stud in 1914, and in the same year Twyford Horace was bought from Mr. S. G. Hayter, of Twyford, Herefordshire. He was a well-bred bull of Lord Wilton descent, and he sired Twyford Major, Twyford Lord, and others. Lord Palmerston, one of the crack Tocal bulls was put into the stud also in 1914, and so was the prize bull Wonder 31st. In the following year Mr. Reynolds imported Broadward Waterloo, and began to use Wonderful (by Wonder), another great prize winner.

After Mr. Frank Reynolds succeeded to the charge of the Tocal racing stud, the next stallion purchased was one of the greatest Australia has known—Goldsborough. His history is worthy of a separate article, but it must suffice to mention here that he sired the winners of six hundred races, worth nearly £75,000. Among his daughters, was Frailty the dam of Trenton, Niagara, Havoc, Zalinski, Cuirassier, and Lancaster. Then followed the notable stallion, The Drummer, a son of Stockwell's brother Rataplan; he did excellent service at Tocal, siring The Pontiff, Chicago, Drum Major, and others winners of lesser note. Then Splendor, a fine horse by Speculum from



Imported Hereford Bull: Twyford Horace

a Stockwell mare, was procured and he sired winners of over four hundred races, valued at



Frank Reynolds

£43,337. The two stallions, Simmer (imported) and Medallion were secured for the St. Simon and Musket blood, which has been liberally crossed on the dams descended from New Warrior, The

Barb, The Drummer, Goldsborough, and Splendor.

A noteworthy stallion of the first decade of this century was Sir Tristram, a princely sire, by the great Bend Or, winner of the Derby and sire of Ormonde, with a pedigree "as long as your arm." Medallion was Sir Tristram's confrere at Tocal, and he was a son of Nordenfeldt, and showed all the characteristics of the famed Musket blood.

Imported in 1912, Knightlight, bred by Lord Rosebery, with a record of twenty-eight winners up to date, is at present in the Tocal stables. Last year (1917) Mr. Reynolds bought the imported Don Reynaldo by St. Trusquin (winner of the Two Thousand Guineas, and other races worth £32,965). He is a half-brother of Diadem, and was bred by Lord D'Abercorn. Diadem won the Two Thousand Guineas Stakes.

Although the Reynolds family have been identified with Tocal for so many years, it is only recently that Mr. Frank Reynolds has had the opportunity of purchasing it. He also owns Glendarra, a small property adjoining, and Guygallen, consisting of 3,200 acres farther up the Paterson River. These are worked in connection with Tocal.



The Homestead, Tocal



The Garden, Mooki Springs

MOOKI SPRINGS STATION, A NOTED LIVERPOOL PLAINS ESTATE

ONE of the oldest, most highly improved and famous stud breeding and fattening properties on the far-famed Liverpool Plains is Mooki Springs Station, situated 250 miles from Sydney, some 19 miles west of Quirindi, at the southern end of the north-west slope of New South Wales.

Mooki Springs is the property of Mr. Rodney R. Dangar, eldest son of the late A. A. Dangar. It comprises 26,000 acres of black-soil plains, with pine ridges on basalt formation, watered by the Mooki River and numerous wells. Water is obtainable at a depth of 30 to 100 feet. The area of the estate formerly embraced about 46,000 acres, but through sales of some 20,000 acres, the dimensions are on a less ample scale. It is practically wholly a pastoral property, subdivided into 54 paddocks, which are gradually being fenced into smaller paddocks. Lucerne is grown, and wheaten and oaten hay for the purpose of supplying the station with feed for the working stock.

Its fame has been most widely spread among stock owners by its high-class stud animals, and, among fat-stock buyers and the meat trade, as a fattening property.

Three separate studs demand close attention—Suffolk Punch horses, Durham cattle, and Devon long-woolled sheep.

Suffolk Punches have been bred at Mooki Springs for the last 25 years; the stud comprises 40 brood mares. There is a keen demand for mares and geldings, and when any consignments are offered at auction they evoke ready competition. At a sale at Maitland in 1913, on behalf of the executors of the late A. A. Dangar, of Barooka, and R. R. Dangar, of Mooki Springs, 114 head were yarded to a large attendance of buyers. Bidding was brisk and very satisfactory prices were realised. Geldings made from £45 to £53, mares £40, fillies £30, three-year-olds £20 to £25. This is one of the many successful sales that has taken place of the well-known breed.



Devon Long-Woolled Sheep, Mooki Springs

With regard to Shorthorn cattle, during the last 18 years five bulls have been imported from England, to keep the stud up to the highest standard. Other bulls have also been purchased at the Royal Agricultural Show Sales, Sydney, from time to time, amongst them being 116th Duke of Derrimut, Champion at the Royal in 1913. There is a strong demand for Mooki bulls; they are snapped up readily at 12 months old. The stud consists of some 60 high-class pedigreed cows.

The breeding of Durhams was commenced at Mooki Springs in 1882, soon after the station was

purchased, but no records were kept until 1898, when, Messrs. Dangar Bros. having dissolved partnership, the property was taken by the late Mr. A. A. Dangar, who for many years owned the well-known Baroona herd of Durhams which had been dispersed in 1891.

— In 1897 Mr. Dangar imported two very fine bulls—a red, Baron Dursley 5th, bred by Sir Nigel Kingscote, and a roan, Roxana's Prince, bred by Major A. H. Brown. These were joined with fifty cows, the pick of the whole Noorindoo herd sent down from Queensland early in 1898, and fifty, the pick of the Mooki Springs Station cows.



Suffolk Punch Horses, Mooki Springs



Mooki Rotherwood: Shorthorn Stud Bull



Baron Oxford 21st,
Mooki Shorthorn Stud Bull

Some of the Noorindoo stud cows were descended from cows bought by Messrs. Dangar and Bell, of Noorindoo, from Messrs. D. C. McConnell and Sons, Cressbrook, in 1885, and running back to original A. A. Company's cows in the middle of the last century, when all the A. A. Company's cattle were descended from imported stock.

Two very fine heifers were bought at the R.A.S. Show, Sydney, in 1908, viz., Flower of Derrimut 41st, and Royal Matilda 2nd. Purchases of stud cows were also made at the Burrawang dispersal sale.

Of the imported bulls used during the last twenty years five have not been used outside the Mooki Springs herd, and their blood is unobtainable excepting from bulls sold from the estate. The chief objective in the management of this herd has been to breed robust, early maturing, lengthy cattle, red or rich roan in color, suitable for Queensland conditions, most of the young bulls having been sent to that State.

The cattle are all grass-fed, and always live under natural conditions. A sale of portion of the herd took place at Quirindi on 18th April, 1917, when bidding was spirited and high prices were realised.

The stud and flock of Devon long-woolled sheep at Mooki Springs is the only one in Australia. The first importation was made by the late Mr. A. A. Dangar in 1897. The first draft of 12 rams (put to Boonoke ewes) was tried for two years. So satisfactory was it that further importations of rams and ewes were made, establishing the stud. They are in size long, with deep bodies, and are early-maturing. The wool is of the Lincoln type. Lambs by Devon rams out of crossbred or comeback ewes average 40lbs., and are readily sold to the freezing works at Aberdeen.

Stock shades on the open plain are much in favor at Mooki, owing to the absence of flies. In places where flies are troublesome you will see sheep go and camp in the open plain, rather than seek shade in timber where flies are troublesome. There are thousands of kurrajong trees on the



Young Durham Bulls, Mooki Springs

property, which are of the greatest value, and were the means of saving much stock in the 1902 drought. Any young trees found growing in the paddocks are looked after and protected, as the value of them is inestimable in times of emergency.

He returned to Australia via America and Canada in 1894. The trip through Canada was one to be remembered, being held up for five days at Calgary owing to heavy floods. The railway was washed away in many places throughout the Rocky Mountains which necessitated



The Home Paddocks, Mooki Springs

Mr. H. C. Carter is the manager of the Station, and has been with the Messrs. Dangar for 25 years. It is greatly owing to his discernment and good judgment that the studs have been so successful.

Mr. Rodney R. Dangar was educated at All Saints' College, Bathurst, N.S.W. In 1890 he went to England and remained away for four years. Most of that time was divided between the Colonial Agricultural College, Hollesley Bay, Suffolk, a shipping merchant's office in London, and some months in Bradford, acquiring a close insight into the handling of wool. All this, besides seeing the world, was a splendid training for his future life in the pastoral and commercial activities of Australia.

seven transfers and very little to eat for two days. Eventually he got through to Vancouver, doing about 50 miles by steamer on the Fraser River, as the line was completely submerged for that distance. When he returned to Australia, he went, in July, 1894, to Mooki Springs and gained his station experience there, and at Yallaro and Gostwyck.

In 1899 the late A. A. Dangar went to England and left R. R. Dangar to supervise all his interests in Australia. This work he carried on until 1912, when the properties were divided amongst the sons, and he then became the owner of Mooki Springs and Waterloo Stations (the latter has been recently sold).

In 1912 "Peach Trees" was purchased, a property of 2,500 acres on the North Coast of New



Mooki Springs Stud Shorthorn Cows

South Wales, eight miles from Stroud. It is heavily grassed, well watered, well improved country, with an easterly aspect and an assured rainfall of over 40 inches a year. Various clovers and other grasses have been laid down with marked success. It has proved a very useful adjunct to Mooki Springs, in the shape of a depot

and relief, country during droughty periods, its carrying capacity being about 600 to 700 head of cattle.

Lately Mr. R. R. Dangar has purchased "Rotherwood"—a charming country home near Sutton Forest, in the Moss Vale District, where he intends to reside.



Shaded Water-troughs on the Plain Country, and Stock Shades in Background



The Original Edinglassie
(From contemporary water-color drawing)

EDINGLASSIE AND THE MYSTERIOUS DIVINING-ROD

EDINGLASSIE, Muswellbrook, is one of the oldest and best-known properties in New South Wales. It was originally a grant made to one George Forbes (a brother of Sir Francis Forbes) in the very early days of last century. The Australian pastoral industry was young, but full of promise. Pastoral settlement was spreading westward into newly-discovered country across the Blue Mountains and northward to the Hunter River.

Edinglassie did not remain long in the hands of Mr. Forbes, but was acquired by the late Mr. James White, the founder of a family which has played a most important part in the development of pastoralism. This gentleman—the grandfather of the present owner, the Hon. J. C. White—came to Australia in the early 'twenties to manage one of the Australian Agricultural Company's properties in the Stroud district. A few years later he purchased Edinglassie on his own account, and stocked it with sheep.

Edinglassie when it came to the hands of James White, senr., was a "run" little improved, and incapable of carrying anything like the number of stock which may be depastured on such a property to-day.

All the adventure and uncertainty of frontier life were still incidental to Hunter River settlement. Social conditions were rough and crude. The settlers depended almost entirely upon convict labor for the development of such primitive industries as they were endeavoring to establish.

Often properties—of great value nowadays—were exchanged for annuities. The owner of the land received no cash but an annual payment, the purchaser gambling on the length of the vendor's life.

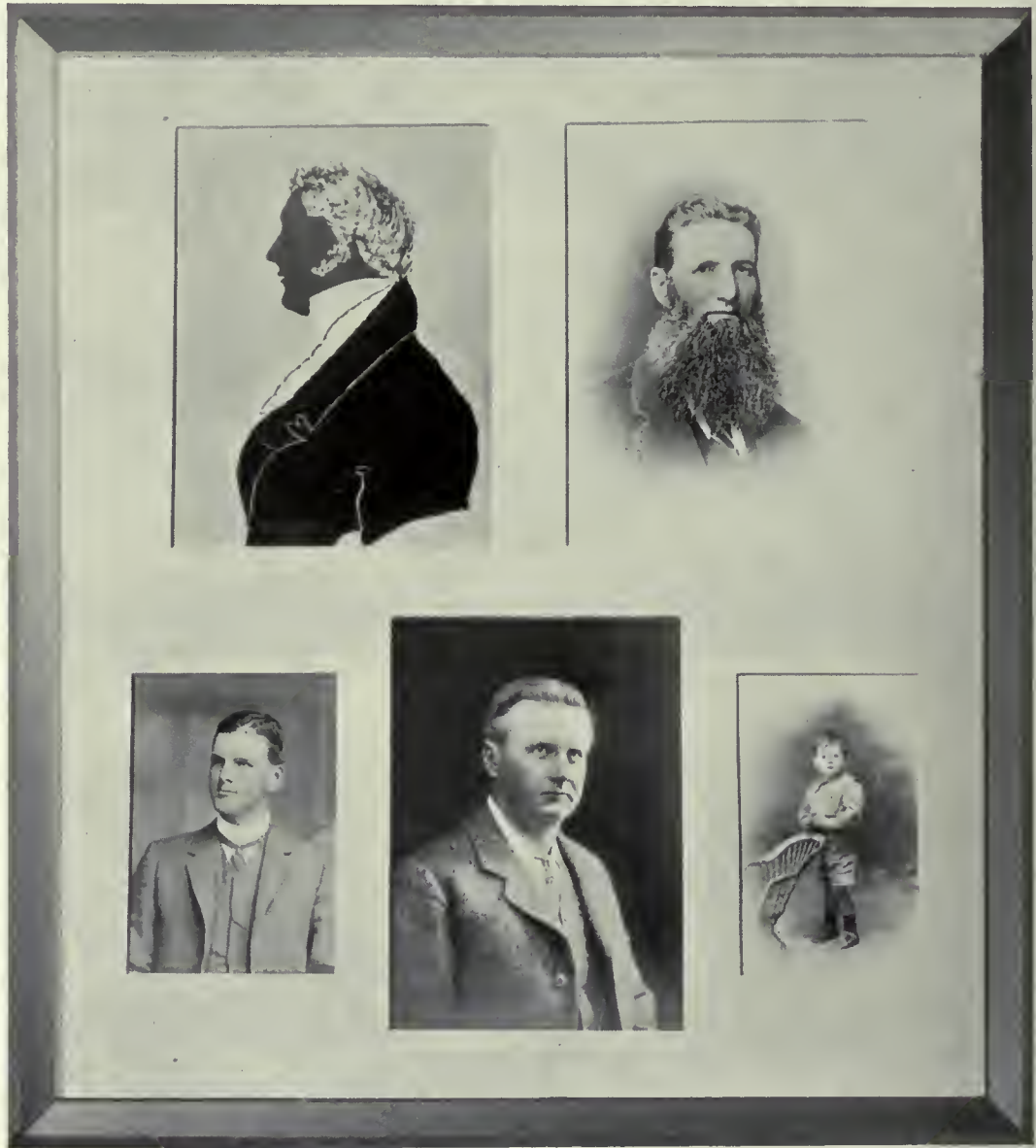
Fine-woolled merinos were raised on the Hunter River in large numbers, while the colony was still an outpost of civilization. Edinglassie took its place in the van of the young industry, and boasted one of the leading flocks. In later

years, when the finer grasses were all eaten out, sheep gave place to horses and cattle, a condition which has remained permanent. Edinglassie

terms of land and sheep, but poor in knowledge of local conditions. Beyond paddocks for horses, there were no enclosures. Sheep were

The Late James White.

The Late Francis White



James White

The Hon. J. C. White

James White, Junr.

Five Generations of the "Edinglassie" White Family

is now one of the noted fattening properties of a celebrated district.

In the genesis of its story there were no station sub-divisions or boundaries, and practically no fencing. Fencing wire did not come into use in Australia until about 1860. It was slow work cutting timber and erecting post and rail fences. It was then a general belief that fortunes might be easily and rapidly made in the sheep industry. The high hopes of many a settler were fulfilled in years of early plenty; in years of drought, ruin came to many who had been wealthy in

shepherded in the daytime and brought into enclosures at night for protection.

The Edinglassie pioneer, Mr. James White, proved himself an able sheep-breeder and station-manager. He did remarkably well with his flocks, securing additional holdings as his position improved. At his death, in 1844, he was one of the leading pastoralists of the State, and had done much to advance the interests of the Hunter River district. The property came under the control of his widow, who proved herself a most capable manager in the interests of her sons,

EDINGGLASSIE





A Farm on the Edinglassie Estate

among whom were the Hon. James White and Mr. Francis White. The latter was the father of the present owner of Edinglassie, the Hon. J. C. White and Mr. Francis J. White, of Saumarez, Armidale. Before many years the family had considerably extended their station operations by taking up Narran Lake, and also the fine property so well known as Belltrees, and at a later period added the Waverley estate adjoining, the two forming the finest estate in the settled districts of the colony.

The firm of White Bros., consisting of the Hon. J. C. White and his five children, with headquarters at Edinglassie, have the largest herd of pure pedigree Angus cattle in Australia, importing periodically the best bulls procurable



An Imported Bull, Edinglassie

in England. The bull illustrated is a recent importation bred by J. J. Cridlan, England.

The Whites are remarkable men in more ways than one. The Hon. James C. White, of Edinglassie, is perhaps one of the most successful water-diviners in the State. He has for twenty years been studying and experimenting with the divining rod, and has patiently put all research possible into the work. He has been able and happy to render considerable service to smaller settlers by finding water for them on numerous occasions, and is an enthusiast in the science.

Like electricity, the faculty of divination escapes analysis. It is a subject referred to elsewhere within this book. In some instances Mr. White has been able to find water after repeated failures in promiscuous sinking. One doubting settler refused to follow his advice. He put down bores and sunk several wells, against Mr. White's judgment—without success. The latter located water a short distance from one of the failures, and eventually induced the man to sink there by offering to bear the cost of the work if he was not successful, and to allow the settler, who had exhausted his funds, to repay him the cost of sinking over a period of years, if the result was a success. The water was found.

In another case a Muswellbrook gentleman invoked Mr. White's assistance in divining water on a certain paddock which had been acquired and which, without water, would be a bad investment. Mr. White eventually located a good flow. He estimated the depth to be $39\frac{1}{2}$ feet—the water was found at 40 feet.



The Hon. James C. White and his Divining Rod

The methods adopted by Mr. White may be thus described: He first locates the water or underground stream, ascertains its course by means of the rod, and estimates its volume. Having achieved this apparently mysterious result he goes into the centre, or what represents the centre of the stream on the surface, and brings the rod sharply back against his chest, moving off briskly at right angles from the course of the stream. As soon as the rod dips, it is his indication as to the depth at which water will be found. For instance, if he starts in the centre of the stream and walks 20 feet prior to the dip of the rod, he estimates the depth at 20 feet.

In photograph No. 1, in which Mr. White is seen holding a small bag in his hand, he is dealing with the finding of other substances than water,—for which he uses what he terms a “closed stick.” This is a willow, as shown in the photograph, the ends of which have been burnt in the fire, and will give no response to the finding of water or any substance unless that substance is held in the hand of the operator. In this case, Mr. White was testing the quantity of salt contained in certain water below ground. By using coal he successfully located coal. A seam discovered by him is being successfully worked in Muswellbrook district to-day.

In photograph No. 2, which demonstrates Mr. White's method of holding the stick, he is starting off therewith in position to cross the line. In photograph No. 3 he has just walked up to the mark with the salt and the closed stick. Immediately beneath the point of the rod is the flow of a known stream whose corrosive properties are amply demonstrated by the remains of a 400 gal. tank beside it. No. 4 shows the stick as it has dropped. It will be noticed, in looking closely at his hands, that there is a great strain on the muscles. When it is recognised that that strain is *entirely in an opposite direction* to the downward arc of the rod, it will be seen that the occult science of divination cannot be denied. Photograph No. 5 illustrates the strain in the reverse direction to the arc of the stick in its drop; for as soon as this operator releases his hands, the ends of the stick revolve several turns in the reverse direction. As a matter of fact, it is quite a common occurrence for the stick to break off quite short against the hand. It must be remembered that this strain is definitely and posi-

tively reversed to the downward fall of the stick. In photograph No. 6 Mr. White is seen divining quite close to the main road, and many feet above the flat where he knew he could find water.

Photograph No. 7 shows Mr. White's well some miles from his homestead right away on the top of a range of mountains. This well is situated a few feet below the Pinee Trigonometrical station, and 500 feet above the nearest water. It is not the first instance, by many, in which he has discovered water practically at the top of a range of mountains.

Some of the wells on the flat are so heavily charged with soda and other minerals that they are totally unfit for use. Mr. White's faculty for detecting the presence of all mineral substances is ample security against any risk in this direction. Mr. White believes he can locate almost anything contained in the ground, providing a closed stick is used and some of the substance held in the hand.

So much controversy has arisen about the efficacy of water-divining, that the experiences of Mr. White are of national value. They show that the divining-rod in the hands of an expert can give satisfactory results. In some cases, other experts may have failed to satisfy scoffers. Lack of knowledge of the yet inexplicable physical laws under which they were working may have been the cause of their failures. In the case of Mr. White we have an expert of long experience, who has studied the matter with the sole object of arriving at truth, and who is above suspicion. Our pastoral representative has guaranteed that the tests are absolutely all that is represented. The photographs, by which we have endeavored to illustrate the action of the rod in Mr. White's hands, were specially taken in order that the operation of subterranean divination might be better understood by the public, and by those who are scientifically interested.

By research, investigation, and the exercise of what may be a somewhat rare individual faculty, Mr. White has undoubtedly thrown additional light on an obscure subject.

The determination of underground water is a matter of vital interest not only to pastoralists, but to Australian settlers in general. Any method which gives the desired result, whether it be perfectly explainable or not, is an asset of great value.



"BELLTREES"

BELLTREES Estate, one of the finest and most celebrated pastoral properties in New South Wales, embraces a wide extent of rich country in the Upper Hunter district. This station is owned by Messrs. H., E., A., and V. White. It has been in the possession of the White family for over sixty years, while a portion of it, "Gundy" Estate, has been in their hands since 1839.

One of the earliest pioneers, Mr. H. C. Sempill, took up this country in the 'twenties of last century. The pastoral industry in Australia was then in its swaddling-clothes. Some years later, Mr. Sempill exchanged Belltrees station for other properties, with William Charles Wentworth, whose name is so intimately associated with the early progress of Australia. Wentworth was one of the intrepid three who discovered the track over the Blue Mountains in 1813, and made pastoral development possible in Western New South Wales. In 1848, Wentworth rented Belltrees to Messrs. J. F. and H. White, and in June, 1853, they purchased the estate.

The new owners subsequently added to Belltrees the adjoining stations of Elleston, running to the head waters of the Hunter, and Waverley, situated on the Isis and Page Rivers. Belltrees had been worked successfully for many years by Mr. H. C. White, before the present partners took possession in 1889. The property was then run in the names of H., E., A., and V. White, the partners being Messrs. Henry L. White, W. Ernest White, Arthur G. White, and Victor M. White, sons of the late Mr. Francis White, of Edenglassie, Muswellbrook, who was a son of

the late James White, the early owner of Edenglassie and Timor.

The founder of the White family in Australia, the late James White, came to this country in 1825 in charge of a consignment of merino sheep for the Australian Agricultural Company. On September 23rd, 1839, he received a Crown grant of 1,280 acres, situated at the junction of the Isis and Page Rivers, and known as the Gundy estate. Gundy is twelve miles from Scone, and about the same distance from Belltrees, of which estate it forms a part to-day. Mr. James White was the father of the late Hon. James White, Mr. H. C. White, the late Mr. Frank White, and four other sons.

Belltrees was a celebrated station even before the Whites were connected with it. In the early 'forties of last century—when it was held by the celebrated W. C. Wentworth—it is recorded that 180,000 sheep were shorn at Belltrees, being brought from Cassilis, Kickerbil, Coolah, Gammon Plains and other stations to be washed and relieved of their wool. At that period, as we have seen, all wool was washed on the sheep's back. Facilities for washing were particularly good at Belltrees.

This splendid station was worked for some years by Mr. H. C. White, a famous judge of stock. Mr. H. L. White has managed the place since 1885. It was in 1889 that he, in partnership with three of his brothers, purchased the estate. Under that partnership the brothers shared the responsibility and work of management.



Belltrees Homestead, Looking North



Manager's Residence, Belltrees Estate

Belltrees in 1912 contained an area of 160,000 acres secured land, but recent sales have reduced the total to about 100,000 acres, the whole of which is worked by the owners.

There are some 2,000 miles of fencing on the estate, enclosing paddocks, the largest of which is about 1,500 acres.

The country consists of small river and creek flats, backed up by abruptly rising ridges, which lead up to the higher spurs or offshoots of the Main or Liverpool Range.

The land towards the heads of the creeks is rough, and was originally covered with a dense growth of timber, which, at great expense, is being gradually killed. Some of the small flats are rich, and utilized for lucerne growing as a grazing proposition.

The lower lands are found more suitable for cattle, while the higher lands are devoted to sheep; the basalt country, occurring at a height of about 2,500 feet is eminently favorable to the production of high-class merino wool. These high lands are covered with good natural grasses right to their summits, which run up to 4,000 feet; the whole estate carrying stock equal to a sheep to the acre in all seasons.

In 1912 the Terreel estate, of 14,000 acres, part of the Gloucester estate, near Port Stephens, was purchased for use as a stand-by in dry times; it has proved of great benefit.

The water supply on Belltrees is nearly all natural. The Hunter, the Isis, and the Page Rivers wind about through the grassy valleys and creeks, which occur at intervals of two or three miles. These hold water all the summer, ensuring a bountiful supply everywhere. Perch, mullet, and eels are plentiful in these waters. The Whites have evinced practical interest in the acclimatisation of English trout. Several lots have been released in reserved waters in Stewart's Brook and other streams.

The foundation of the Belltrees flock was laid with Havilah blood. That strain has been adhered to ever since. For many years a point was made of securing some of the best Havilah rams sent to the Sydney Stud Sheep Fair, and up to 400 guineas each were paid. With the exception of the crossbred flock, all the sheep on Belltrees are of Havilah blood, and a stud flock is maintained, the surplus rams finding a ready sale in Queensland.

The country has proved itself wonderfully suited to merino wool production. The high quality of the wool produced bears constant testimony to this fact. The Belltrees clip was formerly sold in London, but has for many years now been offered in Sydney. It has always commanded high values. On several occasions it has obtained the season's record price. In early days this wool obtained a high reputation for its length, quality, and soft handling. It was specially sought after by the world's buyers. In 1880, 18½d. was reached for 54 bales,—this being the highest price obtained for Belltrees' wool up to that time. It is worthy of note that in September, 1916 (during the war-time wool boom, but in the earlier stages of that boom), Belltrees wool sold in Sydney to 23½d. per lb. in the grease for 31 bales—the wool being attractive shafty of good character, sound, fine, and in excellent condition.

A sample of Belltrees' wool grown in 1861 is still preserved at the homestead. It shows very fine quality and fair length; but, of course, the density of the modern fleece is missing. Another sample in the home collection is a fleece of merino wool with a staple thirteen inches long, cut from a sheep that had gone wild in the mountains.

Belltrees' fat cattle are extremely popular in the Sydney market, where large numbers are sold annually.



Bachelors' Quarters, Belltrees Estate

During 1907, for five consecutive weeks, Belltrees cattle topped the Sydney market; one draft was divided between that place and Melbourne, both lots bringing the highest price of the sale.

The herd is an important one, and breeding conducted on a large scale; the favorite breeds being Shorthorn and Polled Angus, the latter used chiefly for crossing purposes.

The Shorthorn stud is an old one, bulls from Warrah and Bylong having been used up to 1889, in which year a large purchase was made of

On the 20th December, 1915, ninety head of Belltrees red Shorthorn bullocks averaged £27 13s. 5d. in Sydney.

A well-known judge, writing about this consignment, said:—"What I admire in your bullocks is their shape, and masculinity, without coarseness; strong, robust, vigorous doers, with most meat where most wanted."

The Polled Angus herd is small but select, consisting of about seventy cows; it was established in 1897 by the purchase from Mr. D. G. Clark, of Gippsland, Victoria, of his stud. High



Typical Belltrees Stud Merino (Havilah) Ram

pure bred heifers from the Martindale stud (founded by the late Hon. James White from imported stock).

These heifers were of the celebrated "Border Chief" strain, and mostly red in color. The owners then decided to raise a stud of Red Shorthorns, and used nothing but red bulls from 1889 to date. Many high-class animals have been used, several of them imported. In 1908 two of the partners toured Great Britain in search of the best available red bulls; one, Red Chief, was obtained at a cost of 800 guineas, whose progeny to-day predominate the herd, and are remarkable for their rich color, high quality and sound constitution.

class bulls, many of them imported, have been used ever since.

Interesting to breeders is a story embodied in the live stock records of Belltrees. A Shorthorn cow, with a calf by a Polled Angus bull, was running in a small paddock, in which stand the training stables. The calf took very kindly to the refuse of the stables, and grew into a thick heavy bullock. When sent to market and killed it was found that, at exactly 1,009 days old, it gave precisely 1,009 lbs. dressed weight, having made an average of beef equal to 1 lb. per day of its life.

Horsebreeding has always been a prominent feature on Belltrees. The thoroughbred stud was



Private Suspension Bridge at Belltrees

(Total length 150 yards, used chiefly for the crossing of sheep over the Hunter River)

a very extensive one, and has produced some famous racehorses.

It was founded in 1889 upon twenty very high-class fillies (presented to his nephews by the late Hon. James White), the progeny of Chester and Martini-Henri.

A private training establishment was kept up on the estate, and many good performers turned out. Several wins, including a December Stakes, Derby, Doncaster, and Anniversary Handicaps were secured at Randwick.

For some years an annual sale of horses, thoroughbreds, draughts, utility and ponies was held in Scone, but in 1914 it was decided to quit horse-breeding on a large scale, and in February of that year a big and highly successful clearance sale was held; all the mares, except a few special favorites, being disposed of. The owners were extremely lucky in disposing of the stud before the slump in horse-breeding took place.

H. L. White was the first agriculturist to grow Allora spring wheat, of which he sold seed all over Australia. He found, however, that it did not pay to grow grain which had to be carted 22 miles to Scone. Cultivation has since been confined to wheat and oats for hay, and to lucerne and rape.

Ringbarking of native trees was begun on a large scale on Belltrees before it was generally adopted in New South Wales. In the very early days, a large ring of bark was taken off and the

tree was also sapped in the centre of this ring. The object of the double operation does not seem clear. It was probably done with a view to keeping down suckers—which are a great nuisance here. The timber is chiefly "box," with good belts of river oaks and some very beautiful curra-jongs.

Mr. Henry L. White has this year (1917) presented to New South Wales and Victoria respectively two unique and valuable collections; to the Mitchell Library, Sydney, his magnificent set of the stamps of New South Wales, and to the National Museum, Melbourne, his priceless collection of the skins of Australian birds. This munificent patriotism is at one with the recent presentation by his firm (Messrs H., E., A. and V. White) to the British army of an aeroplane costing £2,500, which at the time of writing, though once "wounded," has done good work in the fighting area of Flanders.

The stamp collection of this devoted Australian philatelist, who is a Fellow of the Royal Philatelic Society of London, was a specialised and unrivalled one. We use the past tense, because it is now distributed; the Victorian, Tasmanian and South Australian sections to members of his family, the Queensland and Western Australian—which, with those of New South Wales, were his especial favorites—being retained by himself, and the New South Wales donated to the public institution named. His specialised Queensland

collection he purchased from Mr. E. D. E. van Weenen in 1879. It was thus that he started what has since been an active hobby of his, though it has had to share with other of his active interests—the collection of skins and eggs of Australian birds, and the scientific breeding of horses, cattle and sheep on the Belltrees estate.

Neither the collection of New South Wales stamps nor that of Australian birds can be more than briefly alluded to here, though some idea of the value of his princely gifts to the nation must be given. The New South Wales stamps alone are worth to-day, at catalogue prices, at least £15,000. They commence with the embossed letter sheet of 1838, of which there are three used specimens, and three unused reprints; the numerous Sydney views of various months in 1850, several of which have taught hitherto unknown facts to philatelists; the Laureates of different dates from 1851 to 1854; the Diadem series of 1856 to 1864 (including many notable specimens); the De La Rue, Centennial, Carrington, Postal Union, Jubilee, and Commonwealth issues, "O.S." stamps, postage dues, registration, telegraph, and fiscal stamps, etc. So complete is the collection that it is possible to specify the few missing plates among the "Views" and the "Laureates"—thirty-three among the former and fifty-seven among the latter. There are many notable specimens, especially among the Diadems, and there is the last volume containing essays, proofs, and reprints that will be found of great interest by philatelists.

As an ornithologist, Mr. White, who is a member of the British Ornithologists' Union, has also displayed a fine public spirit. Collectors are usually selfish people, or the faculty for accumulation would not be theirs. Mr. White has shown that he has a very generous view of the pleasures of hobby-riding. He gave £1,000 to the Ornithologists' Union for the furtherance of its scientific work, and presented to the Union a complete set of John Gould's famous colossal work, "The Birds of Australia," valued at £350. Now he has handed to the nation his valuable ornithological collection, in its cabinets, the whole scientifically classified and in perfect order, and delivered at the National Museum, Melbourne, free of all cost, under the special care of a competent naturalist, Mr. S. W. Jackson, R.A.O.U., who had for the past ten years been curator of the collection. It consists of 5,000 specimens, valued at as many guineas, and contains many unique examples. It has been Mr. White's ambition to possess the largest and most complete collection of Australian birds and their eggs in the world and, with Mr. Jackson's help as collector and classifier, his laudable

ambition has resulted in the acquisition by the nation of a unique contribution to practical knowledge.

Mr. H. L. White's collection of Australian birds' eggs is the finest thing of its sort in the world. Commencing in 1875, as a small boy at school in Goulburn, he has ridden his hobby pretty hard ever since, with the result that he has secured the eggs of all but 25 of the 900 species of birds inhabiting Australia and its islands.

In his early days he was content to collect for himself, but of late years has sent expeditions all over Australia in search of his various wants. Of the 25 species mentioned above, he despairs of two only, they having become extinct during the last 25 years. The collection is contained in five large specially-constructed cabinets, the contents being scientifically classed, labelled, and catalogued, with full histories. Mr. White's library of books relating to Australia is a very large one, and contains many rare and valuable works. He is a regular buyer when old collections are broken up. Being thorough Australian in all his ideas, he displays his books in handsome cases made of Queensland maple timber; the cases occupying the walls of a large, well-lighted room.

Of the other members of the firm (Mr. W. E. White died in 1914), Mr. A. G. White resides at "Kioto," about half a mile from Belltrees House, while Mr. V. M. White lives in Sydney.



Henry L. White



“Palmerston,” Armidale, N.S.W.

N. N. DANGAR, of PALMERSTON and NOORINDOO

AMONG old colonial families, those sturdy, four-square colonists who have done for Australia what the Pilgrim Fathers and their descendants did for North America, the name of Dangar is written in golden letters also.

It may be said that a first cream of pastoral enterprise was skimmed from the glorious Hunter River districts of New South Wales.

The Hawkesbury seems to have been the cradle of our vigorous free-selector type; while the more expansive Hunter attracted early settlers with more capital and a wider outlook. Their progeny—reared among the fertile and productive surroundings of these beautiful first pastures of the Southern Land—imbibed a strong faith in Australia.

They were big men, hefty men, strong of hand and generous of heart. The mystery and adventure of a New Land gave a fillip to their daily lives, lifted them above the commonplace, and invested them with an interest which reacted on their temperament and character.

Among such a sturdy, confident band we find the late Henry Dangar—the founder of the Australian house of Dangar—of whom the present owner of Noorindoo is a grandson.

Brought up on his father's farm at Neots, in Cornwall, Henry Dangar migrated to Australia as a young man of 23. He obtained a position as assistant Government surveyor in the young colony, and was enabled to form a correct estimate of some of its agricultural and pastoral values.

He became one of the pioneer pastoralists of New South Wales, otherwise of Australia. He is described by a writer who knew him personally as “a favorable specimen of one of the numerous sturdy young sons of England, who seemed specially formed for the creation of a greater Britain in Australia. Favored by none of the special gifts of intellect or fortune, but possessing the particular qualities essential to the attainment of success—strong common sense and resolute energy—he availed himself of the opportunities of his time, and in



Part of the Rose Garden, Palmerston

gaining a moderate share of that success he had the gratification of contributing to the development of a great colony." He left five sons, including Albert Augustus Dangar.

A. A. Dangar was born at Neotsfield, near Singleton, one of his father's stations, in 1840. He was educated at Truro (Cornwall) Grammar School, while his parents were living for a few years in England, and also at Hamburg, in Germany. After a short time in the merchant service, he returned to Australia at the age of eighteen years, to take his place in his family as a pastoralist. A few years later, when he was only twenty-three years of age, he became manager of his mother's properties, Gostwyck, Yallaroi, and two western cattle stations—in fact, the important and extensive Dangar estates. In 1870, he was managing partner with his brothers in the firm of Dangar Brothers, thus continuing his management of the family pastoral properties, others having in the meantime been acquired, including Noorindoo, in the Maranoa district, Queensland, in 1872, and Mooki Springs on Liverpool Plains, New South Wales, in 1882. When the firm was dissolved the fine property of Mooki Springs fell to A. A. Dangar in the division, with a small portion of Gostwyck, known as Palmerston. On a beautiful site on the latter property he built a fine bungalow residence, which is now the home of his son, N. N. Dangar. He leased Gostwyck

from F. H. Dangar, and in 1901 bought the property outright, ten years later transferring it to his son, Capt. C. C. Dangar. He died in 1913.



The late A. A. Dangar



View from Palmerston House.

A. A. Dangar followed in his father's footsteps. No better known, or more widely honored pastoralist has found place among the big men of the industry. He was a leading member of the New South Wales Sheepbreeders' Association, and was one of the most broad-minded men connected with pastoral pursuits.

Mr. N. N. Dangar, of Noorindoo, is thus fortunate in his forebears. He brings to the management of his pastoral property hereditary aptitude and a fine family experience.

Though he has a beautiful home at "Palmerston," near Armidale, his principal interests are concerned with Noorindoo station, near Surat, Queensland, on the south side of the Balonne River, about 34 miles from Yeulba, and 10 miles from Surat, one of the oldest Queensland towns. The property has a seven-miles frontage to the Balonne River. It embraces an area of 62,000 acres freehold and 72 square miles of leasehold. A slice of 20,000 acres has recently been resumed by the Queensland Government.

Palmerston is a most picturesque property. It was given its name in compliment to Mr. A. H. Palmer (later Sir Arthur Palmer, Lieut.-Governor of Queensland), who was for years

the general manager of Mr. Henry Dangar's stations. About 750 acres of freehold, it was part of Gostwyck, from which it was severed at the first sub-divisional sale. Years ago the station stud of Suffolks was kept there, and the working horses for Dangar Bros.' various properties were bred there. Some years later the stud was removed to Mooki Springs in the Liverpool Plains district, when that station was purchased. Then a portion of the Gostwyck stud flock was kept at Palmerston, mostly young ewes and breeders, and a small lot of lambing ewes every year, also young sale bulls.

The Palmerston property was made over to N. N. Dangar in 1909 by his father, who in the following year built the present homestead on a specially fine site. Mr. A. A. Dangar, however, died two years later, and his son made it his residence. Mr. N. N. Dangar at present has a small stud of Devon-Merino sheep at Palmerston, and also a few Durham cattle, fattening a few bullocks each year.

Noorindoo is one of the oldest of Queensland properties. Its history is particularly interesting. In January, 1840, the late John Campbell first took up pastoral property and formed a cattle camp in Queensland territory. He was followed



Devon-Merino Crossbreds, Ewes and Lambs, Palmerston

by the late Peter Leslie the same year. Then came a hardy band of pioneers, who followed in the land of promise hard on the heels of the intrepid explorers, who ever pushed out in search of fresh pastoral country. Noorindoo was taken up by the Halls, of Dartbrook, in 1849 and stocked with cattle.

As early pioneer troubles were overcome, Noorindoo was gradually enlarged by the purchase of adjoining properties. It was continued as a cattle station, variously owned, until in 1873 it was purchased by Messrs. Dangar and Bell, the firm consisting of the late Mr. A. A. Dangar, of Whittingham, and Messrs. F. S. Bell and H. W. Bell, all well-known Hunter River men. It

was agreed to make Mr. H. W. Bell the managing partner, and he displayed great ability in that capacity.

Messrs. Dangar and Bell found it a profitable investment to work Noorindoo as a breeding-cattle station until 1883. It was then decided to sell the herd of 10,000 head. For the next eight or nine years the station was used as a cattle-fattening property with very satisfactory results.

The late Mr. Dangar was a great believer in the suitability of the country for carrying a robust type of sheep. In 1891 he prevailed upon his partners to stock the property with sheep, and it has been devoted to sheep ever since. Mr. Dangar being the sheep man of the partnership, it was left to him to select the stock. He was so impressed with the excellence of the big robust



Devon-Merino Ewes and Lambs, and Hereford Bulls, Palmerston



The Woolshed, Noorindoo

Haddon Rig wethers—which he saw realising top figures at the Homebush sales—and so convinced that this type of big-framed, heavy wool-carrying animals was particularly suited to Noorindoo, that he decided to stock up with Haddon Rig sheep.

Accordingly he visited Haddon Rig, and as a result of his inspection 13,000 five-year-old cast-for-age ewes, 4,500 two-year-old ewes and 12,000 wethers, all from Haddon Rig, were delivered at Noorindoo. As might be imagined, the purchase was a fairly expensive one, but it proved a sound investment. It was followed up a year later by a further purchase of 10,500 Haddon Rig ewes, together with 400 five-guinea Havilah rams. The resultant lambing, numerically and otherwise, was excellent. After three years the count gave 72,000 head, despite the heavy sales of wethers which had taken place in the meantime. The lambings were from 90 to 95 per cent.

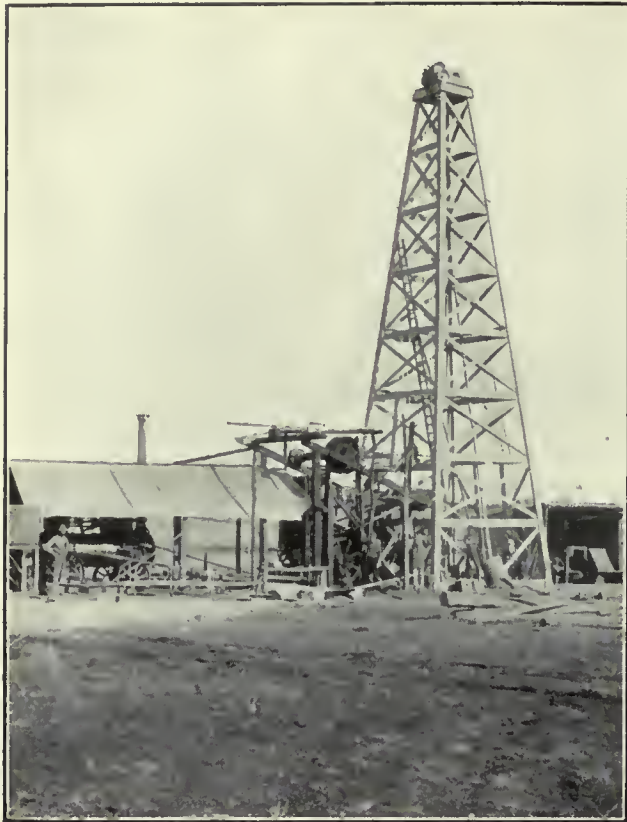
All this time Mr. H. W. Bell had managed the property for the partnership with great success, but in November, 1894, he decided to retire, after a continuous service of twenty-two years. Mr. F. R. Rouse was placed in charge, and has now filled the position for another twenty-two years.

The Messrs. Bell sold out to the late Mr. A. A. Dangar in 1896. Mr. Dangar continued the flock, using Havilah rams right up till about ten

years ago, when he decided to substitute his own Gostwyck rams, which had by that time reached a high pitch of perfection. Their introduction to Noorindoo was marked with great success.

A first-class Shorthorn herd was bred up at Noorindoo, the original cows, which were specially fine animals, coming from Cressbrook. Baroona bulls were used mainly, also Douglas (imported) and Montpelier (imported) were used in 1898. A picked lot of 130 cows and calves were sent to the late Mr. A. A. Dangar's Mooki Springs station, in New South Wales, and from these and some which he had already on that property, the Mooki Shorthorn stud, which has since achieved fame, was started.

The water problem has always been difficult at Noorindoo. At great cost the problem may now be regarded as permanently solved. An ample supply has been secured for all requirements. From first to last nearly £19,000 have been spent on the work. First tanks and dams totalling 120,000 yards and costing £5,000 were put in. Then wells were dug and windmills erected costing £3,000. Then, in 1891, an artesian bore was sunk to a depth of 3,350 feet at a cost of £3,670; unfortunately this did not overflow, but gave an inexhaustible supply. A year later, after the 1902 drought, a second bore was sunk 3,103 feet, costing £3,692, with more successful results, the flow producing over half a



Sinking No. 3 Artesian Bore, Noorindoo

million gallons. In 1913-14 a third bore was put down 3,441 feet at a cost of £3,596, when a million-gallon flow was secured.

The prickly-pear has been a great pest, but it has been fought systematically and regardless of expense. As a result—after an expenditure of something like £3,000—the pest has been eradicated.

A new head-station was built in 1903, commodious and comfortable. The whole of the timber used was grown on Noorindoo and cut and dressed by the station plant. An up-to-date shearing-plant, with all conveniences and men's accommodation, wool-shed, etc., has also been provided. Every possible facility has been installed for handling the sheep and wool.

We have no record of the change of ownerships of Noorindoo before 1873. Since that time the property has had four ownerships:—Dangar and Bell, A. A. Dangar, Dangar and Sons, and the present owner, N. N. Dangar. The latter gained his pastoral experience on Noorindoo under its present manager, Mr. F. R. Rouse, and afterwards managed Waterloo station for his father before becoming owner of Noorindoo in 1912.



No. 2 Artesian Bore, Noorindoo

Depth 3,100 ft. with a capacity of 500,000 gallons a day. Waters 12 miles of country. Initial cost, £3,000.



A Herd of Shorthorns at Yetman

THE DIGHTS: PASTORAL PIONEERS

IN the earliest days of Australian settlement, when famine was only averted by the industry of the Hawkesbury pioneers, who earned for their district the title of "the granary of Australia," the name of Dight was associated with primary production. Ever since the original John Dight landed in Sydney in 1801 to the present day, four generations of this family have played a distinguished role in the great practical drama of Sheep and Wool. The history of such a family is largely a reflex history of our staple industry. There has been no phase of development, no period of disaster, and no vital change in conditions wherein at least one of these generations has not shared.

In the early stages of the colony's development no name stood out more prominently than that of Dight, of Richmond, and later of Singleton and Yetman. When the Hawkesbury represented the "back country" their original Richmond property, under careful cultivation, gave forth its grain, and its patriotic owner sent his harvests to the public store in preference to accepting the higher rates obtainable in the market. Later, after a career of great public usefulness in his adopted district, he secured a grant of land near Singleton. His sons in turn became pioneers of that region, and did much to develop its latent resources. With other sturdy colonists, they explored the inland pastoral country and, as time

went on, took up land in the "newer" districts which they had helped to discover and render habitable.

The original John Dight, who was the founder of this historic Australian family, was born in 1772. He came to New South Wales as surgeon of the ship *Cornwallis* in 1801, bringing with him his wife Hannah and an infant daughter. The ship, by the way, was named after the Marquis of Cornwallis, the famous Governor-General and Commander-in-Chief of India. In the historic days of New South Wales, when shortage of foodstuffs became insistently imminent, supplies had to be obtained from India, hence the connection of Cornwallis with Australia. A portion of the Richmond district was subsequently called Cornwallis in memory of the old ship.

It is not recorded that John Dight ever practised as a surgeon in Australia. Upon his arrival he secured a position in the Commissariat Department, which he held for a while, and then settled at Richmond, in the Hawkesbury district. In the year 1807 his name appears as one of the signatories to an address presented, by "holders of landed estates and principal inhabitants of the Hawkesbury, Portland, Richmond, and neighbouring districts," to Governor Bligh, thanking him for his "unbounded attention" to the welfare of the district and the colony at large in the "dreadful crisis" in which he found it. The

signatories declared they had subscribed all the grain they could possibly spare for the public store at the fixed price, "rejecting any greater prices, which they would have received in the market." The name of John Dight again appears in an address of welcome presented by Hawkesbury settlers to Governor Macquarie in 1810. He was appointed Coroner for the Hawkesbury district in 1828, and held that office up to the time of his death, which occurred at the age of 65 years in 1837.



G. W. Dight, Senr.

A few years before his demise he received a Crown grant of a considerable area near Singleton—Stafford and Clifford. His wife died in 1862, at the age of 81. The family consisted of five sons, Messrs. John, Charles, George, Samuel, and Arthur Dight, all well known pioneer pastoralists, and six daughters, one of whom married Hamilton Hume, the explorer. John and Charles Dight took up land near Albury and on the Yarra River, where the Dight mills became well known. George and Samuel became the owners of Stafford and Clifford. The youngest son, Arthur, purchased Clarendon from Charles Clarendon Cox in 1862, and made that place his home. He was interested in the station properties Yendah and Windah in Queensland. He entered Parliament as representative of the Hawkesbury in 1869, and died in 1895.

George Dight and his brothers-in-law, John and James Howe, were the first to take up land on the Namoi River. Breeza was then the fringe of civilisation, but, having heard from the blacks

of a big river further out, the party, with a stockman named Parmeter, pressed forward. They were guided by a native, who, after piloting them for seven or eight miles, became scared of hostile blacks and went back. The party, however, went on, located the river, and took up a considerable area of land on the Namoi, namely, Carroll and Kibah. The Howes took the former and Mr. Dight the latter. From the Namoi, the party continued their adventurous journey and struck the McIntyre River, taking up the country on both sides of the river, from the junction of Oaky Creek (about six miles above the present Yetman homestead) to the junction with the Dumaresq River, the boundary of New South Wales and Queensland. George Dight took up Yetman for his mother, Tucka Tucka and Boonall for himself and brother Samuel. Tucka Tucka shortly after passed into other hands.

Mr. G. W. Dight, senior, is the eldest and only surviving son of the late George Dight, of Stafford, Singleton, and was born there in 1842. He was educated first by private tutors, and later at Maitland Grammar and High Schools.

G. W. Dight, senior, had no practical interest in the old homestead for some considerable time after the death of his father, but in 1888 his mother gave up possession to him. On the death of George Dight in 1851, the stations were under the management of his brother Samuel. On the death of Mrs. John Dight, Yetman was left by will to her two sons, Samuel and Arthur. Boonall, on the death of George Dight, was carried on by Samuel, in the interests of himself and Mrs. George Dight. After a few years Samuel Dight and Mrs. George Dight bought the interests of Arthur Dight in Yetman, and the joint business was carried on for some years under the former's management. In 1870 G. W. Dight, senior, and his brother John bought their uncle Samuel's interest in the properties and took up their residences there, the former at Yetman and the latter at Boonall. They carried on the properties in partnership for several years, but subsequently managed each property separately. Boonall has since been disposed of.

G. W. Dight, senr., married in 1869 Isabella Margaret Brodie, daughter of Peter Brodie, of Glen Alven, Murrurundi. Of this marriage there were five children—one son and four daughters. The family lived at Yetman from 1870 to the end of 1889, when they made their home at "Teringa," Armidale.

Yetman homestead now belongs to G. W. Dight, junr., his father retaining a considerable portion of the freehold and improvement leases on the western end.



Shannon Vale Homestead

SHANNON VALE

WHEN the good men and true of old Sydney settlement turned northward in the early days, they found well-watered pastures and rich river bottoms along the Hunter River.

Faring further north and west, they came upon cool, fertile uplands of the Great Dividing Ranges. These high lands proved especially suitable for cattle and sheep. The climate was bracing; snow fell in winter time, but never lay long upon the ground.

Several fine stations were founded, some of which still remain in the possession of families whose progenitors were among the earliest Australian pioneers.

The pastoral history of Glen Innes district in New South Wales dates back nearly a hundred years. It is regarded to-day as one of the most favored parts of the mother State. Its wool has gained a wide repute, and its stock can hold their own in any competition. The climate is ideal, and lends itself to the best possible results in breeding. Here men of experience have made wise use of Nature's bountiful gifts. Many properties on the northern tableland are highly improved. Closer settlement has come naturally, because the district is capable of supporting a large population of producers, but there are still many notable large holdings in the district.

Shannon Vale, the property of Major James Frederick White, has been a long-standing example of experienced and enterprising management. It came into the hands of the White family in the 'nineties of last century when Mr. Edward White, the father of the present owner, purchased it with the idea of breeding cattle to be sent down to his Martindale property for fattening. At the same time he purchased Elgin and Newton Boyd, adjoining, embracing them also in this scheme.

His plan proved an entire success. Thousands of Shannon Vale-bred bullocks have gone on to Martindale for fattening purposes, eventually reaching the Homebush market in prime condition and realising top prices. The Martindale fattened bullocks have a great name at the metropolitan saleyards, and always command the highest ruling rates, being keenly sought by all the principal operators.

Shannon Vale was originally owned by Thomas Rusden, and then comprised an area of about 70,000 acres. It was sold at auction to the late Alexander Rodgers, of Glen Elgin, and eventually when all the properties of Mr. Rodgers were sold, they were purchased by the late Edward White, and, on that gentleman's retirement, were taken over by his sons. In 1914



The late Edward White

these properties were divided, and Mr. J. F. White purchased the Shannon Vale property.

Shannon Vale has been an important link in the chain of properties controlled by the Martindale White Bros., as the sons of Mr. Edward White have been known for many years. The Glen Innes properties have yielded their yearly quota. Major James F. White has proved a highly successful station manager. He now fills the position, in addition to controlling Shannon Vale, of manager to the Martindale White Bros. combination.

Major J. F. White is a grandson of the original Mr. James White, who came to Australia in 1805 and secured a Crown grant of 1,280 acres at Gundy in the early days. He afterwards purchased Edinglassie, Timor, Baroona, and other properties. He was a famous pioneer of the Hunter River district, and laid the foundation of the great success won by his sons and grandsons in the pastoral industry.

James F. White is one of four sturdy sons who have followed in the footsteps of a worthy father and grandfather. The late Mr. James White, the early owner of Edinglassie, was one of the notable pioneers of the State. The four brothers represent the third generation of the White family, which has for three-quarters of a century been in the front rank of Australian pastoralism. Born and bred in an atmosphere of stock-raising, Major White is a recognized judge of stock. He has been carefully trained in the intricacies of station management, and to

inherited ability has added a fine personal enthusiasm.

The family interests of late years have tended more to the production of cattle than sheep. In this section the Whites have been deservedly pre-eminent. The profitable and technical industry of fattening cattle for market has been followed on sound scientific and business lines. The business of producing food supplies for the metropolis and for the export trade is quite as important from a national viewpoint as that of devoting lands and energies to the production of wool. Moreover, experience has proved that it is quite as resultful in a financial sense. It relieves the landowner from worries incidental to keeping down latter-day pests, the difficult demands of shearers, and so on. It is not our province here to enter into the rival merits of sheep and cattle, but rather is it the desire to emphasise the point that both have their places in the scheme of things Australian, and that both are necessary to the full development of the Commonwealth.

Local conditions must always have much to do in determining which of the two sections is likely to prove the more profitable. In Queensland large cattle stations have gradually been improved, fenced, subdivided and devoted to sheep. On the other hand, in some of the closer settled districts of New South Wales, and notably in the northern district, properties which in days gone by were devoted to merino sheep, have since been used for cattle-fattening purposes and early lamb-raising,—with satisfactory results. The eating-out of the finer grasses by sheep has had something to do with this; but the big profits obtainable by fattening stock for market have naturally been the most potent factor. Metropolitan fat-stock buyers have for years lamented the fact that beef supplies have steadily fallen off, and high prices for cattle well repay those who have devoted themselves to the business, where their properties are suitable.

Mr. Edward White, the father of the present owner of Shannon Vale, and of the Martindale White Bros., was born at Edinglassie, Muswellbrook, being the youngest son of the late Mr. James White. He obtained his pastoral education on Edinglassie and on other of his father's properties north of Belltrees. In 1864 he purchased Merton from Captain Ogilvie—now the residence of his son, Mr. Edward Reginald White—and in 1875 he secured Martindale, a property of 30,000 acres, from his elder brother, the late Hon. James White, M.L.C. Martindale lies on the Hunter River, at its confluence with the Goulburn River, about ten miles from Denman, and its settlement dates back to the old Colonial days.



Shannon Vale Homestead and Surrounding Country, looking West

Major J. F. White, of Shannon Vale, was born at Martindale, on the Hunter River; he was educated at the Sydney Grammar School, where he became captain of the Football Club and also stroked the school rowing-crew, which won the All-Schools' Championship in 1893. After leaving school he took up polo-playing, and, when he came to Shannon Vale, was instrumental in founding the Glen Innes Polo Club. On the outbreak of war, J. F. White enlisted in the 6th Light Horse, under Colonel (now General) C. Cox. He left Australia as a Captain in December, 1914, and after serving for three months in Egypt was promoted major and sailed for Gallipoli in May, 1915. He remained there until November of the same year, obtaining the temporary rank of Lieut.-Colonel. He was invalided for enteric fever, and returned to Australia in February, 1916, being gazetted to the rank of major for services rendered. Major White is a member of the firm of Martindale White Bros. He is Vice-President of the Central New England Pastoralists' Association, member of the Severn Shire Council, President of the Glen Innes branch of the Returned Soldiers' and Sailors' League, and Chairman of the local committee of the Graziers' Association.

Major White was married in 1903 to a daughter of the late Hon. Chas. B. Dutton, at one time Minister for Lands in Queensland. Their family consists of two sons, Rex, aged 13 years, Cedric, aged 11, and one daughter, Sybil, aged 9.

Mr. Edward White retired from active pastoral pursuits for some years before his death, living at Kigwigil, his beautiful residence at Kirribilli Point, Sydney. He had vivid memories of the early days, and from his stock of reminiscences many interesting historical stories might be compiled. He remembered Muswellbrook, for instance, when it resembled an English village—even to the detail of the old-world "stocks" for offenders in the public square.

Most of the large holdings in the district were originally Crown grants to army and naval officers, freely given by the government of the period, with the idea of inducing settlement in the new British colony. Heavily timbered for the most part, it required pioneers of the right stamp, who were prepared to live in virgin country, risk the treachery of the natives, and undertake the Herculean task of clearing and improving a forested wilderness.

Those were the days of privation and hard living. Capital was scanty, and a man's best assets were health, strength, and energy. The pioneers of the White family possessed these qualifications to a pronounced degree. Landowners often had very little money to devote to their strenuous



Major Jas. F. White

tasks. Labor, however, was cheap, comprised for the most part of "assigned" servants. The policy of the Crown was to allot its prisoners to the settlers, granting the latter land in proportion to the number of men they were prepared to receive. This had the dual effect of encouraging settlement and of relieving the Government of the expense of supporting its motley charges. Muswellbrook and Maitland grew thus in the early days. Originally a sheep district of Colonial fame, the greater number of its station properties were ultimately devoted to horses and cattle.

In Colonial times a steamboat service was established between Morpeth and Sydney. Morpeth became a port of some importance. The first northern railway was inaugurated between Morpeth and Maitland by a private company, which ended in failure. The only marketable products then were wool and tallow; but there was considerable trade in both.

slaughtering sheep and horses for their skins and tallow may appear ruinous nowadays, but it afforded temporary salvation to the Australian pastoral industry in its blackest days.

In the 'forties, forced sales of sheep were made in New South Wales as low as one shilling per head—with the station thrown in. Sheep were the mainstay and hope of the colonists of the



Shannon Vale Country: The Mann River

On Martindale much success was attained in breeding horses. The original type was of the old English stamp, with large bone and powerful quarters. Blood stallions were mated with mares of the period, with a pronounced dash of Cleveland Bay or coaching blood in them. They were very active and hardy. They could do sixty miles a day for days on end. The time came, however, when horses had little value save that of their hides and tallow, and many hundreds were boiled down for the latter product. A boiling-down establishment was working at Maitland, where settlers could have their horses and sheep reduced to "by-product." The policy of

period, but, when wool prices went so low as to barely counterbalance the cost of production, matters became serious. The natural increase was the sole profit. When this increase could not be disposed of, pastoralism reached absolute low water. Tallow was worth £25 per ton in Sydney and up to £40 per ton in London, hence the drastic remedy of turning sheep-flocks into tallow had something to justify it.

The celebrated William Charles Wentworth owned a boiling-down establishment at Windermere, near Maitland. In 1843 (the year this practice began), and in the following year, 217,797 sheep were boiled



Old Shannon Vale: Homestead, looking East

down in New South Wales. In 1850, there were 110 boiling-down establishments, and 798,787 sheep were treated. In seven years 261,169 cattle and 2,364,539 sheep were boiled-down in the parent colony. Mr. Wentworth's establishment catered for the settlers of the Hunter, Wellington, Liverpool Plains, and New England districts, charging 9d. per head for slaughtering, skinning, cutting up and boiling sheep, packing the boiled fat in the sheepskins in suitable and secure parcels for exportation and putting them on board the steamer at Green Hills. Threepence per head was charged for washing the skins, taking off the wool, drying and putting it into clean packs, and delivering those bales to the ship. The owner of the sheep had to pay freight on his wool and tallow to Sydney, or Mr. Wentworth would take at his option wool at 1/- per lb., and tallow at 2½d. per lb. in payment for all charges. The freight on wool was 7/- per bale to Sydney, and on tallow 1/- per cwt. Horses, splendidly bred and of excellent stamp, could be bought at 10/- per head.

The Shorthorn stud at Martindale was founded on specially selected heifers purchased from the famous Bylong herd, bred by the late Mr. John Lee. These cattle were considered the finest and purest in the colony. Mr. Edward White was not content with this, but imported very fine bulls and cows from England. The stud was thus

started on a very sound foundation. Mr. White devoted himself to the development of this herd, with the result that it soon reached a high standard. The Martindale property now maintains a stud of about 500 head, and Shannon Vale sends along something like 5,000 bullocks for fattening.

Bolivia station, in the Tenterfield district, was purchased by Mr. Edward White in 1880 from the late Mr. Edward Irby, a pioneer of that part of the country. He also purchased Ballandean, a run of 200,000 acres in Queensland, which his son, the late Mr. Walter White, managed for some years. On the death of this gentleman, his father disposed of that property.

The history of the White family is an especially interesting one. Overlords of many broad acres since the very beginning of Australian pastoral enterprise, they have devoted unstinted energies and hard-won capital to the improvement and advancement of our basic industry. Good sports, upright and honorable to a degree, they have won credit and distinction in a new country where, more than in any other land on earth, the best men succeed.

Their descendants may look back with pride upon progenitors who made use of opportunities, who kept a brave face when the skies were overcast and progress and plenty seemed afar off. Australia's honor roll of pastoral pioneering is brightened by names such as these.



At Ramornie, on the Clarence River

“RAMORNIE” AND THE TINDALS

LUSH and verdant lands are the Northern Districts of New South Wales. First comes the green, sub-tropical littoral, watered by river systems which have their origins in the Great Dividing Ranges. These rivers, having accumulated increasing burdens, spread out in deltas, creeks and arms as they approach the sea.

Fertile beyond the average,—a greater portion of these coast lands is given over to agriculture; but the cool upward slopes, foothills and plateaux, that lie to the westward, have been for the most part devoted to pastoral production.

Famous among cattle stations of the North Coast are Yugilbar and Ramornie. The Moorish castle erected on Yugilbar by the late Edward Ogilvie and the pioneer meat-works of Ramornie are equally matters of district pride.

The story of Ramornie is a most creditable chapter in the history of the Tindal family. This vigorous family—one of great activities and achievement—was well-rooted in good English stock. Its success in Australia may be taken as

another example of what this land of opportunities will yield to courageous and intelligent enterprise.

Mr. Charles Grant Tindal, the founder of the family in Australia, was born at Honiton, in Devonshire, in 1824. His father, Captain Charles Tindal, R.N., was afterwards the Governor of the Bank of England at Birmingham, his uncle, Sir Nicolas Tindal, was for some years Lord Chief Justice of Common Pleas. Naval, military, financial, legal and commercial faculties appear to have been pretty freely distributed among the Tindals.

In studying the history of Australian successes, one notices how hereditary traits and character are seldom lost or weakened under the new and strenuous conditions of colonizing life. C. G. Tindal, after an education at the famous King Edward's School, Birmingham, came to Australia at eighteen years of age. His father's old naval friend, Captain Ogilvie, was at the time established at Merton on the Hunter River.

From here young Tindal went farther north



Charles Grant Tindal (1824-1914)

to join Captain Ogilvie's son, the late Mr. Edward Ogilvie, who had just taken up Yugalbar Station on the Clarence River. Here Charles Grant Tindal acquired his early "colonial experience," a process which has converted so many of England's best sons into sterling Australian citizens.

From Yugalbar, after a year or so, we find him droving and exploring in territory which now forms part of the State of Queensland. A little later he bought Koreela, on the head-waters of the Clarence, where he lived a full pioneer life, being his own horse-breaker, bullock-driver, and stockman.

Old "bullockies" of the ranges spoke of him in after-years as being able to handle a team as well as the best professional. His pluck and skill at drafting in a stock-yard in the days of wild cattle and sliprails,—before the advent of gates—were long a local tradition.

Adaptability is one of the Englishman's traits. The Tindal stock was strong and determined. It is represented to-day by men who have set square jaws to their tasks in the trenches in France, or wherever the call of Empire led them.

Mr. C. G. Tindal was joined at Koreela by a younger brother, Frederick. Soon afterwards he purchased Ramornie, on the south side of the

noble Clarence, about 18 miles above the fair city of Grafton.

Having sold Koreela, he returned to England in 1856, leaving his brother in charge of Ramornie. In England he married Miss A. A. Travers, a daughter of the head of the firm of Joseph Travers and Sons. Just before his return to Australia he received the melancholy news that his brother had been drowned crossing the dangerous Eastonwell Falls on the Clarence.

Mr. C. G. Tindal had long been considering in what way surplus fat cattle could be more profitably treated than by boiling down. In 1862 he went to England to study the subject of canning beef and making Liebig's Extract. The result of his pilgrimage and investigation was the formation of the Australian Meat Company, with works on the Orara River, known as the Ramornie works. These were opened in 1866 and worked part of every year up till 1915 inclusive. In 1879 Mr. Tindal bought out the others partners, and became the sole owner. From 1867 to 1890—though residing principally in England and managing the English end of the meat business—he made frequent trips to Australia. After 1890 he remained in the old country, leaving his eldest son, C. F. Tindal, to manage the Australian properties. In January, 1914, he died at his English home in Eversley, Hampshire, his wife having predeceased him by some eleven years. Both in Australia and England he enjoyed a wide reputation as a specially capable, energetic, straightforward man, and a fair, though strict, master.

Meantime, the Australian properties had been increased by the purchase in 1885 of the Bonshaw and Gunyan amalgamated stations, situated on both sides of the Queensland—New South Wales border, near Texas. A few years after, Trigamon, adjoining these properties to the west, was bought from Mr. W. Campbell. About ten years later, Albany Downs leasehold, near Mitchell, on the Maranoa, was also acquired.

Mr. C. G. Tindal was an excellent judge of stock. He imported many good stallions and bulls, among the former being Pitsford (winner of English 2,000 guineas), Reugny (winner of Liverpool Grand National), Livingstone, Warlike, and others. He also at one time owned old Sir Hercules, and the celebrated Cassandra. Their son Yattendon was foaled at Ramornie. A small but excellent stud of Devon cattle was formed at Ramornie in the early 'nineties. About the same time the famous stud of pure Herefords was started at Gunyan. Both the Devon and Hereford studs have been liberally fed with importations of high English blood. Many splendid heifers and a few bulls were also obtained from Mr. Reynolds' Tocal Hereford stud.



The Homestead, Head Station, Ramornie

Mr. C. G. Tindal also imported several Suffolk stallions, and there is an excellent Suffolk stud at Ramornie, among those imported being Cavalier (2nd at the English Royal Show), and Rendlesham Sprightly (1st at English Royal Show). The former was imported as long ago as the early 'fifties.

There are in 1917 at Gunyan 500 pedigreed breeders all entered or eligible for entry in "Hereford Herd Book"—among stud bulls now in use are Magnitude, imported (1st Brisbane, 1916), Admiral, imported, Rosador 2nd (1st Sydney), Wonder 3rd (1st Sydney), Sir Edgar (1st Sydney), etc., etc. At Ramornie there are 125 pure

pedigreed Devon breeders, carefully culled—the principal bulls in use being two imported from the stud of Mr. C. Morris, Highfield, St. Albans, England.

Several excellent Devon breeders have been imported from time to time, including Royalist 4th of Pound (1st R.A.S.E.). Both the Hereford and Devon studs are kept carefully culled, and are remarkable for their even excellence of quality, combined with great constitution. It is Mr. Tindal's ambition that the single T brand should be recognised as a hall-mark of value.

The Gunyan and other properties in Queensland or on the Queensland border have been from



"Bona Vista," Armidale

1886 under the very able management of Mr. H. F. Elwyn, son of General Elwyn, R.E., an old friend of Mr. Tindal's; while the Clarence River properties, and the general management have been in the hands of Mr. C. F. Tindal, to whom his father handed them over as a gift in 1910.

In March, 1914, Mr. C. F. Tindal bought Newbold Station on the Clarence from Mr. W.



Mr. and Mrs. C. F. Tindal and Mr. and Mrs. C. H. Tindal

A. B. Greaves; this property adjoins Ramornie, on the up-river side. In 1913, Mr. C. F. Tindal handed over the active management of Ramornie to his son, C. H. Tindal, having a short time previously bought a residence, "Bona Vista," two miles out of Armidale, from which he is able to reach any of his stations, except Albany Downs, in a day's motor drive.

This is a brief outline of the Tindals and their Australian fortunes to the momentous and terrible days of 1914. Then came the call of the blood! Trumpets of War blared again across the Narrow Seas, rolled in stirring echoes over Atlantic waves and reverberated still further beyond the "long wash of Australasian seas."

"Drake he was a Devon man,
And ruled the Devon seas."

It was fit and seeming that the old Devonshire blood should answer from the ends of the earth. Mr. C. F. Tindal's second and third sons found the call of Empire irresistible. Among the first, they had taken their places in the fighting ranks.

Mr. Archie Tindal, the elder of the twain, joined the Royal Field Artillery as 2nd Lieutenant. He fell in the battle of the Somme. His commanding officer, in memorial correspondence, paid graceful tribute to his fearlessness and resolution as a soldier, and the high place he held in the affection alike of men and officers.

Mr. Nicolas Tindal obtained a commission in the 2nd Battalion of the Devonshire Regiment. He was still in France at New Year, 1917. In September, 1916, Charles and Arthur, the eldest and youngest sons, together with their mother, sailed to England. On arrival they joined the St. John's Wood Artillery Training School for Officers, while their mother went to help Miss Tindal's Auxiliary Military Hospital at her house in Eversley, Hants.

Of the third generation of Ramornie-born Tindals, Charles Henry, born in 1887, married Gladys, daughter of Sholto Cay, Esq., of Mack's Creek, Queensland, and has issue a daughter and two sons. He was educated at Sedberg School, Yorkshire. Archibald, born in 1888, was educated at his father's old school, Wellington College. Like him, he won the mile and two-mile races and the steeplechase. He married Dorothy, daughter of the Ven. Archdeacon Moxon of Grafton, and left a daughter and a son. Previously to volunteering, he was assistant manager at Gunyan. Travers Grant, the third son, died as a schoolboy; Nicolas, educated at Southport and Armidale Schools, was working at Gunyan when he volunteered. Arthur, the youngest, was educated at Southport and Armidale, being before he left, the Captain of the latter. He then went to St. Paul's College, Sydney University, and had just passed the first year's medical, when he left to take a commission in the English army, reaching England on his 19th birthday. Both he and his brother Charles volunteered during the latter part of the voyage (when in waters rendered dangerous by enemy submarines), to take several hours a day "look-out" duty, and an hour a day assisting the stokers, who were short-handed.

Epitomized, the history of the Tindal family becomes one of almost universal service in the cause of Empire:—

The family of Charles Grant Tindal—founder of the Australian family—were:—

Charles Frederick Tindal, born at Ramornie, Clarence River, in 1857. He was educated at Wellington College, Berkshire, England, and married his second cousin, Edith Tindal, in 1885. For 25 years he was general manager for his father in Australia; later he owned the properties.

Anne Grant Tindal, born at Ramornie in 1858, resides at Fir Grove, Eversley, Hants, England. Since the outbreak of war in 1914, she has been running it as an Auxiliary Soldiers' Hospital.

John Travers Tindal, grazier and farmer, latterly resident at Tatiara, near Glen Innes,

N.S.W., married in 1887 Mary, eldest daughter of the late E. D. Ogilvie, of Yugalbar, Clarence River, N.S.W. On the outbreak of war he went to England, and worked in a munition factory for a considerable time, later as special constable, to free a younger man for war. His only son, Humphrey, died of malaria while serving with the artillery in East Africa; one daughter is working at Messrs. Stilwell and Sons, Naval Agents, London, and two on farms in England, in order to free men to fight. Mrs. J. T. Tindal is doing Red Cross work in Sydney.



Highfield Ploughboy (18 months),
Bred by C. Morris, Highfield, Herts, England.

Magnitude,
Imported Hereford Bull (1st Brisbane, 1916).

Highfield Fearless (2 years),
Bred by C. Morris, Highfield, St. Albans, Herts.

Wonder 3rd (1st Class, Sydney, N.S.W.),
Bred by S. Reynolds, Tocal, N.S.W.

Maria Louisa Tindal, obtained certificate as a fully trained nurse at the London Hospital, and is now resident at Newton Abbot, England.

Jean Emilia, married C. V. Mather, then of Spring Grove, Casino, N.S.W., now of Fairleigh, near Armidale, N.S.W. She has three daughters and a son, "all too young for war work," the compiler of the Tindal memoirs remarks, with something like regret.

Elizabeth Grant, married Godfrey Holt Stilwell, of Messrs. Stilwell and Sons, Naval Agents, London. Their two eldest sons are serving with commissions in the English Army; the eldest, John, was wounded and taken prisoner in Mesopotamia. Both volunteered soon after the outbreak of war.

Esther Kirkpatrick, married Lieut.-Col. H. F. Faithfull, of the Indian Army (now retired). Residence, The Priory, Frimley, Surrey. The children are too young for war work, but both Col. and Mrs. Faithfull are energetic workers in various patriotic societies for aid of our soldiers and sailors. Col. Faithfull is a director of the Australian Meat Co. Ltd., London, formerly a branch of the Ramornie, N.S.W., business.

This, at least, can be accepted, as an indication that after two and three generations, Australians of a good English stock remain true and loyal to the land of their forefathers. They turn naturally from the interests of civil life to military service in the cause of a nationality the sacredness of which neither Time nor distance can lessen in their eyes.



Australian Meat Company's Works, Ramornie



Donald Campbell,
Of Glengower Estate, Campbelltown

J. A. CAMPBELL, OF DUNGALGAR

MANY fine Captains of Industry have risen to distinction in that pastoral brigade which has formed the outposts of Australian settlement. From the four kingdoms of Britain and Ireland they or their forebears came to the conquest of a new world. As Raleigh and Drake and other valiant souls fared west, the prows of their argosies were turned south in later days.

The glamor had not faded from the Seven Seas. To the men of those wonderful little islands which lie upon the western confines of war-worn Europe, the waters have retained their ancient lure. They were a maritime people, and the highways and byways of the oceans were dear and familiar to them. Beyond the Narrow Seas which make the immediate horizon of their island homes, were new lands to occupy and colonize. For over a hundred years stout English, Irish, Scotch and Welsh hearts have answered to the call of "Southward ho!"

Australia gained what Britain temporarily lost. For, as events have proved, the Motherlands have but lent in blood and brood what the sunny Southern lands are proud and happy to repay in the hour of need.

Since this compilation began, one of the most honored native-born captains in that brigade which have been holding the outposts of British civilisation in the south, has followed his two brave sons to the Great Beyond. Men who know the Australian pastoral industry take off their hats to the memory of the late J. A. Campbell, of Dungalear and Tubbo.

He was born at Bullock Creek in 1854, but a few years later went to Glengower Estate, near Clunes, Victoria, when his father, Donald Campbell, purchased that property from Captain McLachlan. He was identified all his life with pastoralism, as befitted a member of a family which, on both sides, had been farmers and graziers for generations near Oban, Argyleshire, Scotland.

For thirty-six years he was the owner of Dungalear Station, Walgett, New South Wales. Throughout that period he followed a system of consistent improvement. The property was recognised as one of the most highly improved in a district which has had a long experience of pastoral successes and reverses.

Enterprise, foresight, and adaptability to modern conditions enabled the broadminded



Manager's House and Barracks

owner of Dunglear to crown his life's labors with high success. His pride was in the development of his merino flock. He had the gratification of eventually seeing his sheep gain a position in the front rank, an achievement of which the lay mind can hardly realise the importance.

Emulation among pastoralists has been a fine tonic to the industry. It has helped to make our staple product, Australian wool, eagerly sought for by the looms of all the world. It has raised the standard of wealth in this country higher than the average citizen would deem possible.

To men like the late J. A. Campbell, who sought to improve the value and quality of Australian fleeces, honor and credit should be given in no unstinted measure. They have been the backbone and spinal marrow of our national prosperity.

Dunglear sheep are big-framed animals of the robust breed which has come so markedly forward in recent years. The wool from Dunglear is high-class, and of a quality which finds much favor in the busy world of flocks and fleeces to-day.

Mr. Campbell was of the vigorous type that age mellows and makes more capable. He superintended the management of Dunglear till his death in 1916, acting also as managing director of Tubbo, Narrandera, one of the largest estates in Riverina—in which his family was interested.

At Tubbo he adopted the same progressive policy. As a result Tubbo clip became highly popular with wool-buyers, that polyglot band who bring to Australian salerooms something of the vociferous energy which makes the Chicago Wheat Pit a theme for the descriptive writers of America.

Mr. Campbell's personal hobby was the breeding of thoroughbreds in horses and cattle. He took a pride in the pedigrees of all his stock, and even the dairy cows attached to his Melbourne residence were always pedigree cattle. Mr. Campbell always kept a few stud horses at Dunglear, and bred some fine animals. His Wingaroon established a record for his time; while Wingarara won the Grand National Hurdle in world's record time for the distance over hurdles.

In the politics and economics of pastoralism, Mr. J. A. Campbell was, for years, a prominent personality. He was one of the founders of the Pastoralists' Association of Victoria, which body was formed in 1890, and occupied the position of President from 1902 to 1906. In the latter year the association was reorganised and formed into two divisions. Mr. Campbell was elected President of the Pastoralists' Union of Southern Riverina, one of the divisions. He was still holding that position at the time of his death in 1916. His presidential addresses at the annual meetings were always regarded as pronounce-



and the Homestead, Dungalear Station

ments of high value. In addition to the honorable office, he was the representative of the Victorian and Southern Riverina bodies at practically every convention of the Pastoralists' Federal Council of Australia, and took a prominent part in the lengthy arbitration proceedings between the Pastoralists' Union and the Australian Workers' Union in 1911.

In November, 1916, when the British Government purchased the balance of that season's woolclip, each section of the industry was called upon to elect representatives to sit on a Central Wool Committee. This body was charged with the management of the scheme for handling and shipping the wool. Mr. Campbell was chosen as one of the two representatives of the growers. The appointment proved a most popular one. The subject of this sketch was recognised as a man with special qualifications for the position. He displayed marked ability in constructive work, and his death a month later proved a great loss to the Committee. The sense of this was expressed, not only by the central body, but by the State Wool Committees in Victoria, New South Wales, and Queensland.

Mr. Campbell was a vice-president of the Australian Sheepbreeders' Association for many years, and took a very active part in the work of the Association and in the arrangement of its annual exhibitions in Melbourne. He was also a director of Dalgety and Co. Ltd., Melbourne, and

brought his wide experience of pastoral matters to bear in this connection to the great advantage of that company.

The success of the pastoral industry in Australia, particularly during the last quarter of a century, has been due quite as much to the able men who have guided its destinies and steered it clear of pitfalls, as to the effect of seasons and natural facilities. Whilst past-masters in the art of sheepbreeding have devoted their lives almost exclusively to the task of perfecting types and of evolving a class of sheep capable of producing a heavy fleece of high-class wool and with the constitution to withstand the vagaries of climate which have to be contended against, others have rendered quite as signal service in solving the many problems which have from time to time beset the industry, in acting as its mouthpiece in resisting what was regarded as unfair legislation, and in dealing effectively with the many and varied pests which have had to be contended with.

To a large extent these public-spirited advocates have had to spend a very considerable portion of their time in working for the good of all. This they have done right joyously; recognising that what makes for the common good makes also for the good of the individual. In the legislative councils of the pastoral industry brainy, able, and far-seeing men have done splendid service. No name stands out more prominently in

connection with Southern Riverina and Victorian sections than that of Mr. J. A. Campbell.

None have been more widely known or popular in the pastoral industry than he. His ability was not confined to station management, but found expression also in the larger sphere of pastoral politics. His experience embraced all details of pastoral work, but it was not so much his experience as his broad-minded spirit and optimistic outlook which made him a power in the industry. He possessed a charming, genial personality. Kindly, lovable, tactful, eminently fair-minded, and generous to a fault, his popularity could be well understood. His honesty of conviction and deed, and his fair-dealing instincts earned the respect not only of his fellow-pastoralists but also of the labor section of the industry. He was a man whose word was his bond; who never missed an opportunity of doing a kindness to his fellow-man.

For more than a quarter of a century Mr. Campbell was an untiring worker in all movements calculated to be for the advancement and general good of pastoralism. No man connected with sheep-raising in Australia has contributed more to the success of the pastoral industry and to smooth the path of those engaged in it. He spared neither time, trouble, nor money, but gave freely of his ability and means. His ripe experience was always at the call of his fellow-graziers, and there is no doubt that he frequently overtaxed his health and strength in labors for the common good. As a mediator in times of labor troubles he proved himself a tower of strength.

Mr. Campbell left a widow and a family of two sons and four daughters. Two other sons, Lieutenants Donald and Walter Campbell, were killed in action in the "big push" in France in 1916. Lieutenant Walter Campbell had just previously been awarded the Military Cross for gallant conduct on the field. Vigorous and active as he was even at the age of 62, this fine old colonist felt keenly the loss of the brave sons who had laid down their gallant lives in far-off France.

There is something finely pathetic in the closing scene of this useful and honorable life. Although living for years prior to his death at his home, "Ottawa," Toorak, Victoria, he had kept in close touch with Dunglear and Tubbo. He kept in harness to the last, and with all the heavy weight of new sorrow upon him, went stoically about his work to the day before he died.

One of his commercial compeers, speaking for the rest, summed up his qualities in a short sympathetic obituary notice, which appeared in the columns of the "Pastoral Review":—"In the

cities J. A. Campbell was noted for his combination of strength and friendly, pleasant manner, and was respected by all and loved by most of those with whom he came in contact, while his honor and probity and straight-dealing gave him an exalted position among the business men of Australia. But it was amongst the bush people,



J. A. Campbell

perhaps, that his real worth, his kindly heart, were best known. When the news of his passing became known, his friends in New South Wales, on the Murrumbidgee, and along the northern rivers, experienced a poignant sense of personal loss. Genuine grief and sorrow remain for the death of one whom they knew so well, for the man who had never turned a deaf ear to those who needed real sympathy or help. He is gone, worn out by hard work and by grief at the loss of his brave sons who died for the Empire."



The Homestead

GRACEMERE (ARCHER BROTHERS LIMITED)

THE city of Rockhampton, Queensland, needs no inspired prophet to predict for it a progressive future. Any ordinary layman may forecast that from the certainties already within his vision. Apart from adjacent mineral riches which have found their highest expression in Mount Morgan, its pastoral and agricultural surroundings must make it a growing centre of population and industry.

Close to Rockhampton lies Gracemere, one of the oldest and most celebrated of Queensland stations.

In the memoirs of the late J. A. Macartney we find that hardy pioneer relating with pleasure his arrival at Gracemere on the 31st of December, 1857. Here he found hospitality and welcome, like many a northern traveller before and since. Rockhampton was then a place of only three permanent residents. It went through its pack-saddle and bullock-dray periods, saw the Great Rush to the goldfields, had its boom days, and slowly settled down to its present stability. Gracemere has been a constant contributor to the prosperity of Rockhampton.

The name of Archer is held in general respect in the North, where so many good Australians

have "done their bit" towards the upbuilding of a queenly State.

On the 1st July, 1916, an amalgamation of the firm of Archer Brothers Limited, of Gracemere, and Messrs. R. S. and J. Archer, of Torsdale and Coolibah, was completed, the combined firms being carried on as Archer Brothers Limited.

From an interesting review of the Archer family, published at the time in the *Rockhampton Bulletin*, we learn that the firm of Archer had been then in existence for 75 years. In 1839 Mr. David Archer resigned the management of Wallarawang and Louie, in New South Wales, the properties of his uncle, Mr. Walker, and formed the firm of D. Archer and Co.

Sheep were purchased from the well-known Louie flock, and preparations were made to travel across New England to the Darling Downs, where settlement was just starting, Mr. Thomas Archer being second in charge. Unfortunately for the new firm, scab broke out in the sheep, necessitating a twelve months' delay, so that when the Darling Downs were reached, the pick of the country had been taken up. The leader, Mr. David Archer, pushed on ahead of the party and eventually took up Durundur, near Moreton

ARCHER

BROS LTD



HEREFORD HERD BULLS



SHORTHORN HERD BULLS

MOUNT SCORIA



The Garden, Gracemere Homestead

Bay, Mr. David M'Connel, who had settled at Cressbrook a year earlier, being his nearest neighbor. Durundur was occupied until 1845, when the run and cattle were sold to a brother of Mr. D. M'Connel, the sheep being moved to Emu Creek, and Cooyar taken up that year.

The story, as it goes on, makes clearer the movements and methods of early pastoralism. Led by men of enterprise and daring, flocks and herds were continually migrated to new pastures. Bold and confident spirits acted as the vanguard of settlement. The more timid or cautious followed on. Each year fresh territory was brought into occupation. Late-comers, if they missed the pick of suitable lands, profited by the trials and experiences, failures and successes of their fore-runners.

From Cooyar exploring trips were made by Mr. Thomas Archer to Mount Abundance (Roma) and to the Upper Burnett, where, in 1848, D. Archer and Co. took up Coonambula and brought their sheep there; a new firm, Charles and Thomas Archer, taking up and stocking the adjoining country, which they called Eidsvold. Mr. David

Archer returned to England in 1852 and did not revisit Australia.

In 1853 Charles and William Archer made an exploring trip to the North, following up the Burnett waters across Rawbelle, whence they crossed to those of the Fitzroy. Following up the Dee River, and crossing the Dee Range, they took up the Gracemere run, on which the town of Rockhampton now stands, naming the Fitzroy River and surrounding mountains en route. On their return to the Burnett, Charles and Thomas joined their firm to D. Archer and Co. (David and William), under the style of Archer and Co., and, in 1855, removed their sheep (the descendants of the Louie stock) to Gracemere.

At Gracemere Archibald, Colin, and James Archer joined the firm, these and their brother William being at different times in charge of the property.

In the succeeding years a stud of Shorthorn and Hereford cattle was formed, the first bulls being imported from England in 1864, importations following in 1870 and 1888.

In 1872 Minnie Downs, on the Barcoo, was acquired, and the sheep were sent out there, also part of the cattle. Minnie Downs was sold in 1882 to Messrs. Irving and Co. In 1891 St. Helens was bought, and was sold in 1903, after the droughts, culminating in 1902, had wiped out a fine herd of 8,000 head.

The author of *Australia Unlimited* travelled through this part of Queensland during that memorable period of disastrous drought and personally beheld its devastating effects. The courage of the pastoral North was never before, and probably never will again, be put to such a severe test.

Science and good seasons have enabled stock-owners to recover from the combined ravages of drought and ticks. Northerners of to-day, recompensed in a great measure for the losses of that anxious time, look forward with confidence to the future of the industry. The losses of the past are over and done with, as far as human foresight can prevail. Valuable knowledge has been gained. So great are the recuperative powers of all Australia, and of Queensland in particular, so strong is the faith of the men who have read their country in the pages of personal experience, that nobody doubts the future.

Rockhampton, among other things, is now the capital of a dairy-farming province, capable of vast extension. In our general Queensland section dealing with this district, these facts have been more fully set forth. Dairying has been carried on at Gracemere since 1892; but, in consequence of a keen demand for beef cattle, and, consequently, for high-class beef bulls, it has been

determined to break up the dairy herds and return to the breeding of Shorthorns and Hereford stud bulls. Gracemere will also be used as a depot for the herd bulls bred at Torsdale.

A rearrangement of the partnership was made in 1899, David, William, and Thomas carrying on the firm as Archer Brothers. On the death of the three partners, their executors, in 1907, formed the limited company of Archer Brothers Limited.

The firm of R. S. and J. Archer was formed in 1884, the two original partners being later joined by their brothers, the late Charles Archer, and, on his death, by E. W. Archer. A stud herd of Herefords was at once formed by purchase of cows from Gracemere, and has now grown to large dimensions the dot and arrow brand being well-known all over the State. Ten years ago Shorthorns and Red Polls were added to the stud, which now numbers 1,800 cows of the three breeds.

In the review from which we have quoted, it is announced that this herd will now be worked in conjunction with Gracemere, the aim of the firm being to produce high-class herd bulls of these three beef-producing breeds. Recourse will be made to the best English herds for new strains of blood. Already two Red Poll bulls are en route to Queensland, and further importations of Shorthorns and Herefords are contemplated next year.

The firm will be under the management of R. S. Archer at Gracemere, and John Archer at Torsdale, sons of David Archer, the founder of the firm.



Hereford Cattle, Gracemere, Q.



The Homestead, Hidden Vale, Grandchester

ALFRED JOHN COTTON

HIDDEN VALE AND BRUNETTE DOWNS

QUEENSLAND is proud of her pioneering pastoralists. They were men of indomitable resolution, energy, perseverance, intrepidity, and acuteness. In the face of obstacles and difficulties, they blazed their tracks through the State of Queensland when it was a wild and dangerous land inhabited only by treacherous blacks. Life under the most favorable conditions was crude and primitive. It required stout hearts to face its difficulties as they were presented day after day. These stout spirits stuck manfully to their work. In the main success eventually attended their efforts. To-day their names are indelibly written in the pastoral history of Queensland.

Among these pioneers who experienced the stress of that wild, rough-and-ready period of pastoral life, Alfred John Cotton, J.P., of Hidden Vale, Grandchester, in the Moreton district of South Queensland, holds a prominent place. Though many of his compatriots have been removed from the lists of pastoralism by death or financial disaster, Mr. Cotton is now spending the later period of his life in peace, contentment, and prosperity.

The subject of this sketch was born at St. Heliers, Jersey, one of the Channel Islands, on June 21, 1861, and was educated privately at Brighton, England, and at the Taplow Grammar School. He is the only male survivor of the

late Charles Nelson Cotton, a London merchant.

For several generations the Cotton family were largely interested in the business life of the Greatest of Cities, and an uncle (Sir Richmond Cotton) was Lord Mayor of London in 1875. At the age of 14 years, Mr. Cotton was apprenticed to the mercantile marine. He served his indentures on the *Edeline*, a barque of 700 tons, from the shipping home of John Brodie and Sons, London. He was next transferred to the *Isles of the South*, another of the same company's vessels. At a later period he continued his indentures on the *Clara*, one of the old time ships which had carried large numbers of immigrants from Great Britain to Queensland. In 1879, while the vessel was at Hong Kong, he completed his indenture, and became the third mate. Though only 18 years of age he proved himself well fitted for his command. With 500 Chinese coolies aboard the *Clara* set sail for Antigua. Trouble broke out aboard during her long voyage of 90 days. But when mutiny reared its ugly head, the young third mate, by a display of grim determination and fearlessness, assisted in cowing the ringleaders. The coolies were eventually landed at their destination. In 1880 he became third officer on the *Dartford*, a bigger ship than the *Clara*. During recent years the *Dartford* was used by the Union Steamship Company as a training ship for cadets. On the arrival



Alfred John Cotton

of his ship in Sydney in 1881 he decided to leave the sea, and secured employment on Yaleroi Station, in New South Wales. After four years experience among sheep and cattle, he obtained a position as overseer at the shearing-shed at Talooa Station.

He next decided to go droving, a life which has always held attractions for young men. Faced with lack of funds to purchase a complete drover's outfit, his friends made up the deficiency. His droving life began in 1886. For about six years he successfully transferred large mobs of cattle from the northern portions of Queensland to New South Wales. The care and skill he displayed in handling stock won for him the confidence of the pastoralists. He was generally regarded as one of the most successful drovers of the period.

Being of frugal temperament, Mr. Cotton saved enough money to enable him to acquire

an interest in Goorganga Station, in the Proserpine district, North Queensland, which had formed part of the estate of the late W. J. Dangar. From 1890 until 1895 cattle were successfully bred there, but with the appearance of the tick pest in 1895, it suffered a serious setback. In that year practically the whole of the herd was wiped out by the pest.

At this time Mr. Cotton was not quite 30 years of age. Undaunted by this heavy loss he placed an overseer on the station, and decided to engage in the buying and selling of stock. At first his operations were on a small scale, but with financial assistance from the Bank of New South Wales, he was ultimately enabled to do big things in this direction. When the South African War broke out he secured contracts from the Imperial Government to supply 10,000 horses for military purposes. The carrying out of this contract necessitated his own personal supervision. He visited all portions of Queensland and the northern section of New South Wales in order to procure suitable animals.

Emboldened by his success as a stock-buyer, Mr. Cotton decided to again turn his attention to cattle-raising. With this end in sight he acquired Powlathanga Station, near Charters Towers,



Mrs. A. J. Cotton



“Elected”

A. J. Cotton's Champion Blood Stallion
(The Rug was made of his numerous Championship Ribbons)

North Queensland. Subsequently he purchased Coalbrook, in the Hughenden district of North Queensland; Bauhinia Downs, Goomally, and Redcliffe in the Springsure district of Central Queensland; Lawn Hill and Punjaub, in the Burketown district, North Queensland; Inkerman, in the Ayr district, North Queensland; Woodstock, in the Townsville district, North Queensland; Mount Spencer (Mackay district, North Queensland), Maryvale (Morven District, South-western Queensland), and Canobie (Normanton district, North Queensland). Goorganga Station was sold in 1905. After holding the other

stations for a number of years, Mr. Cotton disposed of them, and in 1913, entered into partnership with the Hon. James C. White, M.L.C., of Muswellbrook, New South Wales, and Mr. F. J. White, of Saumarez, New South Wales, in the carrying on of Brunette Downs, a cattle station in the Northern Territory, comprising 9,000 square miles of country. The partners trade under the title of The Gulf Cattle Company. Every year Mr. Cotton, who is managing director of the Company, motors overland to the station, where he remains some time supervising operations.

Brunette Downs is ideal cattle country, with stretches of undulating open downs, carrying abundance of Mitchell and Flinders grasses in normal seasons. Here and there are clumps of timber, principally gidya, which afford shelter for the stock. The station is well watered throughout by eighteen sub-artesian bores, windmills, oil and steam engines being utilised for raising the water to the surface for the stock. Every year about six additional bores are put down. There are also a number of earth tanks, built above the ground, having a capacity of from 250,000 to 300,000 gallons.

There are from 30,000 to 40,000 head of cattle on the holding, but, when the proposed improvements are carried out, it is expected that the station will carry fully 150,000 head. The best strains of herd bulls are obtained from all parts of the Commonwealth. The renowned Warroo strain is mostly used for breeding purposes at present.

The stockyards are of an extensive character, and have been built on the most up-to-date plan.



Hidden Vale Suffolk Punch Family Group: Mariner and Progeny



Hidden Vale Shorthorn Bulls: 15 to 20 months old

The comforts of the employees of the company are well looked after. In 1915 the old homestead was replaced by a fibro-cement structure of commodious and comfortable proportions. Bathrooms have been provided, and water has been laid on to all parts of the homestead. Several motor-cars are used in connection with the operations of the station. Horses are also bred for station requirements. These number fully 1,000. Cloncurry (North-western Queensland) is the nearest railway station to Brunette Downs. On the arrival of supplies at Cloncurry they are conveyed to the holding by the company's camel team, which numbers forty.

The average annual rainfall on Brunette Downs is 15 inches.

Hidden Vale, the home of Mr. Cotton and his family, comprising 11,000 acres of splendid agricultural and grazing country, all of which is freehold. It has an average annual rainfall of 27 inches. It lies four miles from the township of Grandchester, and is 44 miles by rail from Brisbane. Hidden Vale was formerly portion of the original Franklyn Vale Station, and is ensconced by the Liverpool Range. It is one of the most beautiful estates in Queensland. The home is almost palatial in its proportions. It was built by the pre-



Stud Shorthorns on Hidden Vale



"Mintoburn," Mr. A. J. Cotton's Tasmanian Home

sent owner in 1901 on the most modern architectural design. A splendidly-arranged garden and lawn add considerably to the beauties of the place. From many points of vantage, particularly from the balconies of the house, delightful vistas of the surrounding country can be obtained.

Mr. Cotton purchased Hidden Vale in 1901 from Mr. J. P. Jost. The property is watered by Mort's Creek. It possesses a number of springs, which give an abundant supply of good water. On this holding Mr. Cotton devotes the greater part of his attention to the breeding of stud Shorthorn bulls, thoroughbred horses, best adapted for producing remounts for military purposes, and Suffolk Punches. As an exhibitor of cattle and horses at the Brisbane and other shows in the State, Mr. Cotton has held, for years past, an enviable record. His thoroughbred stallion Elected (Trenton—Rejected) carried off championship honors on six different occasions at Brisbane show, and also annexed Lord Hopetoun's prize for champion blood stallion, and also first prize, at the Sydney Show in 1904. This champion sire is now dead. General utility horses are bred for stock work, the services of thoroughbred sires being used in order to sustain a good standard. Suffolk Punches are raised for draught and farming purposes.

The breeding of Shorthorns at Hidden Vale is given the closest study. They have become renowned throughout the State. At regular intervals new blood from the best English strains is introduced for the purpose of maintaining the

high standard of the Hidden Vale stud. Among the recent importations are:—Manoravon Ranger, bred by Mr. E. Jones, Manoravon, Llandilo, South Wales; Bapton Eros, bred by Mr. J. Deane Willis, Bapton Manor, Codford, St. Mary, Wiltshire, England; and the Shorthorn cow, Fifield Marigold (imp.) bred by Mr. F. W. P. Matthews, Fifield, Oxford, England. Manoravon Ranger (a stud bull) was landed in Brisbane in 1915, and Bapton Eros (another stud bull) and Fifield Marigold (the stud cow) arrived in Brisbane in 1916. The stud herd aggregates 250 head.



Mr. A. J. Cotton's Motor Launch



"Canobie"

Mr. A. J. Cotton's Steam Yacht in Tasmania

Though Hidden Vale is regarded as the home of the Cotton family, they rarely spend the whole of the year there. Mr. Cotton has another charming home in Tasmania, on the d'Entrecasteaux Channel, about 23 miles from Hobart. It is to Mintoburn, the Tasmanian home, that Mr. and Mrs. Cotton and family journey every year just before the festive season. During his sojourn in Tasmania Mr. Cotton erected on portion of his property an apple-evaporating plant, which is worked by the Channel Fruit-Evaporating Company at Kettering. By the installation of the most modern machinery, these works have a capacity for producing 300 cases of evaporated fruit daily, while the output for the season is nearly 10,000 cases.

Mr. Cotton devotes the greater part of his leisure, when he is in Tasmania, to yachting. In 1914 he succeeded in winning the Hobart and Launceston Cups with the *Canobie*, which he sailed himself. Mr. Cotton is also an ardent fisherman and field shot.

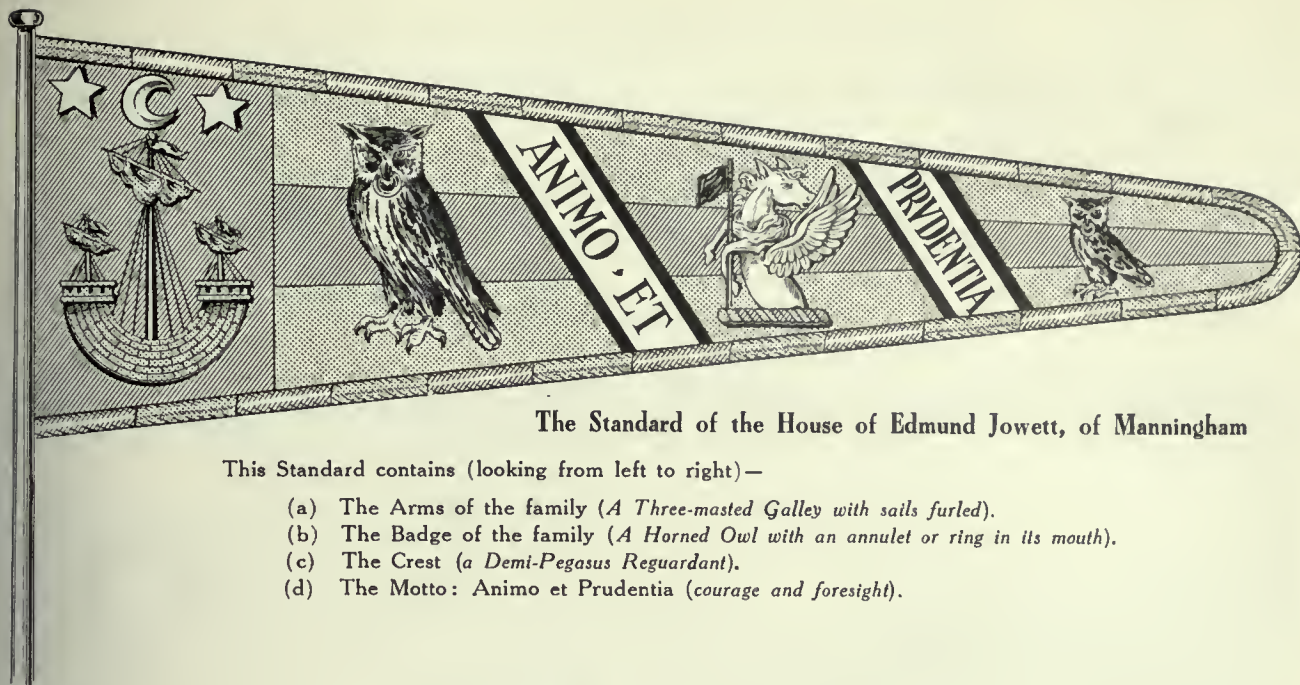
Mr. Cotton was married in 1890 to Miss Annie Bode, daughter of the late Mr. Frederick Bode, one of the earliest pioneering pastoralists of North Queensland, one, too, whose name is prominent in the pastoral development of the State. For nearly fifty years the late Mr. Bode was a part-owner of Bromby Park, a cattle station in the Proserpine district, North Queensland. The Cotton family consists of three sons and a daughter. Frederick Sidney, Victor Richmond, and Douglas Alfred, and Vera Eveline, an only daughter. The eldest son, Frederick Sidney, left for England by the R.M.S. Maloja on September

7th, 1915, and was appointed a second-lieutenant in the Royal Naval Flying Corps. Subsequently, he was attached to the Coastal Defence Corps, and was engaged in active service at Nancy and Dunkirk. While attached to this corps, he took part in a number of bombing raids over the enemy's lines. In consequence of his eyesight being affected by the high altitudes which his aeroplane negotiated, he was invalided to England early in 1917 for medical attention. Having been de-



The Cotton Family

clared unfit for further service at the war front, he was appointed to the position of second in command, with the rank of first lieutenant, at the Hendon Flying School, one of the principal aviation schools in England. He has since resigned his commission and returned to Australia, bringing with him a bride, Joan Morvaren McLean, daughter of Alexander McLean, of Scarborough, England.



The Standard of the House of Edmund Jowett, of Manningham

This Standard contains (looking from left to right)—

- (a) The Arms of the family (*A Three-masted Galley with sails furling*).
- (b) The Badge of the family (*A Horned Owl with an annulet or ring in its mouth*).
- (c) The Crest (*a Demi-Pegasus Reguardant*).
- (d) The Motto: *Animo et Prudentia (courage and foresight)*.

EDMUND JOWETT, M.P.

A GREAT QUEENSLAND PASTORALIST

IN our literary section dealing with the State of Queensland we have outlined the chances that wait upon enterprise in the bountiful northern State.

The successful pastoral operations of Edmund Jowett in this State are a proof of this.

What Mr. Jowett has been enabled to do in one department of industry, other men may reasonably hope to achieve in a country where opportunity is not monopolised by any privileged class.

If there is one faculty more than another required in the work of nation-building it is organization—a quality which the subject of this sketch possesses to an unusual degree. Organization is his genius, and pastoral production in the North has benefited by it.

In the development of his commercial strength Mr. Jowett has incidentally improved and made productive large areas of country which previously contributed little or nothing to the sum total of Australia's wealth.

The story of Mr. Edmund Jowett's Queensland pastoral operations is one of success following on a remarkable display of enterprise and pluck. Men who go out of the beaten track and face big risks, devoting all their capital and energy to opening up and improving pastoral country as Mr. Jowett has done, render a valuable service to the State. Unfortunately, pioneers do not always meet with the success which their enterprise merits, but in the case of Mr. Jowett's Queensland operations, prodigious as they are, the huge holdings of to-day were built up gradually, every possible precaution being taken to

make each separate holding as safe as was humanly possible.

Abundant faith in the future of the pastoral industry has been part of Mr. Jowett's stock-in-trade. His enterprise knows no limits. A gambler in neither stock nor property, Edmund Jowett has worked on a definite policy all along in connection with his Queensland properties. He has, almost without exception, specialised in properties which were practically unimproved, carrying barely a tithe of what they could support when brought under modern methods and conditions. He has spent money unstintedly in improving the properties which have come into his hands. There has been a definite policy of improvement in putting down bores and making dams, in subdividing the country into paddocks and generally increasing the carrying capacity of his stations. He has also organised the working of his places in such a way that the maximum results may be obtained from all such expenditure.

Mr. Jowett's methods are thorough. He has his own tank-sinking and artesian-boring plants, which are transferred to each new property in turn. When they have finished their work, there is a permanent water supply, and windmills to lift the water into the dams. The result is that a dry, waterless property which could only carry a very small sheep and cattle population, is transformed into a heavy-carrying safe property, and the increased returns amply repay the cost of the improvements.

Mr. Jowett first secured pastoral interests in Queensland about thirty years ago, when he pur-

chased Kynuna and Belkate stations, which together embraced an area of about a thousand square miles. These stations are situated halfway between Winton and Cloncurry. The previous owners of the property were Messrs. A. K. Finlay and Co., and the purchase money ran into £15,000. The stock on Kynuna then was about 12,000 sheep; but the property was capable of great development. Mr. Jowett set to work constructing dams, sinking bores, subdividing, and generally bringing the place under the influence of modern conditions.



Edmund Jowett, M.P.

The transformation brought about at Kynuna affords a very striking example of successful enterprise. Mr. Jowett spent over £70,000 in improvements, with the result that although the area had been reduced to 668 square miles, the property normally carried 200,000 sheep as against an original 12,000 sheep on a thousand square miles. The improvements here necessary may be accepted as typical of many of the Queensland properties. They totalled a large and comfortable homestead, nine large dams, seven artesian bores, subdivision into thirty-three sheep

paddocks, erection of large shearing-shed with forty stands, and a scouring plant capable of treating 220 bales a week, which had an output of about 3,500 bales a year.

In 1899—a year memorable in wool circles on account of the unprecedented high level of values (causing it to be generally remembered as “the boom year”)—Mr. Jowett extended his Queensland operations by the purchase of Quambetook, situated between Kynuna and Richmond. At the date of purchase this holding had an area of 223 square miles, which has since been reduced to 167½ square miles. It was unstocked at the time of purchase and had been a cattle property. To convert it into a sheep station cost Mr. Jowett £12,000 for improvements, apart altogether from the cost of the stock. Mr. Jowett stocked it with sheep from Kynuna, and Quambetook now carries 30,000 sheep.

In 1902—which will be remembered as the year when the long-drawn-out drought of seven years reached its culminating point—Mr. Jowett was faced with great difficulties. The wet season had completely failed. Kynuna Station, consisting of 400,000 acres, divided into 33 sheep paddocks, all of them abundantly watered—had not a blade of grass on it.

The sheep had been greatly reduced in numbers by the droughts of 1899 and 1900, but in April, 1902, Mr. Jowett had 80,000 sheep to provide for and no grass at all at Kynuna.

He made a series of journeys in the North-West, seeking grass and water wherever it was to be found, and after a few months' wanderings secured grass and water for the whole of his sheep.

Among other journeys he went out to Camooweal and to the Northern Territory. On this journey he purchased Flora Downs Station, which has an area of 400 square miles. There was plenty of good grass, but no improvements. The new owner's first act was to put down a bore; fortunately he struck water just as a mob of sheep arrived from Kynuna. Subsequently he bought Yelvertoft, which immediately adjoins Flora Downs and comprises 300 square miles. His boring plant put down four bores on Yelvertoft and Flora Downs.

In 1905 Mr. Jowett bought the Barcoorah run in the desert, near Aramac, embracing 198 square miles. This property carried 4,500 sheep and 300 cattle. Before long he had it supporting 30,000 sheep and 200 stud shorthorn cows. The water supply is from Lake Barcoorah, supplemented by a number of sub-artesian bores, water from which is lifted by windmills.

In the same year Mr. Jowett purchased Eastmere, which lies about fifty miles from Barcoorah, further to the East. Subsequently he

took up from the Crown as waste lands Doongmabulla, Shuttleworth, Finnigan, Tungi and Langlands. Afterwards he purchased Labona. He heavily improved the whole of this group, which now carries about 30,000 sheep and about 6,000 head of cattle.

boring plant; with the result that the property is now highly improved and heavy carrying; it generally maintains a large number of sheep. Some years ago Mr. Jowett made the unique sale of 40,000 fat wethers in one line to the Gladstone Meat Works, all fattened at Mount Marlow.



“Manningham,” Toorak

The Melbourne Residence of Edmund Jowett, M.P.

In 1905 Mr. Jowett also secured Mount Marlow run, near Isisford, embracing about a thousand square miles. This property was without stock or improvements. He promptly put down several large dams and bores, the water from the latter being raised by windmills. Mount Marlow has a double frontage to the Barcoo of about thirty miles and several large and permanent waterholes. The country is mainly grassed plains, with belts of gidyea scrub and scrub-covered ridges, bounded by a range of isolated low mountains. Mr. Jowett's tank-sinking plant was at work here for some years, as was also his sub-artesian

Mr. Jowett purchased Bunda Bunda, near Richmond, comprising 552 square miles, in 1908. During the 1902 drought he had seen this property magnificently grassed when there was no feed anywhere south of Flinders, and formed the estimate that it could easily have carried a very large number of sheep during that extremely perilous time. The sale price was £50,000, but this included 20,000 head of sheep and 11,000 cattle. The property now carries 40,000 sheep and a few thousand cattle.

When Mr. Jowett purchased Bunda, all the country to the North was abandoned waste Crown lands as far as the town of Croydon. In 1911

Mr. Jowett took up 2,100 square miles of these waste lands. He named the country Pontefract, and put down eight artesian bores. Pontefract, which seven years ago was a wilderness of waste land, quite unwatered, now carries 14,000 head of cattle.



Capt. Arthur Craven Jowett

The next large purchase made by Mr. Jowett was at the end of 1908, when he bought Vergemont, near Longreach, which had an area of 1,200 square miles, with between 8,000 and 9,000 cattle and 300 horses. Later on Mr. Jowett took up 2,157 square miles of unimproved waste Crown lands west of Vergemont. The total area of leased land now worked in connection with Vergemont is 2,549 square miles. The greater part of this area has been heavily improved.

Palparara station, a property of 2,566 square miles on Farrar's Creek, south-west of Longreach, was purchased in 1910 from Mr. Sidney Kidman. Later on in the same year, Mr. Jowett purchased Wyobie, near Dalby, comprising 11,000 acres of freehold, highly improved, adjoining the famous Jimbour estate.

Among Mr. Jowett's other properties, almost all of which he took up as waste lands from the Crown, and spent very large sums in developing

are:—Armraynald, Floraville (near Burketown), Blair Athol (on the Cape River), Bath-easton (between Clermont and St. Lawrence), Rutland (near Springsure), Drummondslope (near Alpha), Foxborough (on the Moonie, near St. George), Mount Howitt (on Cooper's Creek, carrying 5,000 bullocks of fattening ages), Berrimpa (near Jundah), Mount Tutah (near Pentland), Glenroy and Westbank (Cloncurry), and Fairyland and Durah (Chinchilla).

Mr. Edmund Jowett comes from a very old Yorkshire family, whose name was originally spelt Jouet.

Members of his family have for generations past been engaged in the wool trade, and have also been noted for scholarship.

One branch of the family settled at Manningham, Yorkshire, and from it were descended several great scholars and divines. Among them were the Rev. Joseph Jowett, principal tutor of Trinity Hall, Cambridge, from 1757 to 1795. His younger brother, Henry Jowett, was lecturer and tutor of Magdalene College, Cambridge.

Another descendant of Henry Jowett, of Manningham, was the Rev. Dr. Benjamin Jowett, one of the most renowned scholars and theologians whom England has ever produced. He was the Master of Balliol College, Oxford, from 1870 until his death in 1893.

Edmund Jowett was born at Manningham, Bradford, Yorkshire, on January 6, 1858. He was educated at Mr. James Ward's Classical School, Clapham Common, London.

Mr. Ward was a teacher of great distinction, and his school had in its day a great reputation for scholarship. One of his pupils was Mr. James Knowles, the founder and first editor of the *Nineteenth Century*. Among Mr. Jowett's school fellows was the distinguished novelist, Sir William Magnay, Baronet.

Upon leaving school Mr. Jowett was sent to learn the wool trade at his uncle's mill at Thornton, near Bradford. He came out to Australia when eighteen years of age, entering the wool trade in Melbourne. For twenty years he was associated with the Australian Mercantile Land and Finance Co. Ltd., and only retired in 1908. For many years he was one of the best informed writers in the Australian wool trade. His contributions to the Melbourne "Argus" won for him the position of a recognised authority, particularly in regard to such vexed questions as estimating the wool production of the Commonwealth.

In his early days in Australia Mr. Jowett was also a recognised financial authority. So far back as 1880, and for many years afterwards, he was a valued contributor on financial subjects to the *Australasian Banking Record*.

Mr. Jowett married the daughter of the late Mr. John McCallum, a well-known Melbourne merchant, who also owned Brymedura and Gumble stations in the Molong district of New South Wales. Mr. Jowett had a family of three daughters and two sons.

When the great war broke out in August, 1914, Mr. Jowett and his wife and their two sons were in England, both their sons being at Cambridge University. The two brothers immediately joined the army, and secured commissions on September 15 in the Northumberland Fusiliers.

They served with their regiment for about twelve months.

Having both taken their degrees in mining engineering at the Melbourne University, it was felt that their knowledge of mechanics would be very valuable in flying. They each therefore learned to fly, and early in 1916 were sent to France, where they flew from the same aerodrome. On the night of July 8, 1916, the younger brother, Eric Craven Jowett, did not return. It was afterwards ascertained that he had chased a German machine, and when he was about six miles within the German lines, about 3,000 feet in the air, a German machine came suddenly out of a cloud and shot him down.

He died soon after landing, and was buried in the military cemetery at Miraumont.

His elder brother, Captain Arthur Craven Jowett, is still serving with the Royal Flying Corps.

Captain Arthur Jowett married Evelyn Frances, the daughter of Charles Frederic Hill, of London, whose wife was a daughter of Henry Guinness, of Burton Hall, Stillorgan, County Dublin.

Mr. Jowett's three daughters are all married, one to Lieutenant R. V. Powell, M.C., of the Scots' Guards, one to Lieutenant Clive Fairbairn, of the Scots' Guards (son of Senator George Fairbairn), and one to Mr. J. S. Burston, eldest son of Brigadier-General Burston.

When the British Government, in November, 1916, decided to purchase the Australian wool clip, and it became necessary to appoint two gentlemen to represent growers on the Central Wool Committee, charged with the task of formulating and supervising the whole scheme, Mr. Jowett was selected as one of the pastoralists' representatives on that committee. The appointment was heartily approved by the pastoralists of all Australia. Mr. Jowett's long experience of pastoral conditions and his extensive Queensland interests have given him such a wide outlook on pastoral matters, that he has proved a most valuable member of the Committee.

Mr. Jowett has also been for the last two years the President of the British Immigration League of Australia.

He also accepted the post of special Honorary Representative in Australia of the Royal Colonial Institute in connection with its efforts to settle British sailors and soldiers on the lands of the Empire.

For the greater part of his life Mr. Jowett took no part in political life. In January, 1917, however, he came out as a supporter of Mr. W. M. Hughes and of the Nationalist Party.

At the general election of May, 1917, he was invited to contest—as a forlorn hope—the constituency of Maribyrnong, comprising several very populous working-class suburbs. Mr. Jowett received most unexpected support, and although he was not successful, he reduced the Official Labor majority from 9,260 votes in September, 1914, to only 1,673 votes in May, 1917.

The vigor and popularity of his campaign at Maribyrnong excited widespread public interest, and when five months later a vacancy occurred in the country electorate of the Grampians, he was invited to contest the seat. This he did, and won it by a majority of about 2,000.

Mr. Jowett took his seat in the Federal House of Representatives in January, 1918, and has since taken an enthusiastic part in recruiting and in other public movements, in addition to an active participation in the debates of parliament.



JOHN ARTHUR MACARTNEY, F.R.G.S. PIONEER AND EXPLORER

TO-DAY the traveller crosses and re-crosses the Golden State of Queensland in a comfortable railway carriage, or glides along passable roads in his motor car.

There is no fear that he will be assailed by thirst, tormented by hunger, or that his life will be endangered by treacherous savages.

The conveniences of twentieth-century civilization are everywhere at his command. Distance may have lost some of its romance, but the average man's life is made much softer and more pleasant.

But it was far otherwise in Queensland thirty or fifty years ago. Then the northern squatter or settler had to go out upon the very edges of civilization and "make good" in the face of many difficulties.

Among many notable representatives of the old, bold, strenuous days, was sturdy John Arthur Macartney, of Newstead, lately deceased at the ripe age of 84.

He was one of the old explorers and pastoral pioneers who lived to see the magic wand of Change create order and development, where, in

the beginning, there were only solitude and primal waste.

In the organization and building up of the Northern Pastoral Industry, J. A. Macartney played a leading part. But he was first of all an explorer. Australia owes a big debt to the undaunted efforts of men of this type. They were for the most part modest, quiet men, with scientific qualification or inclination.

They went ahead of settlement, taking their risks as they came. With grit, energy, and enterprise beyond the usual, they pierced the Unknown and established themselves in remote places, content to face the anxieties, the risks, and the dangers of the Bush. With pack-saddle and quart-pot, they fared inland in "the days when the world was wide," and opened up new country for the pioneer graziers to occupy with their ever-increasing flocks and herds.

The difficulties attending exploration in the late John Arthur Macartney's youth were greater than the generation of to-day can realize. He was called on to face Nature in her untamed moods, to risk his life in piercing tracts of country previously untrodden by white men, and still in the hands of wild blacks, who resented trespass on their camping and hunting grounds.

Few indeed lived as long to enjoy the fruits of their efforts and see the developments of the conquered country as did Mr. Macartney, or to have his services so generally recognised, appreciated and acclaimed.

John Arthur Macartney was a native of County Cork, Ireland, where he was born in 1834. He was a son of the late Very Rev. Dr. H. B. Macartney, who was for 43 years Dean of Melbourne, and a cousin of E. H. Macartney, M.L.A. He was a boy of fourteen when he accompanied his parents to Australia, landing in Melbourne in 1848. He went as associate to Sir Redmond Barry, the well-known Victorian judge, in 1852, and remained with him for eighteen months.

After spending a few years in the young Southern City his father set him upon the land as a pastoralist. He was thus engaged when the gold fever overtook Victoria. This provided young Macartney with an excellent opportunity to secure handsome returns for his produce. He did not follow the blind rushes all over the country, where many made fortunes and often lost them as rapidly as they were made. Mr. Macartney found the goldfields his great chance to dispose of agricultural produce at big prices. During the hey-day of the Victorian rushes he sold hay as



Ormiston House

high as £70 a ton, oats at 35/- per bushel, watermelons at 6d. per lb., and grapes as high as 10/- a bunch. The produce was grown on Mr. Macartney's station, Warouly, on the Ovens River.

Honest money was acceptable enough, but Mr. Macartney was not destined to remain a market gardener. Energies and activities such as he possessed would not find sufficient scope in growing cabbages, even at gold-rush prices. In 1857 he went to Port Curtis district, Queensland, and in 1860 he formed Waverley station on Broad Sound. He spent many years improving and developing the property, and went through many vicissitudes of seasons, remaining in possession of the station continuously to the year 1896, a period of thirty-six years.

In partnership with Mr. E. G. Mayne, he extended his operations in northern latitudes. This partnership continued for many years with marked success, and with great advantage to the colony.

Mr. Macartney was a man of extraordinary force of character. At sixty-two years of age, he was ruined through droughts and, at an age when most men are retiring from active life, he set out to rebuild his fortunes—no easy task for a pastoralist through those years of low prices and bad seasons. Yet through the most strenuous efforts he at length succeeded in rehabilitating himself.

Mr. Macartney owned numerous properties in Queensland, including Waverley, Diamantina Lakes on Diamantina River (from 1875 to 1909), Avon Downs, Annadale, Bladensburg, Tamworth, Hidden Valley, Escott, and other well known stations. His Northern Territory estates comprised Florida—10,000 square miles on Castlereagh Bay, Arafura Sea—The Pastures, Maud Creek, and Auvergne (8,000 square miles). At the time of his death in 1917 he owned Newstead, between Barcardine and Longreach, Joycedale, near Jericho, Agnes Water (on the Pacific Ocean), and Ormiston (on Cleveland Bay, near Brisbane).

As an explorer, Mr. Macartney did splendid work in Queensland and the Northern Territory, striking out in directions where no white man had previously dared to venture. The great rides which he accomplished in the early days are known and talked about to this day all over northern Queensland. In recognition of his exploring achievements he was made a Fellow of the Royal Geographical Society — no man has earned the honor more. His explorations opened up new country, and induced others to take up land for pastoral occupation, and so developed largely the resources of Central and Northern Queensland.

Mr. Macartney's explorations date back to 1857. For thirty years he was always more or less on the move. He explored virgin country all over the State, from the east coast to the South Australian border, and over into the Northern Territory; he travelled westward to the Victoria River, northward to the Arafura Sea, and



J. Arthur Macartney

round to the Gulf of Carpentaria. During all this travelling, Mr. Macartney took up blocks of land here and there as fancy dictated and opportunity allowed, and in most cases stocked these squattages either on his own account or in partnership with Mr. E. G. Mayne.

On one of his exploration journeys, Mr. Macartney was almost sixty hours without water. He and his party had to take the bits out of the horses' mouths. The two men who were with him begged him to turn back; but he knew that would mean certain death and he believed they must strike water if they went on. When, at last, he saw that they were nearing water he warned the men and his black boy to keep the pack-horses in hand till they could remove the packs, as their lives depended on the rations being kept dry. The men, however, rushed into the water when they reached it and left Mr. Macartney to unpack and hold the horses. When the



Hereford Cattle at Waverley

men came up to him, bringing him a billy of water, he was so angry that he threw the water away and refused to get himself a drink until his horses were safely unsaddled.

When travelling in new country where he saw hostile blacks during the day, Mr. Macartney often made his camp for tea early and then, packing up again, camped for the night further on, so that the blacks could not discover his position by his fire. He never watched at night, realising that, travelling as he often did with only two black boys, it would have been impossible to do so effectively. He went to sleep early and slept so lightly that the very smallest sound instantly woke him.

During one of his explorations in the Northern Territory, travelling with only two white men and two black boys, Mr. Macartney was not heard of for nine months; the South Australian Government were just sending out a search party when he returned.

Some of our earlier Australian stockmen practically lived in the saddle, but Mr. Macartney's rides covered thousands of miles, and often extended for months. When he was living at Waverley he frequently rode into Rockhampton, a distance of 125 miles, in one day, transacted his business that night, and rode home again the next day, a total of 250 miles in two days. This is a test of endurance that few men would come through to-day.

It must be remembered that there were no made roads in those days in the interior of Queensland, no bridges, and no artesian water supplies. Consequently the men who ventured out exploring into the far North West, had to be prepared to suffer severe hardships. Then there was the ever-present danger of trouble with the blacks, but in this regard Mr. Macartney was singularly fortunate. In all his wanderings he was only

attacked by blacks on one occasion. This while he was exploring the Florida country in the Northern Territory, where he subsequently took up 10,000 square miles. He had two men and a black boy with him at the time. One moonlight night the blacks attacked the camp, but dispersed on being fired upon. They returned at dawn with reinforcements and made hostile demonstrations, but gun-fire again frightened them off. This was his only personal adventure with hostile blacks, although his stations were sometimes molested and a few of his cattle killed.

As a proof of the healthiness of Queensland climates, as an example also mayhap of the stout constitutions of Australian pioneers, John Arthur Macartney, lived to the ripe age of 84 years, hale and hearty. In his home at Ilfracombe, he looked back with satisfaction upon the lengthening vista of his active years. He enjoyed the esteem of a generation who knew him by his historical exploits. He died at his residence, Ormiston House, on June 10th, 1917. He was a cousin of Sir William Ellison-Macartney, recently Governor of Tasmania. He married in 1861, Miss Flora Wallace-Dunlop, a great-granddaughter of Sir Thomas Dunlop, Bart. When she accompanied him to Waverley as a bride, Mrs. Macartney was the "farthest-out" woman then living in Queensland and proved a brave pioneer. Mrs. Macartney predeceased her husband. They had four sons and four daughters, two sons surviving being Mr. Burgh Macartney, of Western Australia, and Lieut.-Col. H. D. K. Macartney, D.S.O., of the A.I.F.

Mr. Macartney made Waverley Station his headquarters for many years, and saw the growth of Rockhampton from its very earliest days. In the first week of 1858, when he rode into Rockhampton, the population of the town consisted of

three persons only. The Bush Inn, then a rough slab shanty, stood on the site now occupied by the Criterion Hotel. However, the inn was closed that day because the proprietor had gone to Gayndah to be married, and most of the other residents had ridden off to this important event. The capital of Central Queensland was then a mere hush town, and Gracemere Station a larger and more important centre of population than Rockhampton.

Rockhampton, like many another Australian city, owed its rapid rise to the discovery of gold. There was a rush to the Fitzroy in 1858, owing to gold having been discovered at Canoona. The results were, however, small and did not justify the rush. The Canoona diggings were soon worked out, but the temporary prosperity which the gold imparted to the town gave Rockhampton its start. Later on, when Mount Morgan became an enormous wealth producer, gold once more gave the central city a big lift.

The gold fever did not strike Mr. Macartney; or, at least, it did not lure him away from his pastoral holdings, and from his explorations. He went on long trips in unknown country, doing his travelling on horseback. It has been stated that J. A. Macartney covered a greater number of

miles on horseback than any other man in Australia.

To the modern generation of Queenslanders Mr. Macartney is best known as the owner of Diamantina Lakes Station in the North Gregory district, in which Mr. H. L. Heber-Percy was his partner, and Waverley Station in the Port Curtis district. Both these properties he held for over thirty years.

His life story, fully written, would be, in major part, the history of Pastoral Queensland. He was owner and part-owner of 33 different stations, some of which he held for two or three years, and others for periods ranging from four to forty years. He was one of the first magistrates of Queensland, receiving his commission in 1861.

By such tough and determined stock has the uplifting of the Northern State been done. While the British Empire can produce sons of this type, the work of construction will go on. Let us hope that in the building of that new edifice of Empire which will superimpose upon the brave, battered foundations that already span the earth, there will be found a new pioneering band as valiant in their way and time as the "four-square" Australian group in which John Arthur Macartney made a prominent and honorable figure.



Lagoon at Waverley



Kooralbyn Homestead

CHARLES WYNDHAM BUNDOCK, B.A., OF KOORALBYN

*"'Tis not in mortals to command success:
But we'll do more, Sempronius—we'll deserve it."*

CHARLES WYNDHAM BUNDOCK, B.A., has learned the meaning of the poet's lines, since he commenced his career in 1882. At the age of 22, accompanied by three of his brothers, he left his home on the Richmond River, New South Wales, and journeyed to North Queensland. They purchased the lease of Natal Downs, comprising 1,000 square miles of country, from Messrs. Chatfield, King and Co., at a satisfactory figure. This station is about 70 miles south-west from Charters Towers. It was at the time of its purchase stocked with Merino sheep and Shorthorn cattle of the beef strain. A few years after they had acquired the property, Messrs. Bundock Brothers disposed of the sheep, and devoted all their attention to the breeding of beef Shorthorns and thoroughbred horses. The cattle were of the famous "Bates'" strain, the horses came from the equally famous Wyangarie stud established by Mr. Bundock, Senr., on the Richmond River, and carried on by him for over sixty years.

Thirty-five years ago social conditions in North Queensland were in the rudimentary stage. The treachery of the blacks was a decided menace to the successful pursuit of pastoral activities by the pioneers. Pastoralists had to be constantly on the alert against attacks upon their stock and even their homesteads. Pastoral residences had not assumed the commodious proportions of to-day,

but the old bush homes had a glamor of their own. The original homestead of Bundock Brothers was nothing more than a "humpy," with slab walls and a mud floor. Whenever occasion demanded a visit to Charters Towers, it generally took two and a half days to accomplish the journey on horseback. To-day the distance can be covered in a few hours by motor car. At that time the railway had not extended beyond Ravenswood Junction.

Though faced with many difficulties from the outset—difficulties which would have crushed the hopes of less valiant hearts—the Bundock Brothers soon made Natal Downs a paying proposition. Prior to the great drought of 1890 this station carried over 30,000 head of cattle and 400 thoroughbred horses. The drought reduced the cattle to 2,600, while only two thoroughbred brood mares survived the disaster. Undaunted by such a crushing reverse, the Bundock Brothers quickly set about re-stocking their station. No difficulty was experienced in getting financial assistance from their bankers, and another start was made. Australia's moods are never harsh for long. Fortune smiled again, and the station flourished for a number of years. Then came another less severe period of adversity, which caused the brothers to again seek the aid of their bankers, but with ready financial aid at the right time, the station was brought safely through one more vicissitude.



View on Kooralbyn Station, from the Homestead

For many years now Natal Downs has been carried on by Mr. Charles Wyndham Bundock. His three brothers (Frank, Edward and Henry) who were associated with him, have joined the great majority. The management was entrusted to Mr. Patrick Salmon, who eventually acquired an interest in the station. To-day, Natal Downs is controlled by Messrs. Bundock and Salmon Brothers. Mr. T. J. Salmon was taken into partnership in January, 1913.

In consequence of resumption by the State Government, the present area of the holding is 400 square miles. It carries 5,000 head of cattle and 150 head of horses. To-day there is a comfortable home on the station. The country consists chiefly of open, rolling downs; portion of it, however, is fairly timbered. Under normal conditions it is covered with Mitchell and Flinders grasses principally. It is watered by the Cape River, six sub-artesian bores (four of which are salt), and several cement dams. The country is admirably adapted for the breeding of stock, particularly beef cattle. The prices received for these are sufficient proof. For many years past large drafts of cattle have been regularly sent by rail to the meatworks in Townsville and elsewhere.

Mr. Bundock is one of the most successful breeders of horses for remount purposes in the State. In this connection he has had over 40 years' experience. The stock on Natal Downs have a dash of Arab in them, and many of them have distinguished themselves on the Australian turf. Dagobert, a Wyangarie-bred horse, won the Summer Cup (Sydney) and Sea Breeze, carrying 6st. 11lbs., won the Queensland Cup in 1905.

Until his death, a few years ago, the well-known thoroughbred stallion, W.W.C. (Canzoni—

Party) was used in the stud. Previously the Bundocks had the famous thoroughbred stallions: The Dean (Yattendon—The Nun), Normanby (New Warrior—Zenobia) and Grandchester (Darebin — Esmeralda). To-day, Luzon (W.W.C.—Lucia) and Blue Book (True Blue —Lady Mary) are the Natal Downs sires.



Chas. Wyndham Bundock

In 1890 Mr. Bundock purchased over 12,000 acres of freehold country near Laravale, in the Beaudesert district, on the South Coast line. The property comprises splendid agricultural and grazing land, and is well watered. It was only partly improved, and the price paid was 29/- per acre. The holding, which is known as "Kooralbyn," is the home of Mr. Bundock. Over £20,000 have been spent in effecting improvements on Kooralbyn.

graduated in 1878. While at school he won prominence as a footballer. On leaving school he worked on his father's station for a number of years, and acquired a thorough knowledge in the breeding of cattle and horses. When he, together with three brothers, left home and went to Queensland to engage in pastoral pursuits, they had each £1,800 to start with—an inheritance from their grandmother. On such a comparatively small capital the brothers made good; their



Cattle and Horses on Kooralbyn Station

The surroundings of Kooralbyn are made pleasant by smiling Australian landscapes, mountains and valleys.

Unpretentious in appearance, but roomy and comfortable, the homestead nestles amidst its gardens, another happy and peaceful Australian home testifying to effort rewarded, and human trial ending in prosperity and content.

Kooralbyn is used chiefly for fattening drafts of cattle, which Mr. Bundock buys from time to time. From 1,400 to 1,600 head are fattened in a mob, and sold to the meatworks. There are, also, 30 thoroughbred horses on the holding. The high standard of the stock is maintained by the utilization of the blood stallion, Campagnard (Biltalto—Finis). As at Natal Downs, the breeding of horses for remount purposes is successfully carried on.

Mr. Charles Wyndham Bundock was born on Wyangarie Station, in the Richmond River district, New South Wales, in 1858. He was educated at the Sydney University, where he

fine courage overcame difficulties which might have broken weaker men.

Mr. Charles Wyndham Bundock has always taken a keen interest in the advancement of Queensland. Every patriotic movement with this object receives his whole-hearted support. Being a breeder of thoroughbred horses, he is naturally an enthusiast in racing, his colors (scarlet jacket with blue sash) being often carried to victory. He is a member of the Queensland Turf Club and the Queensland Club.

Mr. Bundock's father—Wellington Cochrane Bundock—was born in Paignton, Devonshire, England, in 1812. He left the homeland with his brother (Alexander Frederick) on December 13th, 1835, in the *Henry Tanner*, and arrived in Sydney Harbor on May 15th, 1836. Mr. Bundock, senior, proceeded to the Richmond River district, New South Wales, in the early part of 1843, and took up country at Myrtle Creek, where he engaged in sheep-raising. Later he followed the same pursuits at Wooroowoolgen.

About the beginning of 1844 he established Wyangarie, on the Richmond River, where he devoted the whole of his attention to the breeding of beef Shorthorns (Bates' strain) and thoroughbred horses. All the brothers of Mr. Bundock, senior, belonged to the British Navy, in which they figured prominently. His brother (Alexander Frederick), however, retired from the Navy prior to coming to Australia. The father of Charles Wyndham Bundock married Miss Mary Ellen Ogilvie, daughter of Commander W. Ogilvie, R.N., on August 12th, 1841. Commander Ogilvie took a conspicuous part in the battles of Copenhagen and Trafalgar. For gallantry in action, Ogilvie was raised from midshipman to lieutenant by Lord Nelson himself, and subsequently became commander. In 1848 Commander Ogilvie and his wife paid a visit to Mr. and Mrs. Bundock at Wyangarie. Mr. Bundock, senior, had six sons and two daughters. He died in 1898 at the age of 87.

Mr. Charles Wyndham Bundock is the only male member of the Bundock family alive to-day. His two sisters, Mrs. Murray-Prior, of Maroon Station, Beaudesert district, South Coast Line, and Miss Bundock, are still living. He married Miss Scarvell, daughter of Mr. E. A. Scarvell, of Messrs. Want, Johnston, and Scarvell, solicitors,

Sydney. He has one child—a daughter—who is 12 years of age. The charming appearance of the home at Kooralbyn is due to Mrs. Bundock, who is an ardent floriculturist.

Necessarily short as the memoirs in this section of *Australia Unlimited* must be, they are in themselves so many proofs that opportunities for pastoral success have not been confined to any particular State or district of Australia.

All over the Commonwealth chances offered and still offer for the exercise of those colonizing qualities, which have brought men like the subjects of these biographical sketches to honorable prosperity.

Outside the names included in the pastoral section are hundreds of others, who are equally deserving of mention if space and opportunity had permitted. It may be the author's congenial task to present to the world a fuller account of the lives and efforts of our Australian pastoral pioneers. Much material has been collated for the purposes of this volume, which holds certain historical values, that may be published at a later date.

In tracing the progress of families such as that to which Charles Wyndham Bundock belongs, one really follows a course of Australian history, the interest of which is enhanced by the intimate human atmosphere it contains.



General View of Kooralbyn Station



Willoughby House

WILLOUGHBY, A CENTRAL QUEENSLAND STATION

MR. ALBERT DURER ALEXANDER, of Willoughby, near Barcaldine, Central Queensland, was born at St. Kilda, Melbourne, Victoria, in 1863, and was educated chiefly at the Church of England Grammar School, Melbourne. He attended this school for five years, and left at the end of 1878, shortly afterwards matriculating. He left school too young to have found his place in either a first eleven or twenty, but has always been of an active disposition, and a keen cricketer. He is the son of the late Mr. Thomas Alexander, of South Yarra, Melbourne, Victoria. His father was a native of Wiltshire, England, and was attracted to Australia with a brother and nephew. They landed in Melbourne in 1852, and, like nearly all the arrivals of that date, made their way at once to the diggings at Bendigo. After some experience there, both Mr. Alexander, senr., and his brother returned to Melbourne, and entered the Civil Service, the former remaining in this occupation until 1878. He was of a literary turn of mind, and a great admirer and collector of old engravings and paintings, and was also on terms of friendship with all those who were

prominent in Art circles in Melbourne. Mr. Alexander, senr., married Miss Jane Furnell, who was born near Dublin, Ireland, and was a member of an old and cultured country family. Accompanied by two brothers, this lady arrived in Melbourne about 1852. One of her brothers had been previously in the British Army, but on arrival in Victoria he became an officer in the Mounted Police Force. Afterwards he filled the position of Superintendent of Police in the Geelong district for a number of years. An elder brother, who had studied medicine, and gone to India, became head of the Madras College of Physicians and Surgeon-General in the Army. In family, Mr. and Mrs. Thomas Alexander had three surviving children—the late Mrs. Milo R. Cudmore (who left four sons), Dr. Lilian H. Alexander, M.A., of Melbourne, and Albert Durer Alexander, of Willoughby, Central Queensland.

In 1880 the subject of this sketch was afforded an opportunity of going to Messrs. McFarland's Barooga Station, on the Murray River, to learn sheep-breeding and wool-growing. He remained there for ten years, and during the latter five

years of this period he occupied the position of manager. Whilst on this famous station Mr. Alexander made a close study of all phases of the sheep and wool industry. In 1890 he relinquished his position at Barooga, and proceeded to Queensland, where, in 1891, he took up a block of 10,000 acres, which was afterwards called Vermont, being a portion of the Wellshot Resumption. He entered into partnership with the late Mr. J. F. Cudmore, formerly of Milo Station

brought from Jerilderie. All were eventually trucked to Charleville, and afterwards travelled in separate flocks to their destination. It was intended to purchase Boonoke stud rams to keep to that strain alone, but the dry seasons that ensued after the arrival of the stud ewes, and with no water in the new tank on the country taken up, and the difficulty in getting suitable country from time to time to keep them alive, prevented the consummation of this idea; conse-



Part of the Garden at Willoughby

(south-western Queensland), to found a stud flock and breed rams for that gentleman's Tara properties, near Saltern (Central Queensland), or for anyone else who might require them. Passing through Brisbane, a few Vermont rams offered there by Messrs. Clarke Bros. were purchased, and, later, returning to the Riverina district, he was fortunate in being able to purchase from the late Mr. F. S. Falkiner 600 aged stud ewes of the pure Boonoke strain. Then, at Mr. Cudmore's desire (who had been an old and consistent user of the Murray rams), he went to Adelaide, purchased there stud rams from the flocks of Messrs. John Murray (Rhine Park) and Alick Murray (Mount Crawford), and had them sent over to Junee, where the ewes were

quently the rams already purchased were used, except that after the first lambing Mr. Alexander discarded all the Vermonts but one, believing that the yolk they carried was unsuitable to the district. With the exception of a few stud rams from Mr. A. J. Murray's Mount Crawford flock in 1895, no other blood has been used, and the flock has been bred since then from within itself.

In 1910 the Minnie Downs stud flock was purchased. This was a very old Australian, and noted Central Queensland, flock, the originals of which were brought from the old L.U.E. flock in New South Wales in the early forties by the Messrs. Archer Bros., when they—delayed by an outbreak of scab—found the Darling Downs country occupied, they pushed on to the Burnett



Typical Willoughby Stud Rams.

River, and settled there. The L.U.E. flock was founded in 1823 of pure Spanish and Saxony Merino strains, and whilst in Messrs. Archer's possession they obtained rams of pure Saxony blood for the ewes they had. After discovering the country of the Fitzroy River, and settling at Gracemere, the sheep were sent there. About 1875 Messrs. Archer Bros. purchased Minnie Downs station, near Tambo (Central Queensland), and transferred the sheep there. Some time afterwards they sold out to Messrs. Wm. Irving and G. N. Griffiths. The new owners purchased for years stud rams from the flock of Mr. N. P. Bayly, of Havelah, New South Wales; also a flock of aged stud ewes. The sheep resulting

from this blend obtained great successes when exhibited, and earned a well-deserved reputation. Some time after the death of both of these owners, Irvingdale stud grazing selection, to where the stud had been removed, was sold with all the sheep. In 1910 Mr. Alexander purchased all the studs, and since being in his possession he has bred the flock within itself. The object aimed at with the Willoughby flocks is to breed an all-round type of sheep of good frame and constitution, well covered with a profitable fleece of good quality, but not too fine—sheep, too, that are good doers, and not of a wild disposition. The results obtained are very gratifying. All the rams are readily disposed of, and give satisfaction to



Stud Merino Rams, Willoughby



Stud Merino Ewes, Willoughby

their purchasers; any surplus stock of sheep finds ready buyers.

In 1900 Mr. Alexander purchased the other half-share in Vermont stud farm, and in 1904 he acquired Willoughby, his present home. The latter holding was portion of the Saltern Creek Resumption, and is situated about 40 miles from Barcaldine by road. Woolbrook Grazing Farm, with an area of 4,400 acres, was taken up in 1908, and is within six miles of the railway line. Generally speaking, the Willoughby country, with an area of over 50,000 acres, consists of open downs, which, in normal seasons, carry an abundance of the best grasses—Mitchell, Flinders, Blue, etc. It is also better provided with shade

timbers than the average downs, and is well watered by artesian bores, etc. From 20,000 to 22,000 well-bred sheep, 150 head of Shorthorn beef cattle, and 60 head of horses are carried, and a fairly large stud flock of sheep is maintained.

In 1897 Mr. Alexander married Miss F. C. Brown, the eldest daughter of the late Mr. A. R. Brown, one of the pioneers of the district, and for many years and until his death manager of Saltern Creek Station. Besides being a very capable manager, he was foremost in promoting honest sport of all kinds, and both Mr. and Mrs. Brown endeared themselves to all in the district. Mr. and Mrs. Alexander have a family of four sons and two daughters. The eldest son (just over sixteen years of age) is a boarder at his father's old school. Mrs. Alexander is an enthusiastic gardener, and has a fine garden with lawn and citrus trees surrounding Willoughby, giving the place an attractive appearance. There is a spirit of hospitality about Willoughby, which makes itself felt as soon as one enters its portals. Having always lived some distance from town, Mr. Alexander has been prevented from taking prominent position in local affairs, but he has always been ready to support anything appertaining to the advancement of the district or the State of Queensland generally.



A Willoughby Stud Ewe



Albert Durer Alexander



Murray Vale House and

THE MURRAY MERINOS

AMONG the pioneer pastoralists of South Australia during the first years of its settlement appear the names of John Murray and Alexander B. Murray, of Mount Crawford, who were destined quickly to make an indelible mark on the pastoral history of the new colony. These men were the founders of the celebrated Murray Merino flock, the name of which, it will be noted, appears very frequently in the descriptions of other flocks in this volume. It was founded seventy-four years ago—to be exact, in 1843—and it had apparently its origin in the first merino flock in Australia, that of John MacArthur, of Camden Park, New South Wales. It was Mr. A. B. Murray who bought 100 merino ewes in that year from Mr. McFarlane, of Mount Barker, which were understood to have come from Camden Park. These ewes were divided between A. B. Murray, and his sister-in-law, Mrs. P. M. Murray, of Glen Turritt, Truro, and John Murray, of Mount Crawford. Afterwards, another hundred ewes, in lamb to a Tasmanian ram, were purchased by John Murray from Mr. McVittie, who had a station near Blumberg.

The origin of Mount Crawford Estate, however, dates from 1843, but in 1839 A. B. Murray and John Warren, senr., explored and had the survey made of section 918, Hundred of Parra Wirra, part of the Barossa Special Survey, of

which he was a pioneer. In the same year his brother John—who had been a shepherd in the Cheviot Hills in Scotland, and had fed for exhibition the stud of Mr. Bryden, the famous Cheviot sheep breeder—came to Australia and, after two years at Bull's Creek, purchased half of section 918 from him in 1843. To go back a little, Mr. A. B. Murray had first settled in Malcolm's Flat, now Magill, a town four miles from Adelaide, the property being purchased by Mr. Malcolm, son of Sir Pultney Malcolm, Mr. Murray's second cousin. Mr. Murray was the manager. The original section at Magill passed into the hands of a Mr. McCowan, and later into the possession of A. B. Murray, whose son, Chief Justice Sir George Murray, still owns the part of the section not yet built upon.

To-day the ruins of the original homesteads of the brothers stand within sight of each other on the present Mount Crawford Estate, and they must have been humble residences, although built of stone, with which the property abounds. But still humbler homes of slab and dab preceded these, until A. B. Murray startled the neighborhood with his palatial residence, of which by the bye an amusing story is told. A dour old Scotchman, who lived in the neighborhood and watched with paternal interest the beginnings of the young pioneers, is narrated to have looked upon the architectural opulence of Mr. A. B. Murray's



Outbuildings, Mount Crawford

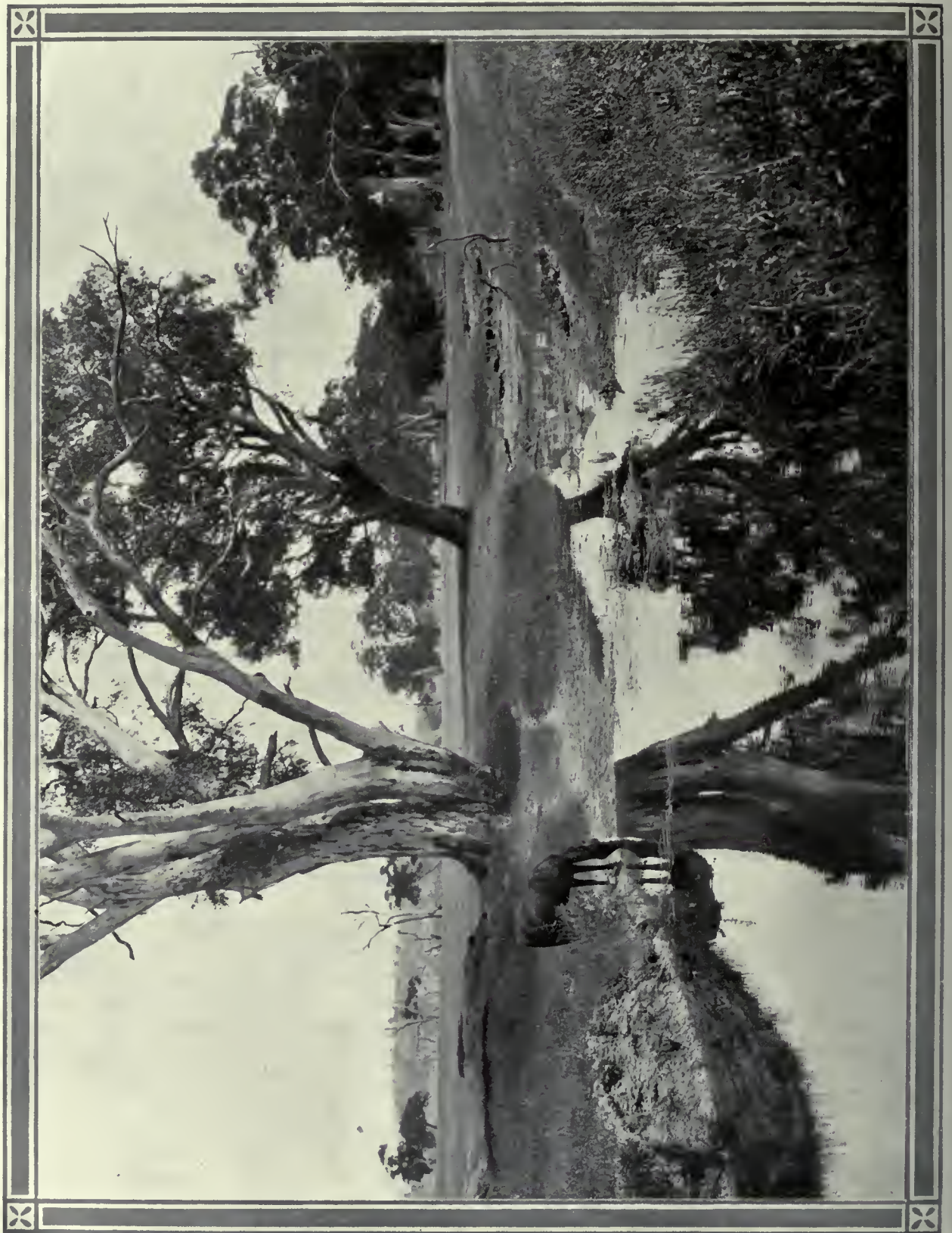
“hooose”—of two diminutive rooms and a lean-to—with some disfavor, saying to a friend in confidence: “Sandy Murray’ll coom te na guid, mon. He’s gettin’ too flash. He’s buildin’ a stoon hooose wi’ a passage.”

Although the two brothers had each his own ewes, they worked together and used each other’s rams until A. B. Murray left Mount Crawford and took up Tungkillo and Wirrabara. John Murray in 1853 purchased from Mr. William Mitchell, of North Adelaide, who had built it, a small house on the present site of the residence of Mr. Alick J. Murray, with its section of 85 acres of land. This original homestead occupied the space now devoted to the large central hall of Murray Vale House, the additions making up the present bungalow residence, having from time to time been built around this relic of the early days. The mountain took its name, it is said, from an early overlander named Crawford, who used to make his camp at its foot. The native name was Tetaki. Mount Crawford is just seventeen miles east of Gawler.

The high-class character of the original Murray flock is proved by the fact that a ram bred the year after its foundation took Champion prize at the Adelaide Show against imported rams. The same ram took the Championship in six consecutive years, in spite of the fact that many other importations were made by other flockmasters. Among the first of the late John Murray’s prize-winners was an exceptional ewe. She was shown at the Adelaide Show about 1845 in a pen with

two of Mr. A. B. Murray’s sheep and they gained a first prize. The ewe afterwards produced twin rams, one of which was Old Prize. She had a very robust constitution and great fertility, and she produced many great stud sheep. When killed, at fifteen years old, because she was blind, she was found to be in lamb. The ram, Old Prize, began his show career at the age of ten months by winning a first, and he afterwards scored many first and champion prizes. He was a great son of a great dam, possessing strong prepotent power, and left his mark upon the Murray flock in an exceptional degree, the stud being largely inbred to this ram for an unusual length of time.

Other famous early Mount Crawford rams were The Duke of Edinburgh, who was regarded by Mr. John Murray as the finest sire he ever bred; his son, Prince Imperial—who won two Champion prizes in Adelaide in two successive years (1875 and 1876), and whose fleece, which weighed 18lbs. 12ozs. while his live weight was 205lbs.—was for three successive years one of the six placed first at the Adelaide Shows; and Trophy, who won in 1873, as a grass-fed competing against housed-and-fed rams, the silver trophy valued at 150 guineas presented by the Old Colonists in England for the best combing-woolled merino ram, and who also won the Champion prize at the Adelaide Show in the following year. Mr. Murray refused an offer for Trophy of 500 guineas, an exceptional price in those days, preferring to retain him in the Murray stud.



Mount Crawford Country, South Australia

It is noteworthy that while Trophy's stock were stronger in a most marked degree in the female line than in the male, the double champion, Duke of Edinburgh, though he bred a number of fine ewes, was especially strong in the male line, and his progeny were particularly prepotent in males. Thus we see how skill is needed in mating the sheep so as to breed up to a certain standard and fix dominant types. By means of his system of pedigrees of females, Mr. Murray had been able to insure that sires are only used upon such families as are considered sufficiently prepotent in the male or female line as may be required. No outside ram has ever been introduced into the Murray flock since it was established.

ment of a lamb. "Utility" is the object always kept in view, so as to breed an animal which will reproduce strong character even when subjected to extreme conditions of climate or feed. Thus Mr. Murray established the reputation of the Murray Merinos and created a strong demand for his stock throughout Australia, and from New Zealand and South Africa, which has since continuously increased, many of the purchases being repeat-orders and contracts covering a number of years.

Among the celebrated Murray sheep of later years, bred by Mr. Alick J. Murray, have been Constitution, Lion, and his great son, Lion II.; Fame, the 500-guinea ram, classed by his purchaser as the cheapest animal he ever bought; Portsea, sire of five out of six Champions in three years; Radium 2nd, a grand stud ram, sold to Mr. Ben Chaffey, of Moorna, in 1914, for 1,000 guineas; and many others which have contributed their quota to the record achieved by Murray rams in winning the Championship in Adelaide on all but fifteen occasions during sixty-seven years. The prizes won by the stud may be summarized as follows: The two gold medals for five best combing-wool merinos, 4-tooth rams and 2-tooth ewes, presented by the Duke of Edinburgh in 1867, six silver cups and trophies, and medals numbering considerably over a hundred.

In the late 'forties, or early in 1850, A. B. Murray took five ewe hoggetts, belonging to himself and his brother, John Murray, to a Melbourne show, and won second prize against imported and Victorian ewes, although they had been walked to Port Adelaide and taken thence by boat.

The wool of the Murray flock has always been distinctive. Its founder, in speaking of the principle upon which he had managed it since its inception, said: "I take care to breed from rams of sound constitution, with as much quality of wool, length of staple, softness and lustre as possible, with ample yolk, but never lose sight of great weight of wool." The result of his consistent pursuit of his ideal, continued by his successors in their turn, is that the Murray wool today is of a bold, robust type, long in staple yet remarkably soft to handle and quite free from kemps. The comment of the judges at the Sydney Show in 1873, was that "Mr. Murray's wool is a remarkable combination of softness and strength; a bright, lustrous wool, exceedingly clean," while a South African expert, after examining some Murray sheep imported there, officially gave a most favorable report on the sheep and the splendid quality of their wool. London woolbuyers of the highest repute have reported on the Murray wool with equal praise. Both the Sydney experts already quoted remarked of one typical exhibit: "We have examined the



The late John Murray
(Founder of the Murray Merinos)

The Murray Merino flock is the original source of the plain-bodied South Australian sheep, with its absence of folds, and of recent years a characteristic is that they are also open-faced, thus being able to graze freely without injury on long-grass country.

The founder of the flock would never under any circumstances artificially feed or house his sheep, in spite of the extreme climatic conditions of heat and cold ruling on the property. He believed, and the present owner believes, in the "survival of the fittest" in regard to sheep-breeding, and an animal which did not do well under natural conditions was excluded from the flock. This necessitates a severely critical eye and a judgment which can foretell the future develop-



Murray House, Mount Crawford

prize fleeces with the greatest interest, and may at once say that of this class of wool it is the most beautiful specimen we have ever seen. The growth is deep and sound, the staple clear at the root, and evenly and compactly formed—a picture of vigor and strength. The fibre is of strong quality, especially towards the skirts, but it is not too coarse considering the great depth of the staple. The condition is light (about 55 per cent. yield), and the appearance bright and lustrous. Such wool as this will always command attention, for of its kind it is a perfect article.”

The medal of the Great Exhibition in London, 1862, was awarded to Mr. John Murray for fineness of quality and size of rams' fleeces; also the gold medal of the South Australian Agricultural Society for combing merino wool; the medal, diploma, and report for six fleeces of choice selection at the Great International Exhibition at Philadelphia in 1876; and many other valuable prizes for fleeces in later years.

The Murray flock affords a wonderful proof and example of the much-debated system of in-breeding, for it has always been pure and self-contained, and has increased as the years have passed its incontestable reputation for robustness of constitution, well-developed frames, and heavy fleeces of profitable wool. This result has been achieved by the consistent policy of breeding from within. Its history, consequently, has not only a

pastoral but a scientific interest, as it also affords definite proof of the good effect of what the American stock-breeders call the “climatic outcross,” which is a preventative of any ill-effects arising from persistent in-breeding. This was made possible by the fact that the Murray flocks for many years, first under the ownership of the late Mr. John Murray and afterwards under that of his four sons, the late Messrs. John Murray, junr., T. Hope Murray, W. A. Murray, and the present owner of Mount Crawford, Mr. Alick J. Murray, were bred on four estates situated in areas where climate and soil vary to some extent, so that an exchange of sires, practically an outcross yet within the flock, could be effected when thought desirable.

In 1887, on the death of the late John Murray, his four sons—John Murray, junr., of Rhine Park, T. Hope Murray, of Mount Beavor, Alick J. Murray, of Mount Crawford, and W. A. Murray, of Cappedee—purchased the whole Murray Merino flock from the executors under their father's will and divided it into four equal parts in such a way that each should have one-fourth of equal merit. In 1902, in accordance with the will of the late W. A. Murray, the Cappedee stud sheep were equally divided among his three brothers, Mr. John Murray, junr., leaving his portion at Cappedee, which he rented and carried in addition to Rhine Park. He died in



Alick J. Murray

of the District Council of Mt. Crawford for a number of years, but declined nomination for parliament.

Murray Vale House at Mount Crawford is a handsome and commodious pastoral home, set on a rising site amid well-grassed hills and shady valleys on which is much splendid native timber, chiefly red gum of noble proportions. The house is approached from the main road by a fine avenue of well-grown English and Australian trees and has a large garden in which Mr. Murray indulges his hobby of rose-growing.

The Barossa ranges, amid which the Mount Crawford Estate stands, are likely to loom large in the future annals of South Australian production, for they contain not only deposits of gold, which has been won since the early years of settlement, but also Australian rubies, opals, beryl, greenstone, rutile, graphite, and a very fine fire-clay declared by experts to be the best in the world. It is supplied under contract in large quantities to the Broken Hill Proprietary Company for their retorts at the Port Pirie smelting works.

Adjacent to the Mount Crawford Estate is now a reservoir covering an extensive area; consequently the historic and beautiful Mount

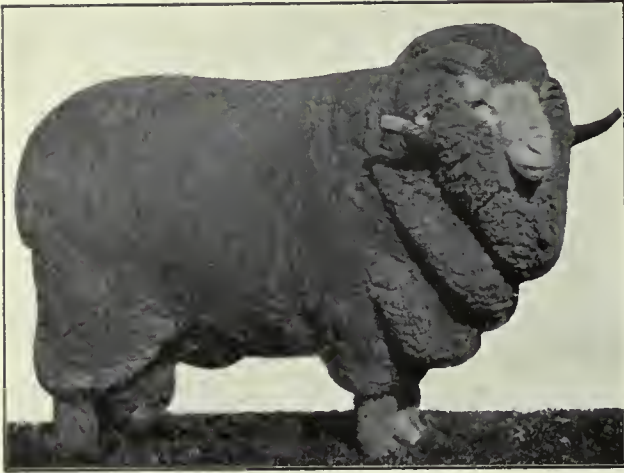
1901, and his property is now carried on by his sons. Mr. T. Hope Murray died in 1906.

The late A. B. Murray's son is Sir George Murray, K.C., the present Chief Justice of South Australia, Lieutenant-Governor, Chancellor of the Adelaide University, etc.

Mr. Alick J. Murray, the owner of Mount Crawford Estate, was born in 1859, and was educated at St. Peter's College, Adelaide. He married in 1892 a daughter of the late Mr. Edmund Bowman, of Barton Vale, Enfield, and has two sons and a daughter, the latter being the wife of Capt. Ronald Fife Angas, of Collingrove. Mr. A. J. Murray has been active in pastoral and agricultural interests generally, being for many years a member of the Board of the Roseworthy Agricultural College and twice President of the Royal Agricultural and Horticultural Society of South Australia. As honorary Commissioner he has purchased stock for the State Government, and on more than one occasion has made liberal gifts, including the leading bull of his Jersey stud, to the Roseworthy College, the pupils of which are given the advantage annually of witnessing a sheep-shearing and woolclassing demonstration at Mr. Murray's farm at Gawler. He is a director of Elder, Smith & Co. Limited. He was chairman



The late John Murray, Jr.



Radium II.



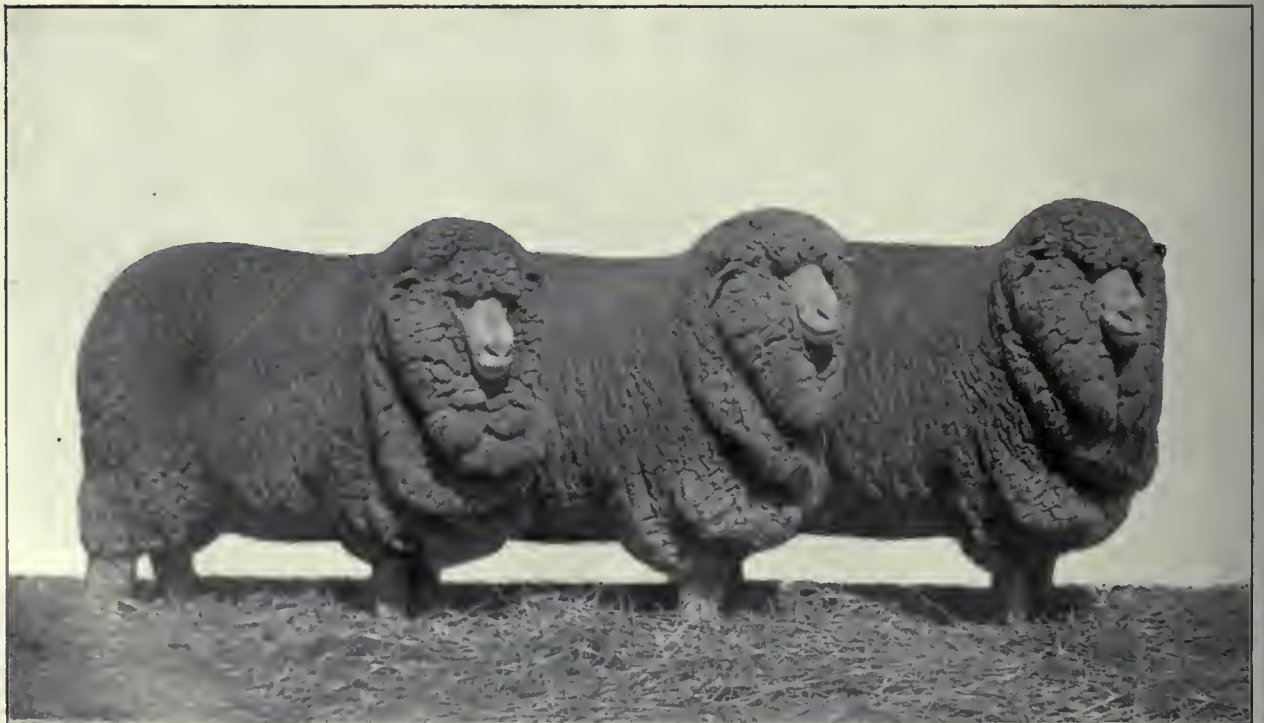
Lion II. (2½ years)

Crawford property has been purchased by the Government, and within a short period will be no more than a memory. But the famous Murray Merino flock will be preserved and it is hoped will, under the direction of Mr. Alick J. Murray's sons, still maintain its high and unrivalled reputation. At Concordia, near Gawler, and at Catargo, near Mount Bryan, whither the studs are already mostly moved, they will remain in possession of his two sons, John Cyril Murray and Eric Moray Murray, the elder of whom is at

present (1918) serving with King Edward's Horse in France. He recently married Miss Knox, of Melbourne.

The Murray stud does not live on an old reputation but remains consistent to its earliest ideals. There is no stud in Australia that has so firmly resisted the inroad of "ideas" and it affords the best object-lesson available anywhere in this country of the successful operation of a principle, founded upon a scientific fact and practised with undeviating precision.

Murray Merino Stud Ewes



Ewe, by Electric Light Ewe, by Lion III. Ewe, by Mac Lion
(Grazed at large on Natural Grasses only, and not on Lucerne)



The late Mrs. McBride

R. J. M. McBride

Mrs. McBride

McBRIDE, OF BURRA

THE career of Robert James Martin McBride, the well-known pastoralist and philanthropist of Burra, is a living testimonial to the State of South Australia. It again demonstrates the fact that those who are willing to "go on the land" in Australia, even though they lack experience or training or capital, may win from their Mother earth a share of her natural bounties. Mr. McBride was one of the adventurous spirits who came to this continent in the early years of settlement, when conditions were often against the pioneer, and everything had to be learnt by courageous seeking. Mr. McBride, who was born at Newry, in the North of Ireland in 1831, had the good, red blood of adventure in his veins. The son of an officer in the British Army, he adopted the sea for his calling in the days when steam-power was in its infancy. He served his apprenticeship on the sailing ships of the period, later on transferring to steamers of the well-known Cunard line. He had the thrilling experience of shipwreck and the knowledge that came with two voyages around the world.

During one of these voyages he came (in 1852), to Australia. His arrival at Melbourne was marked by a stirring episode. He took an

active part in the capture of a seaman who had committed murder and set fire to another vessel before attempting to escape. Mr. McBride visited the new Bendigo goldfields and, after an uneventful year, went to Sydney, where he joined a vessel bound for Shanghai, and made his way to London. Australia had left a vivid impression upon his mind. He returned in 1855. He made his way on foot—for he possessed only five shillings—from Port Adelaide to the Burra-Burra copper mine, a distance of 107 miles. He secured work on the mine, and shortly afterwards took a fencing contract on Hillside station, owned by Mr. J. W. Tyler, where he remained there as overseer and storekeeper. He then bought a team of bullocks and engaged in carting stores for the Burra mine, which proved a very profitable occupation.

In 1859 Mr. McBride began his career as a pastoralist, having arranged for purchase rights over a large tract of country in the Burra district adjoining the Government Wells and North-West Bend Stations. This property he named "The Gums." He made a complete success of his new enterprise, using to the utmost advantage his native industry and shrewd business instincts. Such men as R. J. M. McBride have laid the

foundations of a new nation the basic qualities of energy, enterprise, and honesty. He worked "The Gums" for twenty years and then transferred the property to his eldest son, Mr. W. J. McBride, who disposed of it to the present owners, Messrs. T. H. Pearse and Son. In a few years Mr. McBride had acquired other pro-

horses, the discipline not occupying him more than two hours in any case. He always worked on the lines adopted by Bellew, the great American horseman—kindness and never taking your eye off the animal.

His brief experience of mining at Bendigo, though unsuccessful, gave him some interest in



Mr. R. J. McBride's Residence at Kooringa

erties in the Burra district, including Pine Valley Station, Drayton, Teetulpa, Faraway Hill, Finger Post, Oakleigh, and Redcliffe. In 1897 he had acquired Outalpa Station, comprising 910 square miles, which was stocked with 44,000 sheep and 400 cattle and horses. Shortly afterwards he bought for £53,000 the fine property of Oulnina, where he spent large sums in improvements before selling out to Mr. R. Crawford. He also held 3,500 acres of valuable freehold, called Norman Farm, near the Burra.

Mr. McBride has always been a lover of horses, and spends much of his time even now, in his old age—he was 85 years old in 1917—in driving his favorite steed, leaving his motor car for his family's use. During his career as a pastoralist he claims to have broken in all his own

that class of enterprise, and it is not surprising to find that he has taken a considerable share in the development of the mining activities of South Australia and the other States. He was one of the first to advocate the opening of the great Broken Hill mines, and invested in the Proprietary Company; he eventually sold his shares, at a very large profit. He also took a considerable interest in the early development of the Golden Mile at Kalgoorlie, Western Australia, also the Great Boulder, in the same State. Of the latter he formed the first syndicate and took up seventeen claims.

Mr. McBride has not occupied any public offices at any time during his career, but he has been a most active philanthropist, doing much practical good to the community, and giving away

during the last twenty-two years nearly £100,000, including gifts to the war funds aggregating £15,000, not only giving with a lavish hand, but with a lack of ostentation characteristic of him as a man. He lives modestly in Queen Street, Kooringa—a photograph of his home, taken under exceptional climatic conditions, is engraved as one of our illustrations—and there interests himself chiefly in church work, his only public office being that of steward and trustee of the Kooringa Methodist Church, where he still conducts a class meeting at an early hour every Sunday morning.

In 1856, he married Miss Elizabeth Dunn, of Dublin, and has five sons and six daughters. Mr.

W. J. McBride lives at Aberdeen; Mr. R. M. McBride is the owner of Stony Gap and Finger Post; Mr. A. J. McBride is at Fullarton; Mr. T. McBride has Redcliffe and Florieton; and Mr. N. H. McBride has Mannahill. His daughters are Mrs. J. C. Sandland, of Koonoowarra, Kooringa; Mrs. W. G. Hawkes, of Koonoona; Mrs. R. A. Bohme, of Nackara; Mrs. E. Keynes, of North Adelaide; Mrs. S. Alker and Mrs. E. Evans, of St. Peter's. There are 59 grandchildren and 13 great grandchildren, many of the former now serving their country at the front. Mr. R. J. McBride's first wife died several years ago, and in 1903 he married the widow of the late Mr. R. Robertson, of Broken Hill.



Grandsons and Great-Grandsons on Active Service



The Woolshed, Anlaby



Anlaby Merinos



Anlaby House

THE DUTTONS, OF ANLABY

AN English estate in Australia, with an undisturbed family history, and all the home-like attributes that permanent occupancy, wealth and good taste can insure, are the terms in which Anlaby can best be described. Established by a Dutton in the early days of South Australia, the estate was from the first designed to form a permanent family home. One generation of the Dutton family after another has, in nearly eighty years, added to its outward attractiveness and its inward comfort and self-dependency until to-day it stands not only as a record of pride and affection, but of that prosperity that comes from the sound pioneering principles of men capable of using to the best purpose the advantages offered by a new country responsive to enterprise.

The personal history of the Duttons of Anlaby is interwoven with the development of the central State. Having its origins in the English village of Dutton in Cheshire, it sent out one of its sons to the new British colonies in the Southern Hemisphere. This was Frederick Hugh Hampden Dutton who, after serving as British Vice-Consul at Cuxhaven in Hanover from 1814 to 1832, settled in the 'thirties in Victoria and was one of that colony's earliest settlers. Two of his sons—he had a family of seven children—went as young men to

New South Wales and there engaged in pastoral pursuits. The eldest, William Hampden Dutton, who was born in 1805 in England, was a large land-owner in the Mother Colony.

On October 1st, 1835, the then Governor of the new colony of South Australia, Captain Grey (afterwards to become celebrated as Sir George Grey, Governor of New Zealand) issued "Modified Regulations for the Disposal of Land in the Colony;" an appendix contained Article 5 which provided for what were known as "Special Surveys" of land offered by the Crown for lease as pastoral runs. Four years later, on October 25th, 1839, fresh regulations were issued, the Special Surveys district being divided into 200 sections of eighty acres each and of these sections the purchaser was at liberty to select 50 sections or 4,000 acres. From the commencement of the year 1839 to the 29th February, 1840, about 113,000 acres had been marked off in sections, exclusive of special surveys. Six of the last, namely: Mount Barker, Gawler, The Three Brothers, Little Para, The Meadows, and Currency Creek, were completed or on the point of being so.

Of interest in this connection is the following from *The Australian* of March 38th, 1838:—"Five hundred cattle, the property of W. H. Dutton, Esq., which were dispatched overland



Francis Stacker Dutton, C.M.G..

from the Murray River to Portland Bay, have arrived safely at their destination, with a loss of three head only. The party was six weeks performing the journey. These cattle are to be shipped for Port Adelaide, the *Hope*, Capt. Hart, having been chartered for the purpose." Supplementary to this is a paragraph which appeared in the *Southern Australian* on July 21st, of the same year: "*New Arrivals*.—The *Parland* has brought a full cargo of sheep and horses on account of W. Hampden Dutton, Esq., who has also arrived with his lady and family. We congratulate the colonists on the accession of another enterprising and well-informed settler; and we trust, in the course of the present season, to welcome many such. We are glad to hear that out of 1,500 sheep only three have been lost on the passage. With this addition our increase of sheep during the last week exceeds three thousand—a somewhat substantial commemoration of the second anniversary of the colony."

The first entry recorded on the list of contracts for Special Surveys was the following: January 11th, 1839, W. Hampden Dutton, 4,000 acres, in the vale of Mount Barker, including the stations of Messrs. Finnis and Bonney. The application was made by Mr. Dutton on behalf of himself, D. McFarlane, and Captain Finnis, all colonists of New South Wales, but on the original lease in the possession of the Dutton family only the name of W. H. Dutton appears. Another document shows W. H. Dutton to have been in

1839 the lessee of 2660 acres at Richmond, N.S.W. On September 26th, 1846, W. H. Dutton and Alexander Lang Elder took up a special survey of 20,000 acres at Mount Remarkable, in accordance with the terms of a new Regulation, which placed areas of that size on sale. Mr. W. H. Dutton, however, died in 1849 at the age of 44 years.

It was at his instance that his brother Frederick Hansborough Dutton came to South Australia in or about 1839, for it was at that time that Mr. W. H. Dutton sent to him about 1200 sheep from New South Wales in charge of a Mr. Malcolm. Messrs. E. Spicer, Ewen Cameron, and Alexander Buchanan had about 1000 sheep each and these, with Mr. Dutton's consent, they "boxed" with his, and those gentlemen assisted Mr. Malcolm to bring the whole lot to South Australia. They were first taken to Mr. F. H. Dutton's station at Koonunga, which was already an established sheep-run, and they remained there until 1841 by which time they had doubled in number. Mr. F. H. Dutton went into partnership with Captain C. H. Bagot in the Koonunga estate, but after about two years the partnership was dissolved.



Frederick Hansborough Dutton

In January, 1842, Mr. Dutton, according to the official list, owned 9,750 sheep, while C. H. Bagot had 1,155 and with partners a further 2,650, Messrs. Dutton and Hardy appearing in the same list as possessing 2,400. At that date only the South Australian Company (19,760) and G. A. Anstey (9,560) had anything like that number of sheep, the next highest being 6,000 (D. Macfarlane), 5,200 (E. & E. Peters), and 5,100 (Wm. Keynes).

Mr. F. H. Dutton was the first to take up the Emu Flats run, consisting of about 150 square miles, which extended from the hundred of Bright in the north to Dutton Town in the south, and took in Neales, Eudunda, Point Pass, Australian Plain, Peep Hill, nearly to Apoinga. This was included in the 300 square miles of country north-east of Kapunda, held by Mr. Dutton on lease. The area was unfenced and the sheep had to be shepherded, but Mr. Dutton never forbade his neighbors allowing their stock to wander over his pastures. Later, fencing made it possible to run the same number of sheep on a smaller area, and the station was consequently reduced to about 90 square miles. Mr. Dutton was still generous to his neighbors, for he made no claim upon them for a share of the cost of fencing, which must have been very considerable.

Meanwhile one of the shepherds, Peter Sebiston, who later was overseer at Anlabby for many years, discovered—through his dogs leaving him in hot weather—a spring of splendid water near-by the southern boundary of the run. This induced Mr. Dutton to take up an eighty-acre section, including the spring, about eleven miles from Kapunda. There the manager, Mr. Alexander Buchanan, the father of Mr. Justice Buchanan, of the South Australian Supreme Court, built a shingle hut as the head-station homestead. This hut was eventually replaced by a stone house, which eventually became the present fine mansion known as Anlabby House, the home of the Duttons. Mr. Buchanan remained as manager of the estate until his death in 1865. He was succeeded by Mr. H. T. Morris, with whom he had been associated for many years, and later by Mr. Peter Miller, who had been associated with Mr. Morris. Mr. Mayoh Miller, son of Mr. P. Miller, succeeded his father as manager, and occupied that position from 1896 to 1906. Mr. C. de N. Lucas has been manager since 1906.

Several good seasons followed the establishment of the Emu Flats run, and the flock greatly increased. As things improved, Mr. Dutton purchased from the government a section on each side of the Julia Creek, thus securing the waters. Originally the rent paid for the land held on lease was 10s. per acre, but when, about 1850, the Government, needing revenue, surveyed and made

available for purchase large areas of the original leasehold holdings, compelling holders to purchase or reduce their areas, he was a large purchaser and from time to time bought the freehold of some 70,000 acres immediately adjoining the homestead block, some at the upset price of £1 per acre. In 1864 and thereafter more was purchased at prices ranging up to £4 and even going as high eventually as £7 per acre. About 1853 the number of bales of wool at Anlabby at shearing-time aggregated 600 and this had increased to 1,066 bales in 1875, and to 1,184 when 49,231 sheep were shorn. Since then the flocks have decreased, but in 1904 when 43,280 sheep returned 1,043 bales of wool the average per head was the highest. The highest pre-war price of later years was 13½d. in 1907. The wool is not now the main consideration at Anlabby, but its brand DTN is still sought out by wool-buyers.



A Medal of 1832



good strong land suitable not only for grazing, but for wheat-growing, with occasional outcrops and ridges. It is well watered by the River Light and the Julia Creek, and also by numerous never-failing springs and dams on the estate. There are eight bores, which were made under the direction of the divining-rod—in this case, a piece of copper wire and a magnet. They provide excellent stock water. There was an abundance of heavy timber in earlier days but, although many trees have been since felled, fresh plantations have been made from time to time so that the property to-day is well timbered and is not in danger of being denuded of its timber supply or shelter for stock, as has been the case with some pastoral properties.

The first woolshed on Anlaby was a very primitive affair, being made of slabs covered with thatch, and by no means watertight. The present large woolshed, built of brick and stone, was erected in 1875 and has since been added to. In 1875 that scourge of all pastoral enterprise, the rabbits, appeared on the run and a great deal of money had to be spent on keeping them down, as they increased marvellously in spite of all precautions, £1,500 being spent in six months in rabbit-destruction and a similar policy followed in ensuing years. The only consistent effort made in the district to eradicate them was, in fact, made at Anlaby. Latterly, however, the plague has been mastered and the estate is now comparatively free.

In 1856 Mr. Dutton improved his flock by the introduction of some imported Rambouillet rams, and between that date and 1869 five more different importations of specially-selected Merino rams were made from Saxony, which were of service in fixing the robust type of sheep and fleece which has always been characteristic of the Anlaby flock. In addition to these a few rams

Mr. F. H. Dutton always treated his old employes with that generosity and kindness characteristic of the English country gentleman. He never forgot their faithful service, but looked after them in their old age.

The native name of the country was Pudna, but this Mr. Dutton replaced by the more euphonious one of Anlaby, after a village in Yorkshire, England, with which the family was associated and where Miss Charlotte Dutton, a sister of the Messrs. Dutton, lived after her marriage. The Anlaby Estate is situated in a picturesque district, which has an average rainfall of from 18 to 20 inches, the soil of the greater portion being



The Kennels, at Anlaby



The late Henry Dutton

were purchased from Pitt's Levels and subsequently the best Murray Merino rams procurable, the object having always been to fix a high standard for flock rams and a heavy wool-production per head from the ewes, rather than to breed specially-developed sheep for show purposes. Latterly, and for many years, the new blood introduced has been from the Murray flocks and the Anlaby sheep are now practically a distinct strain of the famous Murray Merinos.

Mr. F. H. Dutton presented to the town an area of about forty acres in Kapunda—ideally situated for recreation purposes—which he specially purchased for £500, and further assisted by subsequent liberal donations and bequests. This is appropriately known as Dutton Park. He adopted the same generous attitude in regard to the Kapunda Hospital, giving something like £2,000 towards the purchase of the grounds and the erection of the building and finally leaving it a bequest of £2,500. He died in England in 1890 at the age of 78 years.

Mr. Francis Stacker Dutton, who was born in 1816, came in the first instance to South Australia at the invitation of his brother William, from Brazil, to join in the pastoral ventures of the brothers. He went first to Sydney in 1839; then to Melbourne for eighteen months, and, in 1841, joined his brother Frederick, who had

gone to South Australia. He shared with Mr. C. S. Bagot, the son of Captain Bagot, at that time his brother's partner, the distinction of discovering copper in 1842 on the Koonunga Estate, Kapunda. He bought eighty acres, which he considered covered the whole mineral area, but that was very far from being the case. Captain Bagot bought the next section of a hundred acres which was only the beginning of the great Burra-Burra rush and the opening-up of a valuable mine which revived the then-failing fortunes of the new colony. Mr. Dutton, however, sold out in 1845, having tired of his mining venture, as he did later of pastoral life, turning to politics for a career.

When, in 1851, a Legislative Council was granted to South Australia, Mr. F. S. Dutton was the first candidate in the field—the first pioneer to seek the suffrages of the settlers. He was elected for East Adelaide and was re-elected for the same constituency in 1855. He was one of the leading spirits in framing the new Constitution. In 1853 when the proposal to establish a local Parliament was discussed in the Legislative Council, Mr. Dutton favored popular election of members as against nomination by the Crown. He was actively supported by Mr. G. F. Angas among others, but his motion was lost on a division. Two years later, however, the



Henry Hampden Dutton



Council was dissolved and, though some of the members were nominated, the greater number were elected, Mr. Dutton being among the latter. In 1857 he was elected to the Legislative Assembly as a member for the City of Adelaide in the first Parliament. In 1858 he was a member of the Select Committee on the Bill to amend the Act dealing with pastoral leases. He was Commissioner for Crown Lands in 1857-1859 and was twice Premier. He went to London as Commissioner for South Australia to the Great Exhibition of 1862. In 1865 he was Minister for Public Works, but resigned to accept appointment as Agent-General in London, for which position he was especially well fitted. He was created a Commander of the Order of St. Michael and St. George. He retained the post of Agent-General until his death in 1877. The district of Dutton in South Australia is named after him. The new townships of Hansborough and Hampden Grange have latterly been named after the Dutton family. He was an Associate of the Institute of Civil Engineers, a member of the Royal Institute of London, and a Fellow of the Royal Geographical Society; he was the author of "South Australia and its Mines."

When Mr. F. H. Dutton died, he was succeeded as owner of Anlaby by his nephew, Mr. Henry Dutton, the son of Mr. William Hampden Dutton. He was born in Victoria in 1848 and educated at St. Peter's College, Adelaide. He received a business training, and was for several years connected with the Bank of South Australia. In addition to the ownership of Anlaby Estate, he became a partner with Mr. John Melrose in the well-known North Booboorowie station, a well-grassed country of some 36,000 acres, situated a few miles from the Burra, which is now sub-divided and used for agriculture. He also acquired the James Martin ironworks and foundry at Gawler. He was a Fellow of the Imperial and Colonial Institutes, and a prominent member of the Australian Pastoralists' Association. He lived at Anlaby, and took a keen interest in the estate, and was also prominent in all things appertaining to the welfare of the district, where he was affectionately known as the "Squire" of Anlaby. His chief recreations were gardening and yachting, and he indulged in considerable cruising in his splendid steam yacht, *The Adele*, R.Y.S., 350 tons, the only craft of her class in southern waters. She has now been acquired by the Government, and is used on national service connected with the war. He installed the glorious gardens and conservatories of Anlaby, as they now are, and stocked them with all the choicest flowers, shrubs and trees. The roseries, lily-ponds, orchid and fern-houses; the terraces, lawns, shrubberies, and

orchard show the skill and devotion of a true horticulturist. Mr. Henry Dutton died in 1916. It may be mentioned here that the father of Mrs. Henry Dutton—Mr. George Thomas—built the first residence at the suburb of St. Kilda, Melbourne.

Six miles from Anlaby is the village of Hamilton, so named by George Robertson, who kept the old inn and laid out the township, after his native place in Scotland. Here St. Matthew's Church was erected by Mr. Henry Dutton as a memorial to his wife, uncle, and daughter. It is a small but dignified stone edifice of the Early Norman style of architecture, cultured taste as well as liberal expenditure being evidenced in the completeness and beauty of the furnishings and decorations, the artistic oak carvings and traceries, the massive silver and brass ornaments, the beautiful stained-glass windows throughout the church, the marble font, and the sweet-toned pipe-organ. The well-proportioned roof of the chancel was designed by Sir T. G. Jackson, Bart., R.A., the distinguished English architect.

The present owner of Anlaby, Mr. Henry Hampden Dutton, only son of Mr. Henry Dutton, carries on the traditions of the family and devotes himself to the direction of the Estate. Anlaby has been his home since boyhood. He was born in Adelaide, February 13th, 1879, and educated first at St. Peter's College in that city and afterwards at Lancing College, Sussex, and Magdalen College, Oxford, where he secured his B.A. degree and rowed in the Oxford University Eight (1900). He has travelled extensively in the Rocky Mountains (where he shot several fine buck, the heads and antlers of which adorn the dining-room at Anlaby House), Newfoundland, and Morocco. He, together with a mechanic, is the only person who has travelled by motor car right across this continent, through Central Australia; this he achieved in 1908 in the early days of motoring. He offered himself for active service in the war, but was rejected owing to an old injury to one of his legs. Mr. and Mrs. H. H. Dutton are enthusiastic and well-informed collectors, Anlaby House being a treasury of valuable furniture, antiques, old books (including many first editions), and mezzotints, and original paintings by Rowlandson, "Phiz," Herring, G. Vincent, J. Stark, Somerscales, B. W. Leader, R.A., J. Pedder, R.A., H. S. Tuke, R.A., Caton Woodville, George Lambert, Hans Heysen, and others. As an enthusiastic lover of Australian trees he has recently planted several reserves near the homestead with many specimens of acacias, grevilleas, melaleucas, hakeas, and other indigenous shrubs and trees. In 1905 he married Emily, daughter of Mr. J. F. Martin, of the engineering



THE GARDENS OF ANLABY HOUSE.



St. Matthew's, Hamilton
Dutton Memorial Church

works, Gawler, and has two sons, John Hansborough and Richard Hampden Dutton.

In recent years the Anlaby Estate has been considerably reduced in area, owing to the purchase of 47,000 acres by the Government for closer settlement purposes. Mr. H. H. Dutton adopted the principle of the half-share system, and at present there are fifty farmers growing wheat on the estate under that arrangement, some with the covenant-to-purchase clause in their agreements have larger holdings and have erected cottages and improved the land generally. In 1914 all had their holdings offered to them, and 90 per cent. agreed to purchase. They are supplied with seed wheat, grown and graded on Anlaby so as to assure the best quality in some dozen varieties, and half the superphosphates, each party finding their own bags and twine, the crop being divided equally. The grazing rights belong to the owner, Mr. Dutton. There are

16,000 acres in the Anlaby Estate to-day, about 4,000 having been recently sold on terms to farmers. The total area worked under the share system is 10,000 acres. The wheats found to be the most suitable are Federation, Marshall's No. 3, Yandilla King, and Dart's Improved Imperial, in that order securing best results in all seasons.

The owner of Anlaby is farming 1,000 acres for the purpose of growing the seed wheat, and is also growing a large area of peas and catch-crops, such as sorghum. The flock of Merino sheep kept for their wool is 5,000 and, in addition, there are rather more than that number in connection with the farming for fattening purposes. He is also baling and storing a considerable amount of hay against bad seasons.

Anlaby Estate to-day presents the appearance of a village, there being many stone cottages for the farmers, and it has all the advantages of a self-contained domain. It is a good example of sound management, equitable dealing, and enterprise, and suggests a new phase in the development of Australian pastoral holdings, which may prove of great value to the community and solve many problems of closer settlement.



The Chancel, Dutton Memorial Church



“Eringa,” Kapunda, South Australia

SIDNEY KIDMAN, THE AUSTRALIAN CATTLE KING

*As the stock are slowly stringing
Clancy rides behind them singing;
For the drover's life hath pleasures
That the townsfolk never know.*

A. B. PATERSON.

ALL the romance that goes with the stringing herds that wind across the purple plains of sunset is not dead. The Australian drover, similar to, yet different from, the American cowboy, still rides with his packhorse beside him across that wide, blue horizon which the smoke of civilization has not yet bleared.

Whenever one thinks of Cattle and of Central Australia nowadays, the personality of Sidney Kidman arises before one's mental vision. It is part of the picture, a figure in the foreground, arresting attention. The Man is a Big Man; he would be a big man anywhere in modern industrial civilization. He is one of the biggest men in Australia to-day.

“Sid” Kidman, “Jimmy” Tyson, “Sam” MacCaughey belong to the race of giants. By fire and strength of will, by steel of patience and eternal effort, they rise like Titans above the crowd.

Sidney Kidman acknowledges cheerfully to simple beginnings. He has no social or per-

sonal pretensions. But from the Roper River to the Torrens his name is written in letters of Wealth and Power.

The Kidmans are of an old English farming stock, the type of people who have proved the backbone of “British dominions beyond the seas.” When, in 1849, the world seemed to be going to California to pick up new-found gold, the Kidmans came to South Australia, from Bury St. Edmunds, England, content to make their living from the land and what it would produce. They settled as farmers at Black Hill, Fifth Creek, near Adelaide, and afterwards removed to a farm near Roseworthy, almost adjoining the present Agricultural College.

Sidney Kidman was born at Black Hill, on May 9th, 1857. Six months later his father died. Faced early with the necessity of making his own living, his school-days at Norwood were brief, and he was only thirteen years old when he left home to make his way in the world. He had, however, no ambitions beyond those natural to



Sidney Kidman drafting Horses, Oakland Downs Station

his early associations, for he was a country boy with country interests. He had always been fond of animals, and would attend the sale-yards and interest himself in cattle. It was natural, therefore, that he should, as a boy, do a bit of droving for the different purchasers at the sales and that, mixing with the experienced drovers of the district, and hearing their talk about the life and doings of the back country, he should decide to adopt droving as his means of livelihood.

Investing fifty shillings in the purchase of a saddle-horse, he made his way towards New South Wales, but he did not get far, for his horse knocked up at Terowie. The forlorn youth chummed up with another wayfarer, and the two made over to what is now the famous Broken Hill "Barrier." There were no suspicions in those days that this forbidding-looking country was the veritable Tom Tiddler's Ground it shortly afterwards proved to be, and in any case young Kidman was concerned with "stock" and not with "shares." He obtained employment on the Mount Gipps Station—which then belonged to an old pioneer known as "German Charlie"—first as cowboy and later as a stockman, at the munificent salary of ten shillings a week. After a year or two of this strenuous but unprofitable employment, he ventured to suggest that a rise in wages would be in order, but his boss differed with him on the subject, and handed him his cheque. So, looking for another job, he "padded the hoof" to fresh country, pulling up at Poolamacca run, where he succeeded in finding work. This was rather better than his late employment, as it yielded him £1 a week.

Relating some of his experiences on Poolamacca Station, Mr. Kidman tells how, when he was "tailing" horses, he one day found they had strayed away while he had gone to the homestead for his lunch. He followed up their tracks on foot, but could not get within sight of them. The situation seemed hopeless when he came upon a man sinking a tank, and, without asking leave, he took the man's horse and followed up his strays. He reached a water-hole known as "Joe's Water-hole," but the horses had gone on; young Kidman was obliged to camp there for the night. He had no food whatever, and satisfied his hunger by killing small birds. Going on next day, he succeeded in coming up with the horses, returning with them to the station. On the way he was "warmly" received by the owner of the horse he had borrowed, but he succeeded in pacifying the man by relating his dire necessities and offering to purchase the animal.

With young Kidman, the job on hand rather than its difficulties, always received first consideration, and so it was that he was able to take advantage of such opportunities as came in his way. That has been characteristic of his whole career. At this time there was a drought, and flour was fetching from £50 to £75 a ton. Cartage from Wentworth to Menindie was worth £15 a ton, and £25 to Wilcannia. Having saved a little money, Kidman was able to take advantage of these conditions. He bought a bullock-team and carried loading between these places, making money; thus he started himself on his career of consistent enterprise and varying fortune.



Six Hundred Horses "rounded up" at Bulloo Downs, N.S.W.
Starting for Kapunda Horse Sale, 1917

He was one of the first at the Cobar rush, but seeking metal in its minted form, not as a prospector. Mr. Kidman himself tells this part of his life-story: "I sold out my working-bullocks and went away to Cobar. I had a butcher's shop there, and also used to cart copper ore from Cobar to Bourke, on the Darling. At this time Cobar in all directions was open country. There were a number of miners and other people about, but there was no flour, tea, or sugar to be had. I got a horse and went to Condobolin, on the Lachlan. I bought some bullocks and a lot of sugar, tea, and other rations. At Cobar I sold the sugar at 1s. a lb., the salt at 6d., the small tins of jam at 2s. 6d. each, and the soap at 5s. a bar. I didn't know much of trading or I would have bought tons more. I was butchering, and had a selection with another man right where the town of Cobar now is. It was what they called a free selection, and consisted of 140 acres. I have seen water there 1s. a bucket, flour £10 a bag and £100 a ton. I sold the butchering business because I

couldn't get the cattle. I had to go to Wynbar station, buy six or eight cattle, and drive them about 80 miles through the bush. I carried my bullock hides in a bullock waggon from Cobar to Menindie." At Menindie he got work with his brother George and went over with a mob of cattle to Adelaide, earning 25s. per week.

At this time, Mr. Kidman was twenty-one years old. He inherited £400 or so, his share of £4,000 left by his grandfather in England, which was divided between him and his five brothers and three sisters. He went back to the Darling, bought a mob of horses from Redan station, and, with one man, brought them to Terowie, from where he drove them himself. They sold at an average of nearly £20 a head. That gave him a good start. He continued buying and selling horses until, when he had got together a mob of 230 at Bourke, the bottom fell out of the market. He left the district after increasing his mob by 100 horses, selling them round Wilcannia, and later on also out in Queensland. That closed his horse-dealing for a time.



Shorthorn Cattle at Nundorah Station.



Sidney Kidman Starting Drovers for Cattle, Queensland

Those he could not sell he made use of by taking the mail contract from Terowie to Wilcannia and to what soon became the famous field of Broken Hill. Then he sold the contract, which eventually came into the hands of Hill and Co., who made a fortune out of it when the Broken Hill mining-field was discovered.

Mr. Kidman returned to cattle-dealing with small initial success, owing to a period of drought, so speculated in chaff, buying at £10 and selling at £30 a ton after carting it "out-back," also buying oats at 10s. a bag and selling at £1. Then he returned to cattle-dealing once more, going to the Cobham Lake and buying all they could muster—900 cows and bullocks—out of a herd of 10,000, for £3 each, selling them at the Burra Burra mine, South Australia, having taken them by way of Broken Hill.

On this trip occurred one of those romances of mining which are always worth recounting. In Mr. Kidman's own words: "En route I met Jim Poole—then partner with David James—who owned a two-sevenths share in Broken Hill, sinking a tank at the Nine-mile, which is a few miles from where Broken Hill is now. I gave Jim Poole ten of the culls for one-fourteenth share in Broken Hill, and I also left ten bullocks to be broken in. The culls were worth about 80/- each. I paid a £6 call on my share to sink Rasp's shaft, the first shaft that was ever sunk on the Barrier. I was going up in the coach from Terowie to Broken Hill. Harris, a

sharebroker, was a passenger. I told him I had a one-fourteenth share in Broken Hill which I would sell for £150, one-twenty-eighth in the Bobby Burns, for which I wanted £250, and a mine called Dunstan's Reef, for which I asked £200. In twelve months the Bobby Burns was not worth much; while I was in Queensland they carted Dunstan's Reef into Broken Hill for flux; and Harris sold my one-fourteenth share in Broken Hill to Bowes Kelly and Weatherley for £150, of which I got £100."

The true inwardness of this incident will be made clear by reference to the chapter on Broken Hill in another part of this book. Suffice it to say here that Mr. Kidman's one-fourteenth share six months later was worth £70,000. To-day it would be worth close upon £2,000,000. Phillip Charley and George MacCulloch, Broken Hill magnates, were both Sidney Kidman's mates on Mount Gipps run, one as boundary-rider, and the other as storekeeper.

About this period, Mr. Kidman went away into Queensland and bought cattle, the values of which he understood better than mining shares. He went out on the Mulligan to Sandringham station, which he now owns among many other more extensive properties. He entered into partnership with his brother Sackville, who was running a large butchering business at Broken Hill, and Nicholls, trading under the name of Kidman and Nicholls, Sidney Kidman buying the cattle. The brothers at the same time went in for dealing, buying sheep in large quantities, and

often had from fifty to sixty thousand on the road. They also had the mail contract between Cobar and Wilcannia and Wilcannia and Mount Brown, and, later, mail contracts in Western Australia. The partnership was only broken by his brother's death. There was not much money in stocks in those days, but with the butchering business he did well. He is still running mails in Queensland, and from Hergott Springs to Birdsville.

It was actually the drought and times of depression in the last decades of last century that gave Mr. Kidman his first real start in life—a substantial start that set him on the high road to a success few have achieved, even in this land of golden opportunities. When nearly everybody else was practically ruined and the whole country was brought face to face with insolvency owing to the drought, Mr. Kidman found himself with a little capital, laboriously accumulated, and many fine opportunities for using it, and, what was of more value to him, the confidence of the stock agents, who allowed him credit. He knew, as probably no other man knew, what were the actual resources in stock of the great far-back stations which were being abandoned in all directions, or were in the hands of the banks. He knew that much stock was wandering about in the free country "back of beyond," finding some sort of subsistence far out of sight and knowledge of their owners. It was a risk, but one that appealed to a man of Mr. Kidman's metal, and it bore to him, with his exceptional knowledge, great possibilities of profit. So he went into the MacDonnell Ranges country, bought Owen's Springs with 3,000 horses and 500 cattle and all the plant, for £1,500. This was in 1880. He went up there and lived on the run and mustered the horses himself.

After the big drought of 1903, he bought up some of the abandoned runs, with their brands, and rounded up the mobs of straying cattle. These he travelled to the nearest towns and sold profitably, continuing to lay out further capital and with further credit from the stock agents, in other properties and stock. He found more cattle and horses in northern Australia, right up to the Gulf of Carpentaria, than were believed to exist in those times of disaster, when dead stock were more numerous than live ones. He had little capital himself but was well financed, and came out with a profit of £40,000. This was the more remarkable as the country, in those pre-bore days, was by no means safe for stock on account of the scarcity of water. Drought indeed has meant heavy losses for Mr. Kidman, even up to recent years. In the great drought of 1914, he lost nearly 100,000 cattle and 50,000 sheep.

But to go back to the 'eighties. This period definitely opened up Sidney Kidman's wonderful financial career. Gradually, by hard work and clever dealing, he had accumulated capital. With this he bought more stations, nearly all cattle properties, and stock. He was always dealing; buying thousands and selling at a profit—sometimes immediately, if he saw the chance of even a small profit on a quick turnover.



Sidney Kidman

He has dealt in stations as he has dealt in cattle, buying and selling with judgment and with honesty. Kidman has the reputation of being one of the fairest dealers in Australia. Buyers and sellers alike trust his word and his judgment. He has done many "a Big Deal," running up into even six figures, without "a scratch of the pen" between buyer and seller.

Now he directly controls or holds 60,000 square miles of country—twice the area of England or of Scotland, a third greater than Ireland, more than two-thirds the size of the State



Salt-Bush, Yantara Station



Teams of Wool-waggon Camels, Yantara

of Victoria, two and a half times the area of Tasmania. Yet Sidney Kidman knows all he wants to know about his estates, what stock every section of it is carrying, and what stock it can safely carry at the moment; what water is there and what grass. He knows all these things personally and intimately. In the intervals of his visits to his various properties he is kept regularly posted up with the latest information regarding each from his offices in Adelaide. And once advised, he remembers all without further reference to letters or notes; in fact, in such matters his memory is phenomenal, and a wonderful asset.

The immensity of his operations has revolutionised the cattle and horse industry in Australia. We have already described to some extent, his great business in cattle. Equally is he paramount in regard to horses. Not only do the Indian army authorities rely upon him to largely augment their regular supplies of remounts, but locally, he to a large extent controls the horse market—at least as far as South Australia is concerned. When he started the now celebrated Kapunda horse sales, he showed at once to those who deal in horses that the names Kidman and Kapunda must in future be very constantly in their minds; otherwise they could not keep in touch with the Australian market as regards the sale of horses.

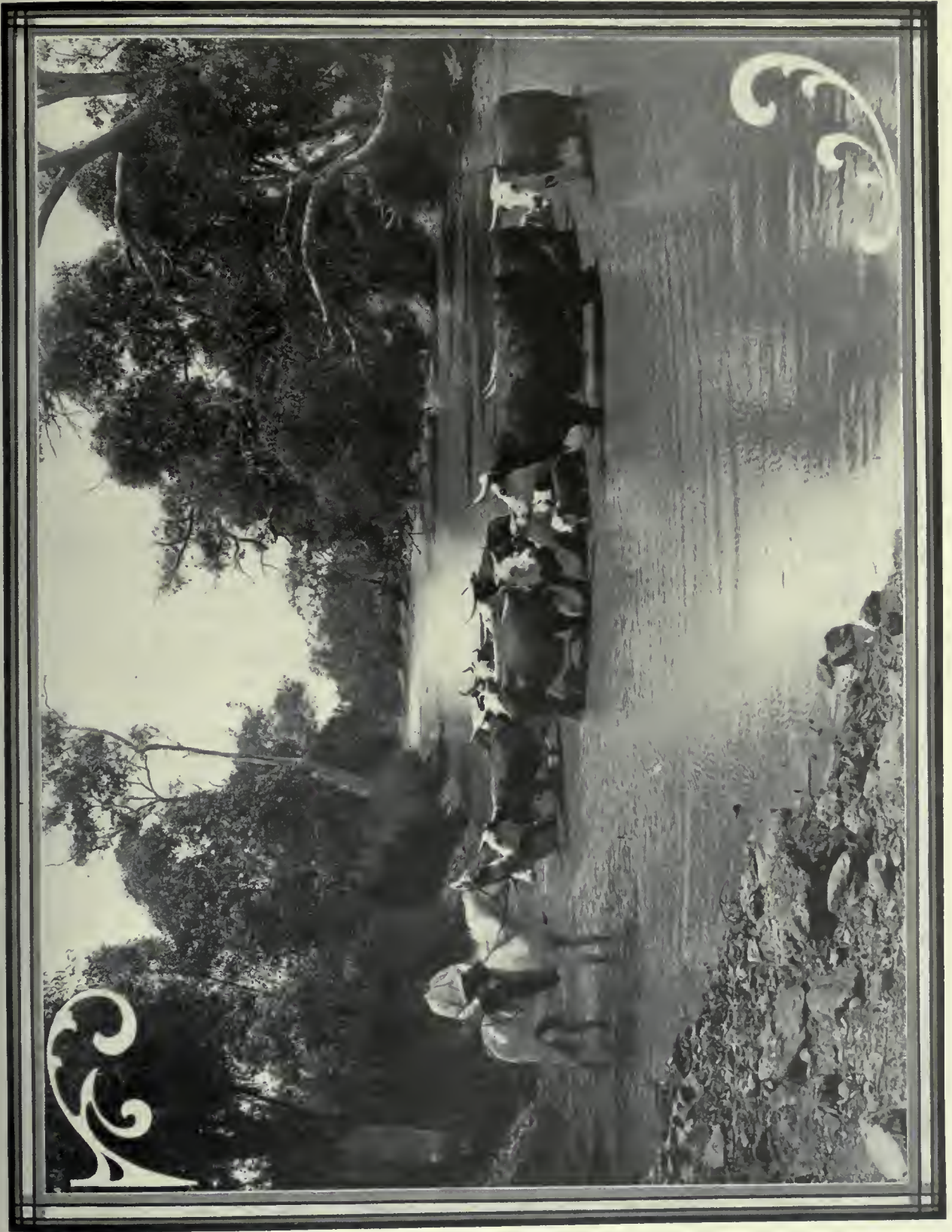
The annual horse sales at Kapunda, inaugurated by Sidney Kidman when the closing of the copper mines had practically killed the town, are now famous throughout Australia, attracting buyers from all parts. They have almost taken the form of a national fair. Mr. Kidman frequently takes a hand at these functions.

At a sale of Kidman's cattle—at Homebush, New South Wales, in 1913, the cattle king caused much amusement to buyers by insisting on the auctioneer accepting and selling at, in each instance, the first bid offered. The result was that about three hundred cattle, in pens of about fifteen to twenty-five, were sold in about ten minutes. He repeated this quaint idea at the Melbourne market in 1917, when the mob made a remarkably good average. In the words of Mr. Harry Peck, his auctioneer: "It was the best and quickest sale I have ever had." Mr. Kidman good-humoredly told the buyers that the less he got for his cattle, the less he would have to pay in commission.

Some idea of the extent of his operations may be gathered from the fact that in 1913 he disposed of, in the fortnight he spent in Sydney, about twenty thousand head of cattle privately to the Queensland and Sydney Meat Works, exclusive of the mobs sold every day in the markets of Adelaide, Melbourne, and Sydney.



Merino Sheep at Yancanna Station



A Waterhole on Allandale Station, near Oodnadatta



A Camel Team carrying Cases, Oodnadatta

As many as six thousand bullocks came from one station in Queensland.

Mr. Kidman considers that the time has come when breeders of horses in Australia should devote more of their attention to the production of good light animals. The supply of draught horses—the breeding of which, during the past few years, has received a tremendous impetus owing to the rapid opening up of new agricultural areas—has reached the demand and, indeed, reveals more or less of a surplus. On the other hand, Mr. Kidman points out that there are fewer really good light horses in Australia now than there were 15 years ago. Yet the demand for these is constantly growing. “A sound, well-bred light horse,” he said, “is worth nearly double as much as a medium draught, which today realises only about half the price it did a few years back. We have reached the stage when the farmers can breed all the draughts necessary for their own needs, and the breeders on the outside country should therefore go in for what will prove the most profitable to them.”

Mr. Kidman has bought and imported blood stallions for several years. He has probably introduced more light horses than any other single purchaser in the same period. He has sold great numbers to India and for the British Government Remount service.

He made his first visit to Europe in 1908, in the company of his wife, his son and three daughters, thus pleasantly celebrating the completion of fifty years' active life in the land of his birth. While abroad, he and two of his daughters attended the great Durbar in India and he was warmly wel-

comed by those who had long known him in connection with the Indian horse trade.

Mr. Kidman's three daughters were married in 1911, 1912, and 1913. Miss Alma Kidman became Mrs. Sydney Reid, Miss Edna Gwendoline is Mrs. Sidney Hurtle Ayres, Miss Gertrude married Lieut. Clover, of H.M.A.S. *Protector*. His son Walter is still a lad and is at college in England. Mr. Kidman's daughters, Gertie and Edna, proved themselves worthy of their father's reputation as a bushman by accompanying him on a memorable journey through Central Australia in September of 1910,—journeying on horseback from their home at Kapunda to Cunnamulla in Queensland, spending five weeks on the journey, riding in fine, sunny weather on stages of forty to sixty miles a day, and visiting Mr. Kidman's various stations and outstations. Mr. Kidman and a black boy accompanied them in a buggy with tent and camp outfit. The stations visited were Mundowdna and its outstation, Clayton; Kanowinna, where they encountered the great steep sand hills in the Lake Hope country that dismayed the explorer Sturt; Innamincka, near Cooper's Creek, where the Burke and Wills tragedy took place; then over the Queensland border to Napper Merrie, where the homestead garden and orchard proved a paradise—there is nothing of the bareness of the “desert” about any of the Kidman homesteads in Central Australia, if water can be got within thousands of feet of the surface—then Durham Downs, Nocatunga, Bulloo Downs, Thargomindah, Norley, with another glorious garden,

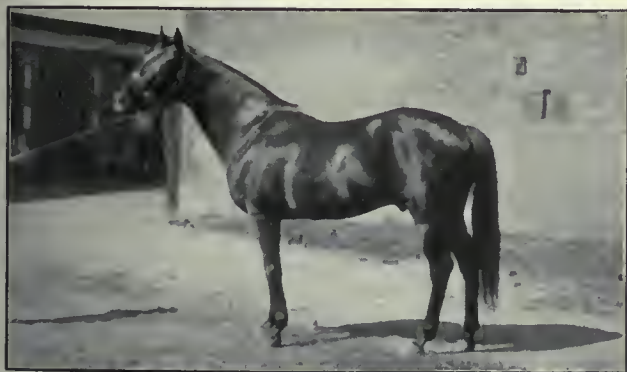
Ardoch, Dundoo, Moongarrie, to Cunnamulla. Out of the 1,000 miles covered on the journey more than half of the track lay through the Kidman properties.

It is only possible to speak in wide terms of Mr. Kidman's properties and interests and enterprises. His holdings are too numerous to be named in detail, and cover country which cannot



The Homestead, Fulham Park

be calculated in acres. He is a breeder of cattle, horses and sheep, but his title of the Cattle King of Australia is true in that he breeds more cattle than anything else, and possesses more than any other man owns or has owned at any time in



Blood Stallion, "Passing-By"

Australia. Most of this is in Shorthorns, but he is a great believer in Herefords, and since he bought the fine Collingrove stud of Herefords from the trustees of the late J. H. Angas, he has been introducing the bulls from that stud into his herds with good results. He took champion and 1st prize in the Adelaide Royal Show in 1917.

As regards his holdings, the largest single area is probably the Innamincka country in northern South Australia, which covers some 7,500 square miles, the largest holding of any individual owner in the State. Among his other stations in the

same part are Eringa and Macumba, between them representing over 4,500 square miles. Fulham Park, practically within the suburban area of Adelaide, is another of his properties, and it is here that he keeps the Angas Hereford stud. Here also is a fine stable of thoroughbred horses, including Sir Simon, sire of Bullawarra, which latter proved to be one of the best steeplechasers in Australia. Bullawarra was bred by Mr. Kidman on Norley station in Queensland. In the same stable is an imported English thoroughbred, Passing-By, which comes from the well-known Black Sam blood. Mr. Kidman is too busy a man to devote much attention to the racing field, but, as we have seen, he deals largely in horses, especially army remounts, a thousand or more of which he ships to India every year.

Mr. Kidman has also many properties in the western corner of New South Wales, but in Queensland are located some of his biggest stations. He is also largely interested in the great Gulf country. Norley, Bulloo Downs and Durham Downs are some of his greater Queensland properties, but he has an area of 6,000 square miles in the same State, in which are such stations as Glengyle, Annandale, Sandringham, and some others that are worked together.



Sidney Kidman's Daughters,
On their Horseback Trip through Central Australia

The principle upon which Mr. Kidman works, and by means of which alone can he deal with the vast stocks he carries, is to have, as it were, a chain of properties across the continent of Australia, from north to south, so that whatever the season in various States, and even in the unusual condition of a general drought, he is always able to find pasturage for his stock somewhere. Thus,



Allandale Homestead, Central Australia

right across Central Australia, and even in the far Northern Territory, Kidman cattle and horses are grazing. And there are also in Western Australia Kidman herds of cattle, horses, and mules.

Among his many interests is the Bovril Australian Estates Limited, a company which he formed while in England in 1908, and in which

he is a shareholder and a director. The chief property of the company is the great Victoria Downs run in the Northern Territory, which includes the Carlton station. This is the largest cattle run in Australia, covering as it does 12,500 square miles, roughly. It is, indeed one of the largest, if not the very largest, cattle properties in the world, and its development, as the result of Messrs. Emanuel and Kidman's enterprise, is conclusive evidence, if such were needed, of the great Cattle King's public service to the country. It is well grassed and watered mostly by springs; its carrying capacity has been proved to be at least 160,000 head of cattle, and 25,000 calves are, under normal conditions, branded in one year.

Recently, Mr. Kidman has added to his list of properties the fine country comprising the stations known as Bond Springs, Allandale, and Crown Point near Oodnadatta, Central Australia, which consist of five million acres, and is good country for cattle and horses. It stretches right up into the Northern Territory. The accompanying views, taken at the present time on this property, will give an idea of its character, and will amply disprove the popular superstition about all "desert" country in the "dead heart" of Australia. Others are interested with him in this property, which is run under the trading title of the Crown Point Pastoral Company Limited.

It will be seen that Kidman, more than any other man at any time in Australia, has improved and developed the great "waste" lands of the Far North and the wild Central areas. He has found underground water there and brought it to the surface, as the numerous ever-flowing artesian bores on his properties testify. One of them is the best in this country, with a constant flow of four million gallons of good water per day. It may be fairly said that without Sidney Kidman, these uninviting districts would have remained waste lands for indefinite periods.

Like all good Australians, he sees our urgent need of population for this Continent. He has done much, on his visits to Europe, to assist suitable immigrants to South Australia. He is still strongly of opinion that there are thousands who would avail themselves of similar opportunities offered either by Government or private individuals. "Australia can do with them all," he says. "Some of those who came out under the arrangements I made were on the railways and 'buses. They have turned out to be first-rate workers. At first they were a bit green, but it was wonderful how quickly they dropped into their places. They are scattered about my stations in South Australia and Queensland, and when I go to England again I'll see about getting

more of them." As a result of his first "gleaning," twenty-five London 'bus-drivers, who had been earning 12s. 6d. a week, and their families were transplanted by him to his various stations as boundary-riders.

Mr. Kidman is thoroughly satisfied with his experiment. The wives have, according to Mrs. Kidman's testimony, proved to be good cooks, and therefore of great value on a station. After a month one driver, who before he landed in Australia had never been bestride a horse, was able to take charge single-handed of a mob of travelling cattle.

He is gifted with an unfailing instinct in choosing youths and men for employment, and very rarely does he make a mistake. He not only gets the best service but retains it, and many a letter reaches him from his men, gratefully acknowledging his justice and liberality as a "boss," and from the parents of youths he has trained to efficiency as stockmen.

Now a millionaire, he still has an unpretentious, though commodious and picturesque home, "Eringa," Kapunda, about 50 miles from Adelaide, though he is not much at home, as he is usually visiting one or other of his many properties or the cities of the States on business. He is simple in his tastes, dress, and manner, but it must not be supposed that he is an eccentric person—quite the contrary. Strength of will is his chief characteristic: but he is too much absorbed by his many activities and interests to concern himself with mere appearances and conventions. He is a very companionable man, and when out in the far-back country with his associates and his station hands, he is a constant source of entertainment with his humorous stories of his experiences and the men he has met in his travels far and wide. As one who has travelled many leagues with him has said: "Humor is Sid Kidman's safety valve." On his many and varied travels he is always on the look-out for the humorous side of every incident. He knows Australia as no one else knows it—that is, the real Australia, not of the cities, but of the country, the back country where Nature is still as it has always been, and where Man is only at the start of the great work of development.

Sidney Kidman knows men and he knows stock. He seldom makes a mistake in his judgments of either. Many stories are told of him in this connection. Travelling once in the Adelaide to Melbourne express, he fell in with a young Englishman, straight from home, and looking for a job, with no experience to help him. Sidney Kidman had sized him up, and said to him: "I've got a mob of cattle to be taken across country to Brisbane. If you can be ready to start on Fri-



Artesian Bore, Allandale Station

day, you can have the job." The Englishman took the job and "made good."

Another characteristic Kidman anecdote. Some years ago, he sold a number of horses to a circus proprietary. The circus fell on evil days and could not produce the necessary coin to pay the bill, so Mr. Kidman constituted himself the treasurer of the show. He took the money at the entrance at each performance, and filled in the rest of the time by acting as ringmaster, a position for which he was exceptionally well qualified. In this way he travelled from Wilcannia to Bourke, and at the latter place, having paid himself what was due to him, retired from his unaccustomed task and returned to the care of his station properties.

Mr. Kidman is a humorist—also a teetotaler and a non-smoker. He has a faithful memory, a keen sense of fun, a rough and ready manner, and a simple conversational style which make him an entertaining raconteur. He is a big, strong,

but not heavy looking, dark-complexioned man, with bright eyes and a humorous mouth.

He has the "Bush sense," which no true townsman can ever hope to acquire. His natural instinct for the sunny side of life, his love of a good yarn, and his personal simplicity mark him for a bushman, albeit the wealthiest bushman in the Commonwealth. He reflects the life of the land, the life of Outback. He is a typical "Good Australian," for he has brought the Far North and the waste lands of this vast, empty continent into practical use, and has made many an area of back-country that was risky for stock-raising practically drought-proof with ever-flowing wells and ever-filled waterholes. His "deserts" have been converted into fattening pastures.

It is a free, independent, and exceedingly healthy life. It gives a sense of equality which

breeds in Kidman's men no servility in dealing with the "Boss," high as he may tower over them in worldly possessions. It instils in Kidman nothing of the tyrant or the snob—albeit a millionaire he is still a plain business man, a specialist in stock, a genius in judgment as regards station values, a careful man to whom waste is abhorrent, and senseless extravagance a cardinal sin.

Mr. Kidman was the first to respond to Mr. C. Alma Baker's appeal to Australians for the presentation of battleplanes, costing £2,700 each, to the British Government for use on the Western front in the war, and the first, bearing his name and registered as "Australia I—South Australia I," has been doing good service in France. Mrs. Sidney Kidman has recently also given a battleplane to the Australian Air Squadron.



An Artesian Bore on one of Mr. Kidman's Central Australian Stations.

KEYNES, OF KEYNETON

A QUIET little village in the beautiful Angaston country of South Australia is Keyneton, taking its name from the station property which it abutts upon, and which in its turn was named after its founder, the late Mr. Joseph Keynes.

He was a typical pioneer, a stalwart Englishman of kindly disposition and sound judgment. He was born at Blandford, Dorsetshire, in 1810, and was a nephew of the famous English Congregational minister, John Angell James. His father and a brother were also ministers of the same denomination. When only twenty-nine years old he was engaged by the late George Fife Angas, as a good hand with sheep, to bring out to South Australia in the good ship *Anna Robertson*, a number of sheep for the newly-established colony, of which Mr. Angas has always been regarded as the Father. His brother, William Keynes, was also one of the early settlers and in January, 1842, possessed 5,100 sheep in the State, but he soon sold out to Joseph Keynes.

Having carried out his commission, and having found the new colony a good place, with obvious possibilities for a young and enterprising man used to the land and to stock, Mr. Keynes took up a run in 1841 under lease from the Government in the splendid country where Mr. J. H. Angas had also secured properties on behalf of his father. Mr. Keynes' estate, of which he eventually obtained the freehold and which he named Keyneton, consists roughly of 17,000 acres, situated about 60 miles N.N.E. of Adelaide, and about eight miles from Angaston. It comprises both flat and hilly country, and is eminently suited for stud sheep-farming. The Keyneton flock, which consists entirely of merinos, numbers about 10,000. The estate also carries a small herd of Shorthorn cattle and a stud of draught horses.

Mr. Joseph Keynes entered enthusiastically on the congenial taste of building up a valuable pastoral holding and establishing a family property at Keyneton. He was an unpretentious man,



The late Joseph Keynes



Richard R. Keynes



The Homestead, Keyneton

and contented himself with only an adequate residence, but he continuously improved his estate from the pastoral point of view. He devoted himself especially to the improvement of the merino and he became favorably known in that respect, not only in South Australia but in adjoining States. He was elected a member of the committee of the Royal Agricultural and Horticultural Society so early as 1840, and he always took great interest in agricultural shows. He was also active in local affairs, being Chairman of the North Rhine District Council from its formation in 1875 until he resigned in 1882, when he was presented with a testimonial by his fellow-townpeople as an acknowledgment of his services. He was for many years a Justice of the Peace, and exerted himself also in the cause of local education. He died in 1883, at the age of 72.

The formation of the Keyneton merino flock was commenced in 1842, when Mr. Joseph Keynes obtained a large number of merino sheep from Mr. George Morphett, of Adelaide, and a smaller lot in the same year from a Mr. Hull, or Hall, of Grange Farm, South Road. At the same time fourteen rams were secured from Castle Bagot, Light River, and three from Mr. Crisp, Gawler River. In 1847 some Murray rams were used, also some of Mr. Joseph Gilbert's, from Pewsey

Vale. In 1851 an imported ram named Nudicotan or Nudicot, a direct descendant of the historic merinos sent by the King of Spain to King George III., and added by him to his stud sheep farm at Windsor Castle, was purchased. As was the custom at that time, Mr. Keynes then turned his attention to the Saxon strain, and in 1858 obtained two imported rams from the then celebrated flock of Adolf Steiger, at Lenteuritz, in Saxony; these rams were descended from the pure merino flock of the Prince of Reuss, at Klipphausen, Saxony, which was composed of sheep descended from the famous stud flocks which King Charles III., of Spain, had presented to the Elector Friedrich August of Saxony. This is going into history with a vengeance, but it is interesting from that point of view and as showing that Mr. Joseph Keynes was thorough in his search for a type that should establish his flock on up-to-date lines. These were the two rams that Mr. Otto Neuhaus had about this date exhibited in Melbourne and Sydney and had won first prizes. After 1877, when two Murray rams had been obtained from Mount Crawford, no fresh blood was introduced until 1906 when Mr. R. R. Keynes, the present owner, secured a prize ram from Mr. Murray Dawson, of Wirra Wirra station, and some from Murray Vale and Rhine Park.



Keyneton Country, South Australia



Typical Keyneton Ram



Typical Keyneton Ewe

The records of prizes won by the Keyneton merinos are very incomplete. It appears from the diaries of their founder that he made his first successful exhibits at the Angaston Show in 1858, and that at later dates prizes were won at Mount Pleasant, near Keyneton, and at Kapunda. It is also known that prior to 1883 some prizes for wool were won at Adelaide Shows, and in 1876 a bronze medal and certificate of award were secured at the Philadelphia International Exhibition. Since that date, however, it is on record that Keyneton won at Adelaide in 1885, the first prize for three rams' fleeces and in 1886 a commemorative medal at the Colonial and Indian Exhibition, the latter being for fleeces from sheep bred by Mr. R. R. Keynes, in spite of the fact that no great attention had been paid then—nor has it since—to preparing sheep or fleeces for show.

Besides sheep, Mr. Keynes breeds draught horses with success and has also a small herd of Shorthorn cattle, the herd being founded upon stock secured from Mr. E. M. Bagot's well-

known stud and from Mr. Joseph Dunne, while Angas bulls have been used. A recent addition is a fine young pedigreed bull of Derrimut strain from Canowie station.

Mr. Richard Keynes was born in 1857 and was educated at Parkstone, Dorsetshire, after which he spent three years in London obtaining useful mercantile experience. In 1877 he joined his father on the Keyneton estate, to which he succeeded on that gentleman's death. He married in 1884 a daughter of Mr. Abraham Shannon, of Moolta, and their family consists of two sons and two daughters. Both sons share with their father in the management at Keyneton, though the elder, Joseph Keynes, is at present (1917) serving in France as a gunner in the 4th Field Artillery Brigade, which he joined in August, 1915. Mr. R. R. Keynes does not interest himself in public affairs beyond serving his district as a member of the local Council, to which he was elected in 1886 and since 1894 has occupied the position of Chairman.



Gunner Joseph Keynes



Richard Neville Keynes



Koonoona Country.

KOONOONA

THE KOONOONA ESTATE, though it was comprised in the big grazing areas held under lease by the early pastoralists of South Australia, was not known by that name until 1863, when the Hon. Walter Duffield took the property. Previous to that year he leased Outalpa. When he established the now well-known Koonoona flock he took there fifty specially-selected merino ewes from C. B. Fisher's already-established and successful Hill River stud, and a Murray ram from Mount Crawford.

Koonoona for some years comprised about 43,000 acres of undulating hilly country and flat land, but, owing to sales to the Government of the best agricultural parts for closer settlement purposes, the estate now consists of some 20,000 acres of freehold. The major part is a range about twelve miles long sloping to east and west, of between 1,200 and 1,500 feet above sea-level, the surface being generally stony and but lightly timbered. It is situated about 90 miles north of Adelaide, and six miles south of Burra. It has an average rainfall of about 17 inches annually, and is very healthy sheep pasture, with great extremes of heat and cold. Koonoona sheep are raised solely on the natural pasturage of the country, and are very strong; consequently they never deteriorate when exposed to severe

climatic tests in more northerly latitudes, and improve considerably under better conditions.

When the Koonoona property was reduced by Government purchase, new country had to be secured. The trustees, in 1906, acquired Winnininnie, all salthush country, in the north-east, on the Broken Hill line, 116 miles from Koonoona, with a 7-inch rainfall. Later on a small place named Studholme, in equally dry country to the east of Burra, with a 9-inch rainfall, was purchased. Winnininnie comprises 96,000 acres, and Studholme about 6,000. These outstations are used for depasturing the dry sheep and also, in favorable seasons, flock and selected rams, which proceed by drafts to customers in the interior, thus giving the advantage of still further acclimatizing the sheep.

Originally Mr. Duffield had as his partner the late Mr. Joseph Barrett, of Lyndoch, and later Mr. Thomas Porter took the latter's place. Mr. Porter was managing partner until his death in 1873, and subsequently Mr. (now Colonel) Frank Makin, of Adelaide, a son-in-law of Mr. Duffield, became a partner, the late Mr. John C. Sandland being manager. Since the death, in 1881, of the Hon. Walter Duffield, the trustees of the estate have been his son, Mr. D. Walter Duffield, Col. Makin, and Mr. F. W. Bullock, all



The late Hon. Walter Duffield

of Adelaide. Since 1892 Mr. W. G. Hawkes has been manager.

From the first, until 1890, only Mount Crawford rams were introduced into the flock, but in 1892 a very high-class ram named Trojan, a son of the celebrated Cappedee, was purchased from the late W. A. Murray, of Cappedee. He proved to be the best of the Murray rams ever used at Koonoona and left some fine stock.

The intention of the owners, from the first, was to raise large-framed sheep, free from wrinkles but with a good neck, of sound robust constitution and yielding a heavy fleece wool of a bold combing description. Considerable success had already been attained when, about 1902, Mr. Hawkes found that the flock had become more or less stationary. Nothing but satisfactory progress, he considered wisely, would prevent deterioration, and so he determined to try the introduction of Wanganella blood. In that year he bought Warrior VI., a high-class 7-year-old stud ram, from the late Albert Austin, of Wanganella. So successful was this experiment that two rams were added in 1906 from the late Thomas Milliar's Wanganella Estate, one of which proved highly satisfactory. Five years later a useful 3½-year-old Wanganella ram was purchased from the late A. J. Austin, of Murgha. The latest purchase, in 1913, was a notable one, Majuba, grandson of Donald Dinnie, being

bought for 700 guineas from the Canowie stud, some fine stock standing there to his credit already.

In all, only four Wanganella rams have been introduced into the Koonoona stud, yet their fine qualities have been stamped more or less on the whole flock. Since then, the principle of inbreeding from their own rams has been adopted. Koonoona sheep now show all those qualities of shape, good frame, strong heads, and wide horns, and a deep fleece with long staple, which have characterised the South Australian merinos, together with the special Wanganella characteristics of greater density and higher character of the wool. A well-known authority, writing recently, said of the present-day Koonoona rams:—"Those points which are most impressed on my mind, are great frames and generally good appearance, length of staple, broad back; density, character, and, above all, the softness of the wool."

Probably the most successful sire ever bred on Koonoona was Rajah, a son of the Wanganella Estate ram already mentioned, out of a pure Koonoona ewe. The stock got from him has been of strikingly uniform excellence. Two of his sons are Kitchener and Lloyd-George. The former, 3½ years old, has magnificent physique—



W. G. Hawkes



Lord Kitchener (By Rajah)
Koonoona Special Stud Ram 3½ years old

long and low set, with great loins, bold front, and a good head and carriage. His wool is of a 4-inch staple, strong but very soft and full of character, with a broad lock and packed well all over the frame, cutting 33 lbs. this year (1917) of the truest strong wool. An offer of 850 guineas for Lord Kitchener has just been refused. Lloyd George is another great burly 3½-year-old, very solid and of great depth, good front and thighs. His fleece, which at 2½ years cut 27½ lbs., is a splendidly lustrous and dense, true wool of good length and character. Another Rajah ram,

named Admiral Beatty, 4½-years-old, is big but very shapely, with a fine covering full of character and well packed on; his good front, broad back and great thigh are noteworthy. A very good 2½-year-old ram, also by Rajah, was sold at the Adelaide Show (1917) for 250 guineas to Messrs. T. H. Pearse and Sons, of The Gums, who buy nothing but the best, and another fetched 225 guineas.

Mr. Hawkes, however, does not make stud sales his principal object, but is satisfied to improve his general flocks by the use of rams he



Lloyd George (By Rajah)
Koonoona Special Stud Ram, 4½ years old.

could easily sell as studs. Consequently the output of flock and selected rams now reaches 2,500 per annum and stud sales are also highly satisfactory. Under the able supervision of so skilled and experienced a judge as Mr. Hawkes, and so keen and energetic a student of breeding as his son, who is married and lives on the station, it is certain that the Koonoona stud has a great future before it as well as a highly successful present. Mr. Hawkes' other son, Lieut. W. R. Hawkes, it may here be mentioned, served with the Australian Imperial Forces, and had been twice wounded; he was recently killed in Flanders after three years of fighting.

Hardiness is, as we have seen, a leading characteristic of the Koonoona sheep, the turn-off of the rams and surplus ewes having for years past gone to Western Australia and the principal regions of the North-West, while a very strong demand has set in from Queensland, which is steadily increasing, as also from the dry country of New South Wales.

The wool clips taken from Koonoona and Winnininnie give fine returns. The Winnininnie samples taken in the 1915-16 season from 4½ to 5½ years old wethers with 11¾ months' growth, and grown with less than 5 inches of rain that year in saltbush country, showed tremendous growth, free and strong, but showing plenty of

quality. In June, 1915, 250 Winnininnie wethers created a record sale in the Adelaide market, averaging £2 15s. 10d. apiece, 61 of the tops making £3 3s., and 101 £2 17s.—a record for Australian merino wethers. In November, 1916, 2,700 cast ewes from Koonoona, from 1½ up to 7½ years old, averaged £2 2s. 4d. off the shears at the Burra. The 1917 figures are also excellent, a consignment of 255 Koonoona wethers, 3 and 4 years old, having averaged £2 12s., a result only second to the previous year's record. The skins of these wethers returned an average of 25s. 4d. each for just 12 months' wool, while Winnininnie has shown an average of 15½ lbs. per head, for barely 12 months' wool. A line of 1,200 Winnininnie wethers, aged 2 and 3 years old, averaged 17½ lbs. last season (1917) and 3,200 dry sheep averaged five bales to the 100. The whole of the grown sheep on the various properties, and numbering 19,128—only 1,700 of which were wethers—averaged 13 lbs. 2¼ ozs. of wool each at the recent 1917 shearing, large quantities of the fleece being appraised at 22½d. per lb.

The appearance of the Koonoona sheep to-day, with their striking uniformity in type of big bold commercial animals carrying such a high combination of wool and mutton values, is significant of what may be accomplished by long years of undeviating purpose.



Admiral Beatty 3½ years old
Koonoona Special Stud Ram, (By Rajah)



Old Bungaree: From an Early Painting

(The homestead cottage as first built by G. C. Hawker and his brothers)

BUNGAREE

A GLIMPSE at the old pioneering days is obtained in the incident of the founding of the well-known South Australian pastoral property known as Bungaree, which is situated a hundred miles north of Adelaide and seven miles north of Clare.

It was as long ago as 1841—six years after the founding of the colony and only two years after the pastoral areas were first surveyed by the Government—that the brothers George C., Charles, and James Hawker set out northwards, with sheep, for the purpose of settling on the property they had decided to take up. They found that Mr. Robert Robinson, also with sheep, was hastening in the same direction with the same intention. Mr. G. C. Hawker—who was then only twenty-two years of age—left his brothers in charge of the sheep and hurried on, unhampered, to their destination, taking up the country they had in view. Mr. Robinson contented himself, as well he might, by settling on a property in the same district—which subsequently proved itself to be one of the finest sheep-runs in South Australia, the Hill River Estate, where the late J. H. Angas later established his well-known merino stud.

The Hawker brothers were associated together in the Bungaree Estate for a short while, until Mr. G. C. Hawker bought out their interests

and become sole master of the great Bungaree run, which then extended from Clare to the foot of The Hummocks ranges, and from Kybunga to six miles north of the Broughton River. It was for some years all leasehold, but when it was, from time to time, put up to auction by the Government, Mr. Hawker purchased in all about 84,000 acres. According to the official list, Mr. G. C. Hawker's flock at January, 1842, numbered 3,500 sheep.

Mr. Charles Hawker took up the adjoining station of Anama and remained there for many years, until, at his death, it was added to the old Bungaree Estate.

Mr. George C. Hawker did not confine himself to pastoral pursuits, though he always retained his active interest in and made his headquarters at Bungaree, for he became one of the leading statesmen of South Australia. The second son of Rear-Admiral Edward Hawker, and grandson of Capt. James Hawker, R.N., he was born in England in 1819, and educated at Trinity College, Cambridge, where he secured his M.A. degree. He came to Australia in 1839, as a very young man, to engage in pastoral pursuits. These he continued actively until 1858, when he entered Parliament, being returned unopposed, and he was also returned at the succeeding election. He was a member of the Select Committee



Panoramic View of Bungaree Homestead.

appointed in October, 1858, to inquire into the objections of the stock-holders to the Bill for imposing an assessment on all stock depasturing on waste lands. His parliamentary career was one of exceptional success. He had only been two years in the House when he was elected, in 1860, as Speaker, and was re-elected after the general election of 1863, holding office until 1865, when he went with his family to England for the purpose of educating his sons. He returned in 1874, and two years later re-entered Parliament and became Treasurer and afterwards Chief Secretary. In 1881 he was Minister for Public Works for three years. He was in Parliament twenty-five years in all.

Bungaree consists partly of hills rising 1300 feet above sea-level, lightly timbered with gum and she-oak, with an average rainfall of 22 inches, and of hot, dry, treeless plains with only a 15 inch rainfall. Varied conditions from the heat of summer to storms and frost of winter, thus prevail. It is fine country for sheep, as is proved by the fact that they grow to a great size and are conspicuously robust, there being no artificial feeding or shelter to coddle them. It is indeed said of Bungaree sheep that the only disease they die of is old age.

The original Bungaree flock was formed out of 2,000 ewes descended from King George III.'s merinos, the same breed as the original Camden Park flock of Captain MacArthur, in lamb to

**Emperor**

Champion Adelaide Royal Show, 1881, 1882, 1883

**Cecil Rhodes**

A Famous Old Bungaree Stud Ram



Woolshed and Outbuildings

Steiger rams. These ewes were purchased by Mr. Geo. C. Hawker from Mr. Thomas Icely, of Bathurst, New South Wales, and were travelled overland to South Australia. In 1853 five Negrette rams were tried, but as their progeny proved inferior they were discarded from the stud. In 1858 and 1861 several Rambouillet rams were imported from France and used in the Bungaree stud, and their stock was in every way satisfactory. Mr. John Noble, who was for many years stud-master at Bungaree, and to whom the excellence of the sheep is due, described these rams as large-framed, straight-backed, big-boned, robust sheep, well covered

with a fleece of payable wool, long and strong in type. About the year 1862, Mr. John Hope, of Koolunga, made Mr. Hawker a present of another imported Rambouillet ram; this proved to be the best of them all, and it is chiefly to this ram that the Bungaree merino owes the high position it holds to-day.

In the years 1865, 1874 and 1887, a ram in each year was bought from Mr. John Murray, of Mount Crawford, and were tried without much success. In the late seventies three high-priced rams, including one for 1000 guineas, were purchased from Mr. W. Gibson, of Scone, Tasmania. These rams were tried, but did not suit the



Typical Bungaree Ewe

Miss Monkey
A Bungaree Ewe of the Eighties



The Homestead, Bungaree

climate. Two were subsequently given to friends in the south-east of South Australia, and the other ram died.

In 1889, three rams were bought from Mr. Albert Austin, of Wanganella, and tried in single flocks of selected ewes. The outcross produced very showy sheep, and did fairly well in the Adelaide show, but not as well as the pure Bungarees.

Mr. Noble discarded the stock by the Wanganella rams, the majority of which were sold, and the balance sent to Carriewerloo. After this no further experiments were tried, and the old flock was kept pure. Before the trial of these rams pure Bungaree stud rams brought good prices, and were bought by breeders in New South Wales, Victoria, Queensland and Western Australia, while thousands of flock rams were distributed over the whole of Australia.

In 1882 seventeen Bungaree rams were sent to the Melbourne sheep sales, and averaged £97 each. The following year eighteen Bungaree rams realised an average of £143, the top price being £651.

As for fifty years, rams had to be sent up to Mr. Hawker's stations in the north—Parallana, on the edge of Lake Frome, and Carriewerloo, west of Port Augusta, and Warraweena, N.S.W.—what was required was a large-framed, sound-constituted sheep, able to stand the dry and arid conditions and do well anywhere, and then clothe it with a fleece of robust combing wool with long staple, without any excess of yolk or tip. This was the type that, during the long period he was in charge at Bungaree, Mr. John Noble set himself to breed. As testimony of his success, it may be stated that two thousand wethers on their way to market from Parallana, when shorn at Bungaree, clipped an average of 16½ lbs., hand-shorn, each year; whilst an average taken of a thousand Parallana wethers



The late Hon. Geo. C. Hawker



A Flock of Merino Ewes at Bungaree



1960 Bungaree Wethers, Bred in the Far North of South Australia

These sheep (six and eight tooth) were returned from Parallana Station, Lake Frome, and delivered at Adelaide. They clipped an average of 19 lbs. 10½ oz. for 14½ months' and 16½ lbs. for 12 months' growth.

sold to Adelaide butchers showed cold dressed weights of 88 lbs. It was quite common, and still is, for full-mouthed fat Bungaree wethers to average over 70 lbs. dressed. In 1895, five fat Bungaree wethers took first prize at the Adelaide Show and averaged 139 lbs. each when dressed.

It was in the late seventies that Bungaree started showing sheep at Adelaide. In five years they took eight champion, twelve first, twelve second, and five third prizes. One ram, Emperor, was never beaten, and took the championship in 1881, 1882, and 1883. At six years old this fine ram cut 22¾ lbs. of wool, and his live weight was 256 lbs.

The Bungaree wool is notable for its uniform quality and the consistency with which it fetches high prices. On the last occasion on which wool was sold from the whole of Bungaree, that is, before the firm of Hawker Brothers was dissolved, the London reporter of an Adelaide daily thus commented upon the prices secured by the clip at public auction:—

“This clip fulfils one condition which I have always maintained is the ‘reckoning-day’ of all wool, namely, the verdict of the salesroom and the price there made, for its buyers take the wool amidst frantic yells, and pay big prices for the same; that alone is sufficient to stamp the mark of approval on the clip. I call the above excellent prices, and every lot sold like fury.”

At the death in 1895 of the Hon. G. C. Hawker, the extensive Bungaree property was divided among his five sons, who continued to

work it as a whole until 1907, when the firm of Hawker Bros. was dissolved, each son taking his share of the estate and stock. Mr. E. W. Hawker took the eastern portion, Mr. Michael S. Hawker the northern, Mr. Walter Hawker the central, Mr. Richard M. Hawker bought the head station of Bungaree, with the original homestead; Lieut. H. C. Hawker, R.N., took the north-west portion.

The present Bungaree stud, which was originally two-fifths of the old Bungaree stud, is now owned by the estate of the late H. C. Hawker and Mr. R. M. Hawker in partnership, the two properties being worked as one by the latter gentleman. The stud has been kept absolutely



Shorn Bungaree Wether

Weighed 200 lbs. live weight and cut 20 lbs. of wool



STUD RAMS

BUNGAREE STUD MERINOS.



RHODES II



MARoola



STUD EWES

Property of H. C. and R. M. Hawker, Bungaree, Clare, S.A.



The Church at Bungaree

pure since the year of the division, 1907, and the sheep are bred on the same lines followed by the late Mr. Noble. All sheep showing excessive folds are discarded, and only the sheep with the largest frames are kept in the stud. Any sheep showing weakness of constitution is discarded, no matter how good a fleece it carries. The ewes at one and a half years are all bred from. The

percentage of lambs marked in 1917 was 90 per cent. from 7752 ewes, including 1500 one-and-a-half-year-old ewes. The breeding ewes show, over the period of the past ten years, an average of close on 90 per cent. of lambs.

The young sheep have to be weaned on to natural dry feed, which has little nourishment in it at Bungaree, and they usually have a bad time; hence those with the hardiest and best constitutions come out on top. In 1917, 11,608 grown sheep, including 7752 breeding ewes, all ages, 3500 weaners, and about 350 rams, mixed ages, cut an average of 11¼ lbs. light-conditioned wool. Bungaree has supplied the Mutooroo Pastoral Company with flock rams for many years, and the secretary to the company, Mr. Adamson, has kindly supplied the following particulars:—

The whole of the Mutooroo wethers were sold in the Adelaide market as follows:—1915, 12,060 wethers averaged 33/1; 1916, 8559 wethers averaged 33/1; 1917, 6834 wethers averaged 36/10. The wethers were from two to three years old.

The lambing in 1917 at Mutooroo was 45,669 lambs from 46,395 ewes, or 98 per cent.

The young Bungaree rams are eagerly sought for by buyers from all the States and New Zealand, and as the stud is not increased to meet the demands, only a limited number can be offered each year.



Bungaree Special Stud Ewes



2½ Year Old STUD RAMS

NORTA BUNGAREE STUD MERINOS



2½ Year Old STUD RAM



STUD EWES



STUD EWES

Property of M.S. HAWKER, Nth. Bungaree, Yacka, Sth. Aust.



Panoramic View of North Bungaree

NORTH BUNGAREE.

WHEN the partnership in the Old Bungaree Estate of the Hawker Brothers was dissolved in 1906 Mr. Michael S. Hawker, the fifth son of the late Hon. G. C. Hawker, took over the northern portion of the run, together with his proportion of the stud sheep. During the past nine years 11,000 acres of the North Bungaree station have been sold, and it now comprises 8,500 acres, 3,000 of which is rough hilly country with timber, and the balance undulating untimbered country. To this was added 2,630 acres purchased by Mr. Hawker from the executors of the estate of the late A. S. Browne, on the subdivision of the well-known property, Booborowie, which is open undulating country with creek flats suitable for lucerne. This is now worked in conjunction with North Bungaree, as is also Hill Crest, a property comprising 6,800 acres, twelve miles from Orroroo, to which the young rams and ewe-weaners are sent. As Hill Crest is in the northern area, with only a 12-inch rainfall, the young stock become accustomed to any harsh conditions they may have to contend with after being distributed to various buyers.

Mr. Hawker also has a property in New South Wales—Tolarno, on the Darling River.

The stud consists of about 5,000 breeding ewes, comprising 900 special studs, 1,600 first studs, and 2,500 studs. Mr. Hawker has always aimed at breeding a big, plain-bodied, robust sheep, covered with long-stapled, soft-handling, strong combing wool, showing plenty of character and carrying little grease. Having had a long experience with back-country stations, he knows exactly the type of sheep that give the best results in the dry areas of Australia.

North Bungaree sheep have not been bred up to take prizes at shows; extra development has been avoided, return per head being the object kept in view. The result is that to-day, as a commercial proposition, North Bungaree sheep are on a very high level. They are essentially mortgage-lifters, and can show a cash return per head that will hold its own with anything in Australia.

What first strikes a visitor when inspecting the stud is the evenness of type and symmetrical appearance of every lot of ewes, whether they are special studs or only single studs, and the length of staple on all of them.



Homestead and Outbuildings, showing

Another prominent feature is the number of high-class sheep. At the Adelaide Non-Competitive Sheep Exhibition in September, 1917, North Bungaree had 21 rams and 20 ewes on view. The ewes are great mothers, not being encumbered with useless development; they can battle for themselves and rear their lambs without attention, and there is little difference in lambing percentage between the special ewes and ordinary stud ewes.

North Bungaree sheep are very prolific, the lambing percentage throughout the whole stud in 1916 being 89 1-3 per cent., while in 1917 it was 92 per cent. At Tolarno, which is 30 miles south of Menindie, N.S.W., and decidedly dry country, the lambing from 10,100 ewes, including 1,800 1½-year-old maiden ewes, was 93.7 per cent. One paddock of 2,440 ewes marked 110.60 per cent.

As an example of the heavy weights of wool cut by North Bungaree sheep in northern areas, Partacoona may be cited. This station, lying 30 miles east of Port Augusta, is owned by the firm, E. B. Hawker, and is worked in connection with North Bungaree. The sheep are bred up from North Bungaree cast-for-age ewes and specially selected rams. The wool clip in 1917 consisted of 456 bales cut from 13,356 sheep, including

4,100 lambs; the grown sheep averaged 15 lbs. 12½ ozs., and the lambs 4 lbs. 4 ozs., the latter being dropped in May and June, and shorn at the end of September.

The North Bungaree Merinos are great bale-fillers, and the price obtained for the wool com-



Hercules (by Perfection I.)
Bred by Albert Austin, Wanganella
Purchased by M. S. Hawker, North Bungaree, and Walter
Hawker, Anama, for 1,700 guineas



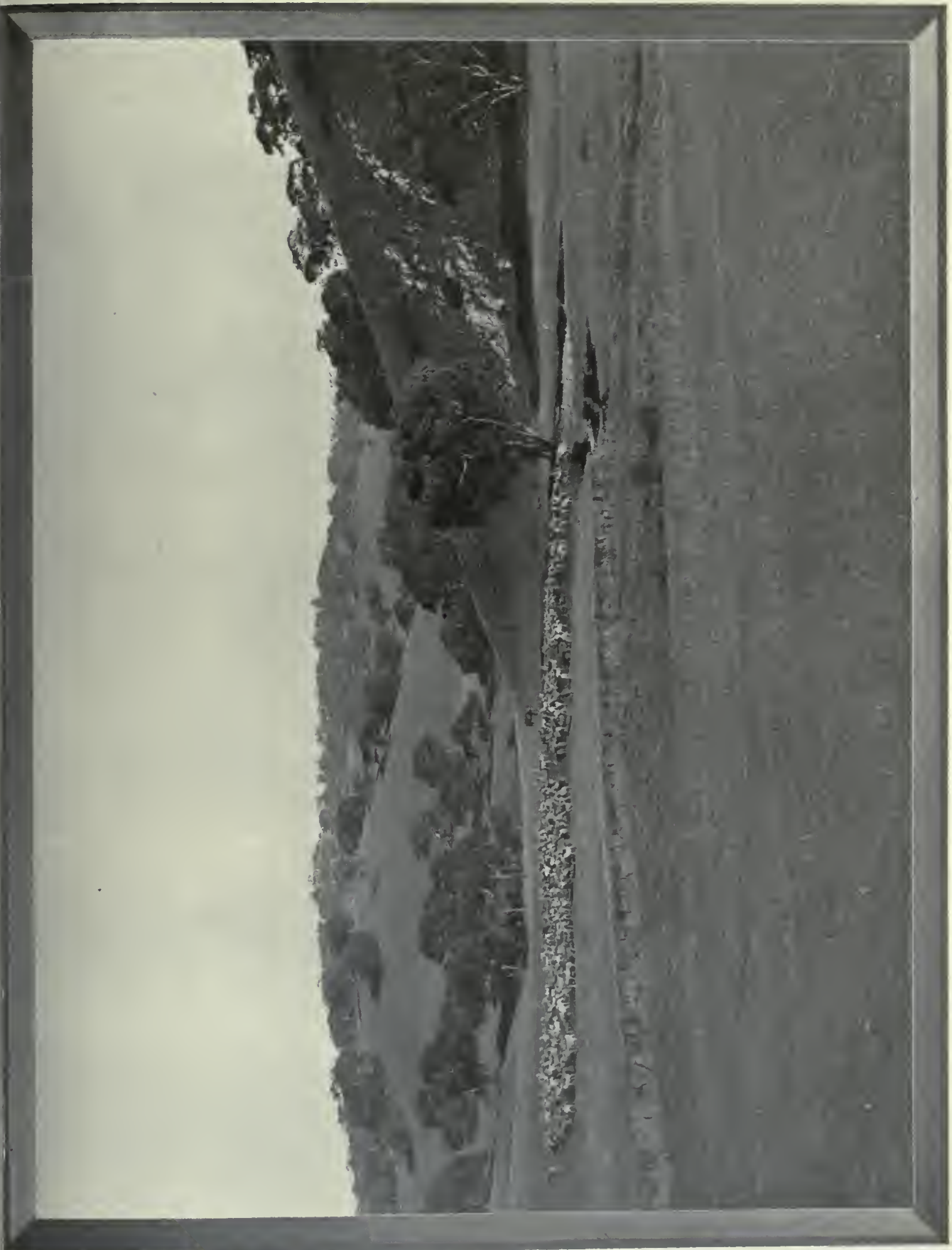
Typical Bungaree Country

pares very favorably with that of any stud in South Australia. The 1917 clip, consisting of 265 bales, was appraised in December, 1917, and January, 1918. The whole of the fleece portion, consisting of 153 bales, averaged 21 7-8d. per lb. The following are principal prices obtained:—

5 bales	Super. Hogts.	25½d.
60	„ AAEAAH	23¾d.
13	„ AAE	23¼d.
10	„ AAH	21¼d.
9	„ AE	21d.
5	„ AE	20½d.
15	„ BBHBBE	22d.
1	„ BBH	20½d.
4	„ A Pieces H	20¼d.
11	„ A Pieces E	19¾d.
11	„ A Pieces E	19¼d.
10	„ Pieces E	15¾d.
1	„ A Bellies H	15¼d.
1	„ A Bellies E	15d.
4	„ Locks	6¾d.
12	„ AA Lambs	17¼d.
2	„ AA Lambs	15¾d.
8	„ A Lambs	13d.
9	„ Lambs	8½d.

The striking feature about these prices is probably that from a clip consisting of 265 bales all told, one big line of 60 bales should realise 23¾d. This we can accept as convincing proof of the high quality and general evenness of North Bungaree sheep.

In 1914, in conjunction with Mr. Walter Hawker, of Anama, the stud sire, Hercules, by Perfection I., was purchased from Mr. Albert Austin, of Wanganella, for 1,700 guineas, and was used in the North Bungaree and Anama studs for two and a half years, when he was sold to Mr. H. L. Austin, of Eli Elwah for 1,500 guineas. The well-known Wanganella special stud ram, Perfection I. was leased for six weeks in 1914. Hercules and Perfection I. were mated with big-framed, robust-woolled, plain-bodied special stud ewes. Both these rams nicked admirably with North Bungaree ewes, their progeny retaining the big frame and length of staple for which these sheep are so well-known, but the wool has been improved thereby in character and density. In 1916 forty-five 1½-year-old ewes, the whole drop by Hercules, averaged 14½lbs. of high yielding wool per head. That the North Bungaree sheep do well on dry country is proved by the fact that there is such a keen



North Bungaree Country



3-Year-Old North Bungaree Stud Ram

demand for the rams from Queensland that they are usually booked well ahead. Already the present season's drop is sold for delivery next year.

The following quotation from the *Adelaide Register*, of January 3rd, 1917, headed "Fine Two-Tooth Merinos," will be of interest in this connection:—"Among the sheep which attracted special attention at the Christmas market at the abattoirs were 142 machine-shorn pure North Bungaree merinos that had come down from the Partacoona Station, near to Gordon. They were enthusiastically admired, and those who saw them will be interested to learn that, although only 18 months old, they realised the following excellent prices:—32 wethers, 36s. 7d.; 73 wethers, 34s. 1d.; 28 wethers, 31s. 1d.; and 9 stags, 28s. 4d. The price obtained for the top

line represents probably the highest ever recorded at a local metropolitan market, and possibly in Australia, for machine-shorn two-tooth merinos, and is a striking testimony to the quality and early maturity of the North Bungaree sheep."

Another recent press criticism—this time by "Rawden" in *The Pastoral Review*—may be quoted:—"Going through the various consignments at the Adelaide Show (1917) one could not but be struck by the almost general infusion of Wanganella blood and its effects, for while the sheep have retained that great frame for which the South Australians have become so justly famous, there has been a marked improvement in the character and density of the fleece. This was illustrated in the team from Mr. M. S. Hawker's North Bungaree property, some of which were of the old Bungaree blood pure, whilst others contained the Wanganella infusion through the use of Hercules. Altogether, it was a notable collection, both rams and ewes carrying a long, robust staple, well packed on to immense frames."

The stud sheep sales from North Bungaree during 1917 show some noteworthy results. Of the high-priced rams, one was sold at 450 guineas, one at 250 guineas, one at 200 guineas, and three at 100 guineas; two fetched 75 guineas, twelve 50 guineas, one 35 guineas, eleven £30 5s., seven 25 guineas, one 20 guineas, and twenty £20; 25 fetched 7 guineas apiece, 771 five guineas, and 1,113 three guineas. Of the ewes 255 were sold at 2 guineas, 70 at 2½ guineas, 420 at 35s., 620 at 50s.; 300 were sold for Queensland for 6 guineas each, and 20 went to the same State at 10 guineas.



One-and-a-Half-Year-Old Rams. Sired by Hercules



The Homestead, Anama

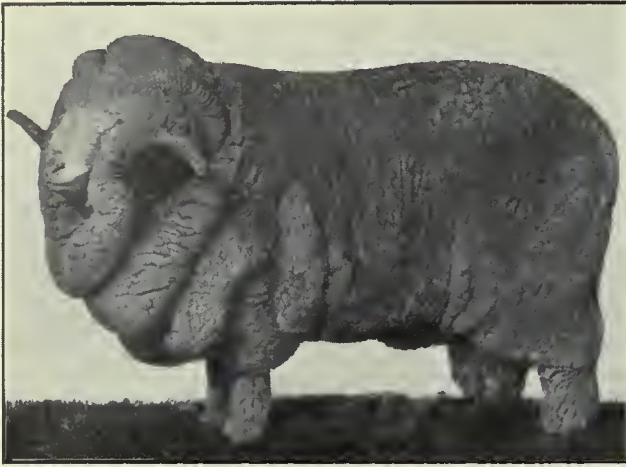
WALTER HAWKER, OF ANAMA

PART of the old-time Bungaree estate is Anama Station, the property of Mr. Walter Hawker, the sixth son of the late Hon. George C. Hawker. At the death of his father he received a fifth part of the original holding and subsequently, at the dissolution of the late firm of Hawker Brothers, he received, in common with his four brothers, one-fifth of all the stud and flock sheep on Bungaree.

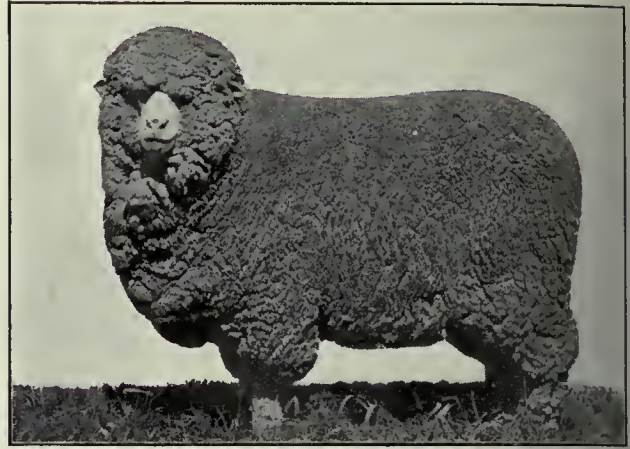
While the foundation of the Anama Merino flock came originally from the parent Bungaree stud of the late Hon. G. C. Hawker, the special sires introduced from elsewhere have tended to its improvement and the establishment of an incontestably high standard. In 1913, in conjunction with his brother, Mr. M. S. Hawker, the owner of Anama, purchased the historic ram, Hercules, from Mr. Albert Austin, of Wanganella, for 1,700 guineas. After using this fine sire in both the North Bungaree and Anama studs for two and a half years, during which time he sired nearly six hundreds lambs, the Messrs. Hawker sold him to Mr. Henry Austin, of Eli Elwah, for 1,500 guineas, nearly the original price. Of the Hercules offspring at Anama, practically none were culls; they were indeed especially good, and among them there were many magnificent rams. Most of the latter cut over 20 lbs. of wool, some reaching 22 lbs., and up to 23 lbs.

2 ozs. As "Rawden" said in *The Pastoral Review* recently:—"Mr. Walter Hawker, Anama, had a large consignment of rams and ewes at the last Adelaide Show (1917), and a good lot they were. Seven of the ten rams were by the Wanganella sire, Hercules, out of Anama ewes of the old Bungaree strain, and there were also both rams and ewes of pure Bungaree blood. They were all immense, plain-bodied, deep sheep again, one of the ewes being abnormally so, and having a 5 feet 9 inches girth. Mr. Walter Hawker is a great enthusiast and deserves every success."

The sire of Hercules—Perfection I.—was leased for Anama in 1913 for six weeks from Mr. Henry Austin for £300, and used at Anama and North Bungaree with considerable success, some splendid stock in the 109 lambs Perfection I., left behind him being thus acquired. Hawker ewes were also sent to Sir Charles II. and Admiral Charles, noted Bundemar rams. Mr. Walter Hawker also bought, in 1914, 54 ewes at the dispersal sale of the Cocketjedong stud flock, including 17 by the celebrated Sir Charles, to form a small stud of pure Wanganella blood. In 1915 he got straight from Bundemar five stud ewes, of which four were by Sir Charles. In 1917 these were culled down to 13, and the balance sold. On Anama are 30 special and 1st stud rams, cutting from 20 lbs. to 26 lbs., of which the ram,



Progress (3 years old)
(By Perfection I.—Miss Togo)



Miss Togo (by Togo)

Success, is typical. Progress, cutting 26 lbs for 10½ months' growth, carries the most development of any ram on Anama, but his stock are plain-bodied. There are over 1,300 special and 1st stud ewes on Anama, of which Miss Togo, the dam of Progress, and Lady Togo, may be taken as a sample for shape and style. Lady Togo cuts her great fleece, 20 lbs. 1 oz., because of her great size and length of staple—4½ inches—not because of any excessive wrinkles or density, from which she is free.

The surplus Anama ewes are eagerly competed for. In 1917, 802 culled flock ewes, ranging from 1½ years to 8 years old, averaged 45s. 3d. per head, by auction at the Burra. This is a record for this class of sheep in South Australia. In 1916 the wethers averaged over 40s., except a small lot of culls, which were sold at 35s. The fleeces of the best rams are always scoured. In 1917 the three top stud rams scoured as follows:—

	Greasy Weight.	Scoured Weight.	Yield.
Progress . . .	24lb. 13oz.	12lb. 1oz.	48.62%
H151 . . .	20lb. 1oz.	12lb. 1oz.	58.94%
H111 . . .	17lb. 4oz.	11lb. 3½oz.	65.04%

In 1917, 100 2-tooth rams cut an average of 14 lbs., and 105 stud and flock rams, ranging from 2½ years old to 10½ years averaged 18 lbs. 3 ozs.—a great achievement, considering the high yielding quality of the wool.

Worked in connection with, and as part of Anama, are now the choicest stud paddocks—between 5,000 and 6,000 acres,—of the old Hill River Estate, magnificent sheep-country, and also 3,000, some of the best of South Booboorowie, where fine crops of lucerne are grown. Mr. Walter Hawker has also a depot of some 3,000 acres in Western Australia, one of the oldest loca-

tions, U4, where he keeps 2,000 stud ewes. Mrs. Walter Hawker has a fine property, Kalabity, comprising 188 square miles, eighty miles west of Broken Hill. Kalabity was started five years ago with a flock of purchased ewes, none of which cost more than 12s., some as low as 7s., on which Anama rams have been used since the start. The 1,500 culled ewes from this property in 1917, mostly 4-year-olds, have sold up to 42s., averaging 30s. 8d.; 2,150 hoggetts, including 400 4-tooth wethers, averaged 15 lbs. 11 ozs. of wool, the return working out at about 45 bales to the 1,000, which is proof of what can be done by using good rams on indifferent ewes. This wool fetched up to 15½d. per lb. The Anama wethers, as lambs, are sent to one of these back-country stations, where they grow to a great size, and it is a common thing for the full-mouthed fat wethers to average over 70 lbs. dressed. Hawker wethers have, indeed, been known to average nearly double that weight dressed.

No wethers are kept at Anama except those sent from Kalabity and other northern stations to fatten and to be sold in the wool. Many of the ewes are kept till they are 12 or 13 years old; in fact, as long as they will rear a lamb. Notwithstanding this fact, the breeding ewes average from 11 to 12 lbs. of wool, according to the season.

The Anama sheep are of robust condition, large and free from body-wrinkles, so they are specially suitable for crossing with the small, dense, wrinkly sheep which were so fashionable some years ago. They have given uniform satisfaction, whether sent to New South Wales, North Queensland, Western Australia, or even to New Zealand and South Africa, because they improve rather than deteriorate when put on the better pastures which they find there. Mr. Walter Hawker has always sought to produce, and has succeeded in producing, a payable, useful sheep, avoiding all

VANAMA · STUD · MERINOS



SPECIAL
STUD

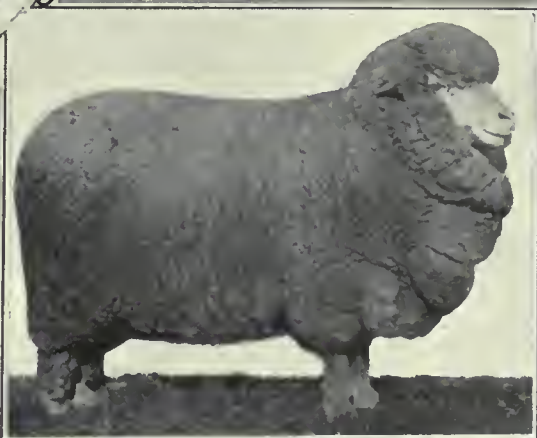


RAMS
& EWES

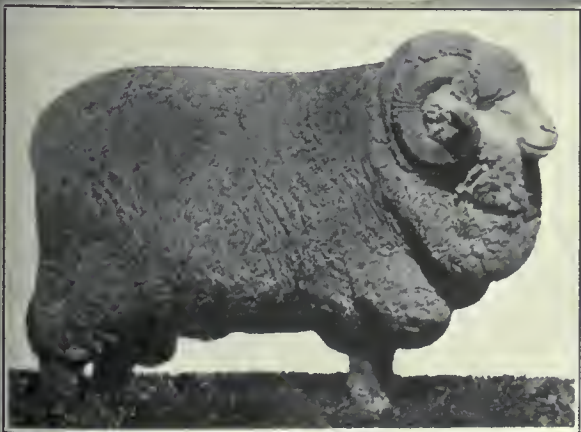


LADY TOGO

PROGRESS



NOMBI DUCHESS



SUCCESS



SECUNDUS

extremes, and looking at the profit per sheep rather than only at a price per lb. for the wool. Constitution is made a great, indeed the greatest point of, and with that invariable object in view none but the most suitable of the stud are ever bred from. Consequently, not only is the stud kept at its highest point in the quality of its lambs, but the lambing percentage is high—usually about 90 per cent. Even during the period of the severest drought on record in South Australia, that of 1914, the percentage of lambs averaged 72 per cent. Large-framed, shapely sheep, with plenty of bone, with wide-set

sians undoubtedly excel. The milk contains more solids than that of any other breed, and is therefore more wholesome for all stocks and also for the human race, the milk globules being smaller. A Dutch Friesian cow will milk and breed twice as long as any other breed; the quality of milk after the butter-fats have been extracted is far greater than that of any other breed, because it contains much more casein; and she produces more milk per 100 lbs. weight of body and yet will eat less per 100 lbs. weight.

The official tests show that the breed has over 50 per cent. more 2-year-old heifers giving over



Special Stud Anama Merino Ewes
(Bred by Walter Hawker, Anama, and grazed on Natural Grasses only)

horns and a clean face, carrying a long, strong fleece spinning about 60's, showing as much crimp as possible, are the Hawker Merinos to be found at Anama. Mr. Walter Hawker does not aim at piling on the wool, but rather seeks to cover the sheep as evenly as possible with a high yielding wool. In 1916 the Anama wool fetched up to 21½d. per lb., and in 1917 up to 24d., 18½d. for 1st pieces. That Mr. Hawker gives his personal attention to the breeding and classing of his sheep, is a guarantee that all that leave Anama are up to the ideal he has established for his stud and flock.

For the past five years Mr. Walter Hawker has been building up a small herd of pure Dutch Friesian cattle, known formerly as Holsteins. He has spared no expense in importing the best blood from New Zealand, that country having long passed the experimental stage in regard to this breed, though it is not yet as largely used in Australia as it undoubtedly will be in the near future, when its unsurpassed merits are known. Both as milking cows and as beef cattle the Dutch Frie-

600 or 700 lbs. of butter-fats in a year than any other two breeds of milking cattle combined, and they average the highest net profit per cow when all the products of a cow are taken into account. They also show an actual increase in production till past 10 years old, and, in fact, do not reach full maturity until fully 11 years old. They also live longer than other cows, and will fatten splendidly for beef when past the producing age. Cows of Mr. Walter Hawker's own breeding give from 50 to 60 lbs. of milk a day, the percentage of butter-fats being 3.2 lbs. Both cows and bullocks require less delicate feeding, and are hardier in resisting changes of climate. The bullocks not only make fine beef, but are also good workers, being strong, quiet, and tractable.

The two specimens from the Anama stud of Dutch Friesian cattle, photographs of which are here engraved, are high-class animals. The bull, King Segis of Dellhurst, was imported from Mr. W. J. Lovelock, of Friesland Park, New Zealand, who has the largest and best herd in the Dominion. His sire, King Segis Wild Rose Homestead, was



Dutch-Friesian Bull
King Segis of Dellhurst (2½ years old)

imported from America and is the winner of many Championships and the sire of many champions, including the King of the Dominos, the winner of 28 Championships. Two of the daughters of King Segis Wild Rose Homestead were Lady Cliffside II., and Dominos Friesland Belle, both of whom won the Junior Gold Medal in New Zealand, and seven of his daughters produced as 2-

year-olds, an average of 501.38 lbs. of butter-fats in the year under semi-official tests. One cow of his pedigree gave 29.618 lbs. of butter, another 29.35 lbs., and a third 28.137 lbs., each in seven days. His dam, Duchess of Dellhurst, gave 18,485 lbs. of milk and 615.85 lbs. of butter-fats in 12 months as a 2-year-old. His grand-dam, Ethel of Dellhurst II. (imported) gave 17,663.2 lbs. of milk and 638.85 lbs. of butter-fats in 12 months, and his great-grand-dam, Minnewawa Isobel, 138.4 lbs. of milk and 19.172 lbs. of butter-fats in seven days.

The heifer is Dominos Holland Belle, by Friesian Laddie (by Cliffside Laddie, winner of 25 Championships), sire of 10 Certificate of Merit daughters, each averaging 481.35 lbs. of butter-fats in 12 months. Her dam is Dominos Friesland Belle, whose test started at 2 years and 99 days old and was—Milk, 14,352 lbs. and butter-fats 533.48 lbs. in twelve months. Her grand-dam, Dominos Dutchland Belle, is the dam of the King of the Dominos, the winner of 28 Championships. Her grandsire, Kruger II., got six Certificate of Merit daughters, whose average was 540.58 lbs. of butter-fats in the year.



Dominos Holland Belle Topsy Lassie Daphne Blossom

Anama Dutch-Friesian Stud Cows



Lucernedale Stud Merino Ewes

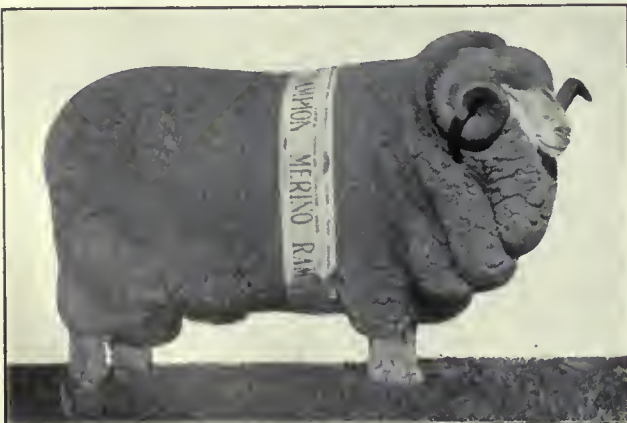
(Ten 1½-year-old Ewes. First Prize pen of ten ewes at the New South Wales Sheepbreeders' Association Sheep Show, Sydney, June, 1917. Sold for 100 guineas each.)

LUCERNEDALE.

AS showing what can be done in a short period in South Australia by enterprise, initiative, and youthful vigor, the Lucernedale Merino stud at Mount Bryan is of very special interest. Without unlimited wealth, and on a comparatively new country, the brothers Arthur and Horace Collins, trading under the style of Henry Collins and Co., have already put up many records, and have, in a short time, brought their stud to a high state of perfection and their business to a sound condition of profit.

This has been done in a marked degree by the qualities mentioned, and an investigation as to the methods employed demonstrates the fact that there is still room—and plenty of room—for fresh enterprise in the Australian pastoral

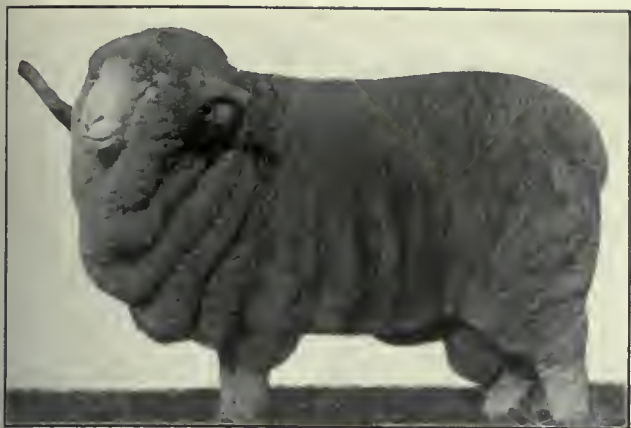
industry. It is, of course, equally apparent that there are many ways in which dire failure may be experienced, but the Messrs. Collins have been able to avoid the many pitfalls in their path by initiating a consistent policy and prosecuting it with single-minded determination. Thus, and thus only, can success be achieved in any enterprise, and in pastoralism this factor operates with especial certainty. For disaster can be achieved much more easily than success, and faulty judgment can result in irreparable loss, more swiftly and surely in the pastoral than in many other industries. It is difficult to retrace steps taken upon the pathway of failure, owing to the permanent damage done to a flock by unskilful breeding and disastrous experiments.



Modern Progress
Champion Lucernedale Stud Ram
(Adelaide, 1914)

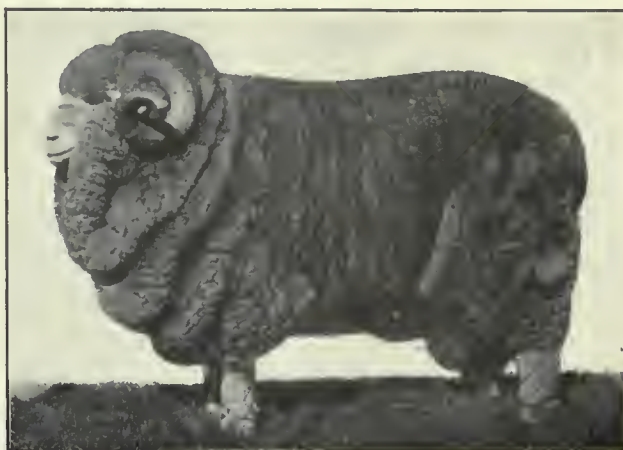


No. 1
Champion Lucernedale Stud Ewe
(Adelaide Competitive Show, 1914)



Lord Charles

Purchased from Estate of F. E. Body, Bundemar, for 2,000 guineas. Used in Lucernedale Stud, 1915 and 1916, and then sold for 1,500 guineas.



Dandie Dinmont

Lucernedale Stud Ram, of pure Wanganella Blood. Cost 1,550 guineas.

The history of the Lucernedale stud is brief. It was started some twenty years ago by Mr. Henry Collins, the father of the present owners and senior partner in the firm until the middle of 1917. Then a dissolution of partnership took place, whereby to each of the partners were apportioned different sections of the estate, which had comprised 4,500 acres in the Mount Byran district, South Australia.

The winter months at Mount Bryan are very cold. The summers are hot, with an average rainfall of eighteen inches. The country is chiefly of a rich chocolate, and on the flats lucerne can be grown fairly successfully, Lucernedale now having between 400 and 500 acres sown with this fodder. The property is situated close to the highest point above sea level in South Australia.

The present owners of Lucernedale, Arthur and Horace Collins, took over the property and the whole stud flock as their share. For several years the stud had consisted of purely South Australian sheep, until the value of the famous Wanganella blood was realised and blended with the South Australian blood. The proprietors even then decided to proceed cautiously, and contented themselves at first with introducing a ram that was one-half Wanganella blood. They were, however, so pleased with the result that they decided to introduce extensively the pure Wanganella strain.

The exceptional stud ram, Dandie Dinmont, was purchased in 1910 by Messrs. John Collins and Sons, of Collinsville, from Mr. James Richmond, then the proprietor of the Haddon Rig stud, for the sum of 1,550 guineas. This fine animal caused quite a sensation when shown in Sydney that year on account of his wonderful

covering. With only twelve months' growth on him he cut a fleece of 36 lbs. 8 ozs. of clean bright wool, which when scoured turned the scale at 17 lbs. 5 ozs.—said to be a record. During the season 1914 Dandie Dinmont served 312 ewes and 273 lambs were reared; from the two-tooth of this drop the following year £3,233 of stock was sold, yet all the best ewes were kept in the stud and most of the best of the rams. Dandie Dinmont, during the 1917 season, although between nine and ten years old, served 271 ewes, from which nearly 100 per cent. of lambs had been obtained, in spite of the very rough weather experienced during the winter.

Another noted son is Eclipse. His daughter, Ewe No. 1, was champion ewe at the Adelaide Royal Show in 1914—the last competitive show held in Adelaide.

During the year 1914 five ewes were purchased from the estate of the late F. E. Body, of Bundemar, at the record price of 100 guineas per head. The Messrs. Collins have never hesitated to pay big prices for the stock they want, and have always found that principle essential to immediate success. These ewes were on exhibition at the Sydney sales of that year, and, although only eighteen months old, were considered to be equal to, if not actually, the best five ewes that had ever been seen in Sydney. They were of pure Wanganella blood, and by the world-famous ram Sir Charles, which is reported to have sired more high-priced sheep than any other sire living. The purchase of these five ewes caused a very great deal of comment at the time. Quite a number of stud-masters stated that the price was altogether out of reason, and that the Collins family could never expect to see their

money back. This, however, fortunately proved to be wrong. During the first year that these ewes were on Lucernedale, however, only one ewe out of the five increased the stock. Her lamb, by the great sire, Dandie Dinmont, was



Dandie Again (By Dandie Dinmont)

a ram, and as a one-year-old proved to be of exceptional merit. He was sold to Mrs. E. W. Hawker, of East Bungaree, for 500 guineas, just paying back the initial outlay for the five ewes.

But that is not all. Since then, high-class stock have been continually coming from these ewes, until no less than 2,500 guineas has been received from their progeny (rams only), and five of their rams are still on hand at the time of writing (1918) and all of the ewe progeny. Besides, the original five ewes are still alive and doing well, each having a lamb now at foot by Dandie Dinmont. All this distinctly proves that, where good judgment is used, 100 guineas for a ewe can be paid and still show a margin for substantial profit. From either of these ewes there has not been a ram sold for less than the dam cost.

During the following year more pure-blood Wanganella ewes were introduced, also the pure-blood two-year-old stud ram, Gentleman III., from the F. E. Body estate, at 1,000 guineas. This ram was mated with pure ewes, and the stock turned out exceptionally well. They are to-day among the very best on Lucernedale. One ram of this lot was sold for 600 guineas, and, strange to say, was out of one of the five 100-guinea ewes from Bundemar. A ram lamb out of this same ewe was sold at fourteen days old for 150 guineas, and turned out a phenomenal sheep. A ram by Gentleman III. has just been sold to South Africa for 750 guineas.

With Gentleman III. three ewes were purchased from Bundemar, and also nine of the same blood from Sir Samuel McCaughey, of Coonong, New South Wales—absolutely the pick of Coonong 2-year-olds. For one of the Coonong ewes 100 guineas was paid, the nine averaging nearly forty guineas per head. The 100-guinea ewe was on exhibition at the Sheepbreeders' Show in Sydney that year, and was considered to be the best ewe ever seen at the show. As a breeder she turned out a thorough success, her first lamb by Gentleman III. being a very high-class ram. The Coonong ewes also proved good breeders and have been consistently successful.

Besides the Bundemar and Coonong ewes, 860 pure Wanganella ewes were purchased from the late Mr. A. J. Austin, of Murgha, and Mr. Harry L. Austin, of Fairlie Grange. For a number of the ewes brought from Murgha 50 guineas was paid; with the exception of one ewe, these were the pick of the 2-year-old ewes on Murgha.

The following year another visit to Bundemar resulted in the purchase of the famous sire Lord Charles, by Sir Charles, for 2,000 guineas, also 36 of absolutely the pick of the Bundemar one- and two-year-old ewes, at a very high price, and further 108 first stud young ewes at a lower price, besides 35 other ewes of the same blood, the best choice of two other well-known studs in the same district. The ram Lord Bundemar was at the same time purchased from the F. E. Body estate for 500 guineas; he was sold by the Collins brothers for 800 guineas to Messrs. Sidney Austin and Sons, Wambiana, Trangie, New South Wales. The progeny of Lord Charles include No. 11, sold for 1,100 guineas; No. 60, sold for 1,200 guineas; No. 62, sold for 750 guineas; No. 2, sold for 600 guineas; No. 10, sold for 400 guineas; No. 22, sold for 350 guineas to go to Africa; No. 192, sold for 250 guineas; No. 47,



Gentleman III.
Pure Wanganella Ram. Cost 1,000 guineas.



LUCERNE DALE



STUD EWES



SYDNEY EWE



NO 55



NO 1000



LUSTRE 59

250 guineas; No. 197, 200 guineas; and several at 150 guineas, also 11 ewes at 100 guineas each.

During 1916 nearly 500 very high-class ewes were purchased from Murgha at prices ranging from 100 guineas per head down, and included in this purchase were 37, which, with the exception of one ewe, were absolutely the pick of

to Lucernedale to be served, and just lately the capable manager of Murgha, Mr. A. Wigan, reported that he has an exceptional one-year-old ram by Dandie Dinmont, and that, if all goes well, he expects to have him on exhibition in Sydney in 1918.

In 1917 the highest-priced ram at the Sydney

Lucernedale Imported Border Collie Sheep-Dog



Hemp "Bucking Them Through"

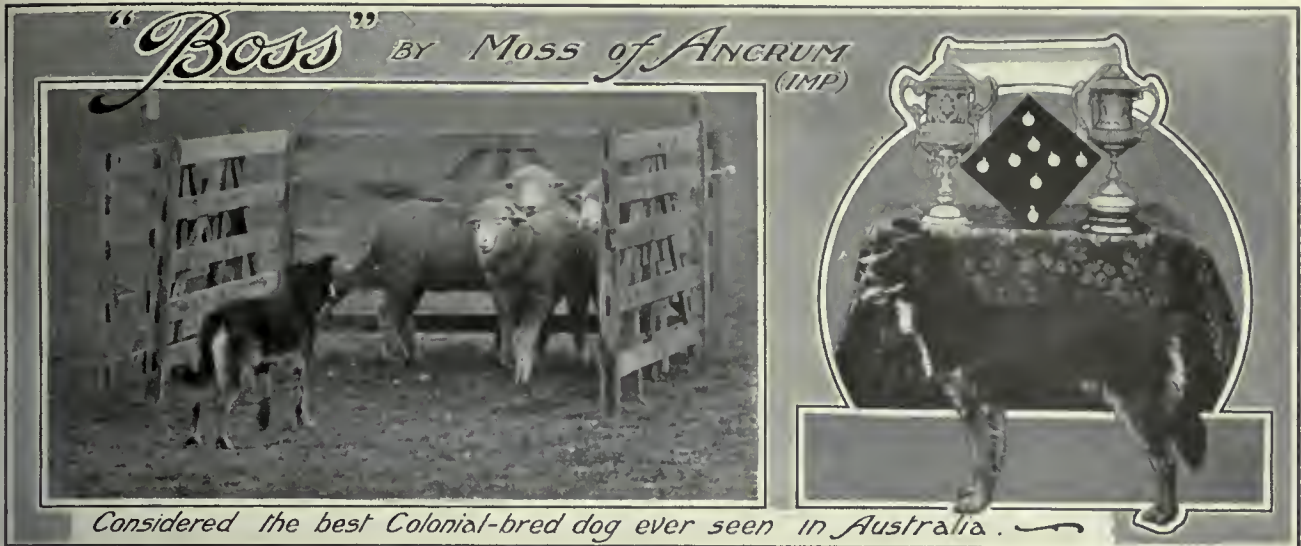
Considered by Experts the Finest Worker in Australia

the young ewes on Murgha. In the following year a further purchase was made from Mr. F. B. S. Falkiner, of Haddon Rig, Warren, New South Wales, of 25 of the best of 306 extra special reserve Wanganella-blood ewes, for 945 guineas.

It will be seen that the policy of the owners of Lucernedale has been to purchase the best, and nothing but the best, either in rams or ewes, from the highest-grade studs offering of the strains deemed most suited for Lucernedale. In this way no less a sum than £13,000 has been safely invested, the good judgment of the purchasers having been amply demonstrated by the results achieved. Many instances might be quoted where the Collins brothers' choice has been supported by the most experienced breeders, but the following must suffice:—During the season 1915 they purchased a ram from Messrs. Sidney Austin and Sons for 500 guineas, used him in the Lucernedale stud for a month, and sold him to the late Mr. A. J. Austin, of Murgha, for 750 guineas. In the same year, Mr. Austin sent 37 of his ewes

sales was purchased from the Murgha Estate for use in the Lucernedale stud. Altogether considerably more than £20,000 has been spent in the introduction of pure Wanganella blood to Lucernedale, which stud can now appropriately be termed the Wanganella of South Australia.

The Bundemar-bred ram, Admiral Charles, by Sir Charles, which was sold for 1,200 guineas to Mr. Harry L. Austin, of Eli Elwah, has been purchased for use in the Lucernedale stud, and the well-known Perfection II., half-brother of the famous 1,700-guinea Hercules, of Bungaree, has also been secured by the Collins brothers. Perfection II. was bred by the late Mr. Albert Austin, of Wanganella, and he refused 1,000 guineas for him as a four-tooth. The Lucernedale stud averages for nine rams sold privately during the 1914 season showed 238 guineas. During 1915 eight rams averaged 227 guineas, and in 1917 nine stud rams have been sold at an average of 393 guineas and eleven ewes at 100 guineas each. These were the progeny of Dandie Dinmont and Lord Charles. The top price



secured for a ram bred on Lucernedale was 1,200 guineas for No. 60. Two rams were sold to the proprietors of the Wanganella Estate for use in the Wanganella stud and a number of others to noted New South Wales breeders, including a stud ram to Urangeline Co., N.S.W., a special stud ram at 750 guineas. Five special stud rams to date this season have averaged 777 guineas, and in ten days between 6,000 and 7,000 guineas' worth of rams were sold.

In the show pen, the Lucernedale stud has been highly successful. At the last competitive Adelaide Royal Show, held in September, 1914, both championships were secured by their sheep, besides the reserve championships for ram and a number of other first and second prizes, practically sweeping the board. At the Sheepbreeders' Association Show in Sydney, in 1917, the Lucernedale stud secured the much-coveted first prize for a pen of ten ewes, unhoused, of under two years old, also first prize in the two-year-old ewe class with a hoggett, and several second and third prizes. The exhibition of these ewes in Sydney—successful in spite of the fact that for the seven weeks previous to the show ten inches of rain had fallen on them, and in transit on board ship to Sydney they again became wet with salt water and were so when judged—caused a very favorable impression in sheep circles.

Sheep from Lucernedale have gone to all parts of Australia, also to New Zealand and to South Africa, and a very ready demand is experienced for all available flock rams, which have been sold for the quite exceptional price in this State of five guineas per head. The average price of nine stud rams sold privately during 1914 was 238 guineas; eight stud rams during 1915 averaged 227 guineas; while in 1916 the average price for seven stud rams was 366 guineas, eleven ewes

fetching 100 guineas; the figures for 1917 are eleven special stud rams, which averaged 393 guineas per head.

A specially interesting and unique feature of the Lucernedale Estate is its stud of Border Collie sheep dogs, claimed to be the best collection in existence. The Messrs. Collins have spared no expense during the past nine years in securing the very best dogs procurable in Scotland, in which country the Border Collies have won a world-wide and unrivalled reputation, and also in England, when dogs of the highest reputation have been available there. At the present



LUCERNEDALE

STUD
MERINOS
AND

BORDER
COLLIE
SHEEP
DOGS



• YOUNG JIMMY •
15 MONTHS
OLD



LUCERNEDALE

STUD
MERINOS
AND



BORDER
COLLIE
SHEEP
DOGS



time there are at Lucernedale five of the greatest dogs Scotland and England have ever produced. A brief description of these cannot fail to be of the highest practical interest to sheep-breeders and dog-fanciers alike.

First there is the notable black and white Collie, Trim, who is considered wherever the Border Collie is known to be the best brood-bitch living. She is the daughter of Ancrum Jed, a bitch that died at Lucernedale, leaving a lot of wonderful stock behind her. Trim's great sons at Lucernedale are Sweep, the double International winner, who has also won in England and Scotland twenty-two first prizes, fourteen seconds, twelve thirds, four fourths, and two fifths; and Don, his stable mate, also a double International winner, who also has eight firsts, eight seconds, three thirds, one fourth, and a sixth to his credit. These are claimed to be the two greatest sheep-dogs alive to-day, each having won the most coveted of all dog-trial prizes, the International in Scotland, twice—an unrivalled achievement. They were both owned and worked by Mr. Armstrong, who only left the trial course twice in four years without one or the other of these dogs being in the prize-list. They are the first winners of the great event to be imported into the Southern Hemisphere. Sweep won the International in 1910 and 1912, and Don carried it off in 1911 and 1914. The International Trial, which is run in Scotland and England, is considered the champion sheep-dog trial of the world.

Lammermoor Queen, the dam of the world-renowned Mux (by Don), is also in this kennel,

and she is considered to be as a breeder second only to Trim. There are also a number of other imported cracks at Lucernedale, for which up to 100 guineas each has been paid. Hemp (imported) won the Sydney Championship in 1914, and others of his dogs during the past four years have scored dozens of first prizes in Scotland, Australia, and New Zealand. In 1917 Frisk also won the Sydney championship and was first in the single sheep contest, putting him right round the course, with Garry fourth and Jimmy third in the notice class. Frisk won three out of four of the championships competed for in New South Wales, South Australia, and Tasmania, being second at the Victorian Championship. Garry won the novice class prize in 1916 in Sydney. Lucernedale dogs have also won the championship of South Australia three times. "Wallace's Moss" is also here—a second and a fourth prize winner of the International, Scotland, and considered by many to be the best worker and sire ever produced in Scotland.

Considerably over £1,000 has been spent in imported dogs alone in building up the Lucernedale Border-sheep dog stud.

Before the war broke out arrangements were being made by the Commonwealth Government with Mr. Arthur Collins to visit the Panama Exposition for the purpose of giving demonstrations of working sheep with his dogs, thereby representing Australia officially in this particular branch. It may fairly be said that Lucernedale has the greatest kennel of working sheep-dogs owned by any one person anywhere.



Jimmy (imported).

Prize-winner, Second International, Scotland, at 10 months old.



Glenelg Homestead

THE DOWNIES, OF GLENELG TASMANIAN PIONEER PASTORALISTS

THE records of the Downie family of Tasmanian pioneer pastoralists, go back to the very early days of the Island State, when it was known by its Dutch name of Van Diemen's Land. Andrew Downie, the first of that Scottish family to venture forth to new lands—it was indeed a venture in those days—was a solicitor in a good way of business, but of a spirit that found the practice of the law too humdrum. So he sought new fields for his enterprise in the new British dominions overseas. He arrived at Hobart Town, as the southernmost city was then called, in the good ship *Skelton*, on December 22nd, 1822, settling at Newtown. He roved about the country for some time, finding useful employment in suppressing the cattle- and sheep-stealers, who were a great source of trouble and danger in those days. On one occasion he was attacked and left for dead, his leg being broken, but he managed to escape by hiding in a hollow log.

For his services, he received a grant of 1,000 acres of land from the Crown, but this he disposed of and obtained another grant, in 1832, of a similar area, in the Hamilton district, to which he gave the name of Glenelg. Here he suffered

severely from the depredations of the blacks, and he and his men had always to be armed while moving about the property. On one occasion, Mr. Downie had a narrow escape of being speared, but shot his assailant—the only native he ever killed. Anyone going from the homestead to the well to draw water—some considerable distance—had to carry two buckets on a yoke over the shoulders, and also a gun. Men who could establish and maintain a home in such wild places were obviously of the best type. A roadless wilderness, with only stock tracks and those of the most primitive kind; huts made of slabs and lath-and-plaster, or log-huts affording the rudest shelter; foods and utensils of the most simple and comfortless kind, represented the “creature comforts” of the pioneers.

Yet these brave, spirited, and resourceful men found the new land so good that they often persuaded their relations—other spirits like unto themselves—to join them in their enterprise. So it was with Andrew Downie. After eleven years of pioneering, he came to the conclusion that Van Diemen's Land had proved itself and so, on one of his visits to the old country, he persuaded his brother Thomas to return with him. They



Mr. and Mrs. William Downie

reached Hobart on September 18th, 1833, in the ship *Lochiel*, and went at once to Glenelg, cultivating some of the property, with sheep, cattle, and horses grazing on the remainder. On another of his visits "home," Andrew Downie married a Scotch lady, who became very popular in Tasmania. So successful were the brothers at Glenelg that they persuaded their brother William, the youngest of a family of fourteen, to join them. William was in sole charge of his father's estates at Stirling, Scotland, and the old man

strongly opposed his emigration, threatening to cut him off with the proverbial shilling. He consequently landed in Hobart on September 22nd, 1838, in the ship *Rajah*, without financial resources; indeed his sole wealth consisted, appropriately enough, of two sixpences, which are still in the possession of his son, J. W. Downie. He at once joined his brothers, and proved the most skilful and resourceful member of the partnership, combining high intellectual faculties with untiring energy and physical fitness, he was of the



Mr. and Mrs. J. W. Downie

best type of Scottish colonist. He was the founder of the well-known Tasmanian family, and the great-grandfather of its present youngest members.

After working Glenelg successfully for about five years, he decided to found a family for himself, with the true instinct of a pioneer, marrying on July 7, 1843, Miss McDermid, to whom he had become engaged while in Scotland. To his wife he undoubtedly owed much of his success in life; she shared with him to the fullest extent all the difficulties and hardships of early pioneering in Tasmania.

In 1854 Thomas Downie joined in the exodus to the new goldfields in Victoria, and there succeeded in amassing a fortune. A few years later Andrew Downie and his wife (they had no family), returned to Scotland permanently, while his brother William rented from him his Tasmanian properties. When he died, at the age of 85, he left Glenelg to William Downie, who was twenty years his junior.

Then William Downie and his good wife settled down in real earnest at Glenelg, and worked the property with energy and enterprise in accordance with their own ideas, and always with success. He was a strict but just and kindly disciplinarian. He never had any difficulties with bushrangers, and when employing prisoners from Port Arthur, invariably found them easy to

manage, never requiring the severe treatment found necessary by some less tactful employers. He had, in fact, a great gift in the management of men. Many of his employees remained with him thirty or forty years, and those who survived him passed into the employment of his sons, when he gave up to them, in later years, the active management of his various estates. As in Scotland, his draught horses had beaten all comers at the Stirling Shows, so in Tasmania his stock always did well at the Shows and in the sale-yards. His merino sheep became famous for their size and the fine quality of their wool. They commanded at the sales amongst the top prices of the market with a bulky, heavy fleece and good length of staple, and the fats and stores were always well competed for. No expense was spared in purchasing the best sires the State could produce, and the ewes were procured from the best flocks in the Midlands. Nine good sires were purchased from James Gibson, Bellevue, at Campbelltown Show, which made an excellent foundation; they were, in those days, of plain body, after the Sir Thomas style, of large frame, good length of staple, and splendid free wool. The herd cattle, as well as the milkers, were Devons, and were from the best bulls, purchased mostly from Messrs. C. B. Grubb, Strathroy, and others. They proved a very hardy breed of good workers, suitable for rough hilly country and fattening well.



General View of Glenelg Estate, from the North



Greenwich Homestead

In 1854 William Downie bought Glen Derwent, in the New Norfolk district, for his wife, as a more restful home for her, and they took up their residence there, improving it, and engaging in hop and apple growing. Although he had no previous experience in their cultivation, Mr. Downie succeeded in growing the heaviest crops in the district, and secured the highest prices, putting his produce on the market in the best possible condition. Meanwhile, Glenelg and other properties which he had acquired were under competent management, Mr. Downie visiting them occasionally and supervising their progress. He had added adjacent land to Glenelg, and also acquired Dungrove in the Bothwell district, and Lagoon of Islands in the Great Lake district, the latter being a good outlet for stock, principally in the summer months.

His elder son, John W. Downie, assisted his father in the management of all the properties

from 1869 to 1873, in which latter year he took charge of the pastoral properties for the firm of W. Downie and Sons. His younger son, Archibald T. W. Downie, had the management of Glen Derwent, settling there on his marriage in 1874 with the eldest daughter of Ralph Terry, of Lachlan Mills, New Norfolk. He was Warden for New Norfolk for several years, and took a prominent part in the affairs of the district. He relinquished pastoral pursuits, and devoted himself with great success to the fruit and hop plantations. He died suddenly in Melbourne in 1905, leaving four sons and five daughters. His eldest son, Wm. Vivian, enlisted for active service in the great war and, while in Claremont camp, died of meningitis; two other sons, Lieut. Alan Downie and Corporal C. T. Downie, are now (1918) at the front. The fourth son, Andrew Downie, is a successful hop and apple grower in New Norfolk.



Dungrove Homestead, Bothwell District

In his youth, J. W. Downie gained a knowledge of book-keeping and general commercial methods by serving for a time in a merchant's office in Hobart. Such a preparation in business methods was characteristic of his father's ideas of thoroughness and was useful to the young man in his management of Mr. William Downie's considerable interests. When he married, in 1878, the eldest daughter of F. W. Wise—who was well-known in the commercial world and was the owner of the old steamer, *Monarch*, which ran regularly for many years between New Norfolk and Hobart—his father built for him a beautiful and commodious cut-stone residence at Glenelg, which stands in picturesque country between Macquarie Plains and Hamilton. Mrs. Downie has always proved herself a splendid helpmate to her husband, a good mother, and a generous friend. In the year of his marriage J. W. Downie won a seat in the local Council against the Hon. N. J. Brown, which he held for 38 years, and was also made a magistrate for the Territory in the same year. In later years his friends unsuccessfully endeavored to persuade him to accept appointment as warden for his district, and also to stand for Parliament.

As a pastoralist he has been like his father, a man of initiative and resourcefulness, and has continuously improved the properties, increasing their area by over 10,500 acres. He purchased a good deal of land round Glenelg, some of which belonged to the late Mr. Joseph Clarke. He was the first in the district to poison rabbits with phosphorised oats and he, by degrees, had all his estates sub-divided and fenced with rabbit-proof wire-netting, representing over 120 miles of fencing. This proved a most efficacious method and paid for itself over and over again, in spite of its high cost, at first averaging £75 a mile. He

devoted most of his attention to pastoral work; he would have done more in agriculture but for the fact that the land, although otherwise suitable for cultivation, was too stony. He continued on his father's lines of breeding stock, and never hesitated to relinquish methods he found unsuccessful. This was the case with the wrinkley sheep, which were fashionable during William Downie's latter days, but proved eventually deficient in length of wool-staple and small in the bone. When a change was deemed advisable, Mr. Downie did not hesitate to make it. He procured in 1904 from Alick J. Murray, of Mount Crawford, and others, that type of merino which has now become the standard, with greatly improved frame, size, and bone, cutting a much heavier fleece of a stronger type—a sheep of much sounder constitution—afterwards modified by Mr. Downie, with the assistance of his eldest son, W. G. Downie, who is a fine judge of wool. The result has been highly satisfactory. In 1908 J. W. Downie was awarded Diploma of Honor for best three fleeces of merino wool at the Franco-British Exhibition.

Believing in the principle of giving his family an early start in life, Mr. Downie, in 1910, made over to his three elder sons a good portion of his properties—Glenelg to William G. Downie; Dungle Grove to Frederick G. Downie, and part of Broad Bottom and Greenwich to Roy G. Downie. Later on he gave other properties to his youngest son, Gunner Keith G. Downie, who is at present (1918) on active service. There are two daughters, one of whom is Mrs. C. F. Parsons, of Bloomfield, and the other, Miss Phyllis Downie, is principally occupied in patriotic work. Mr. and Mrs. Downie retired to Hobart, where they live in a handsome villa Mr. Downie recently erected in Davey-street.



William G. Downie.

Fredk G. Downie.

Roy G. Downie.

Gunner Keith G. Downie.

GOVERNMENT
SAVINGS
BANKS

OF NEW
SOUTH
WALES

SYDNEY

BRANCHES



GOVERNMENT SAVINGS BANK OF NEW SOUTH WALES

ALTHOUGH the Australians, as a race, may reasonably be considered pleasure-loving—the natural result of exceptionally favorable climatic conditions, tending to an open-air life—yet it is a fact that they save almost as well as they spend, and they are royal spenders and liberal givers. All this is evidence, if such were needed, of the prosperity of the country, a prosperity dependent chiefly on good seasons and profitable markets, for Australia is primarily a producing country.

For many years that has been the normal condition, with the exception of one year of devastating drought—1913. But Australia is a country of quick recoveries. The year before the war, 1914, may be taken as a normal year, and will provide the general facts and comparisons for our present purpose, though more recent figures will be given by way of actual information.

The total population of the Commonwealth in 1914 was about five millions, with males and females almost equal, of which over a quarter are children under fifteen years. This gives us then a wage-earning community of considerably less than three and a half millions, for it is obvious that not all over that age are wage-earners or even self-supporting. Out of these there must be a large proportion who do their financial business through banks in the ordinary way, without special regard to “savings” in the usual sense. This is shown by the fact that the deposits of cash alone in the commercial banks throughout the Commonwealth were £163,854,555 in 1914—the most recent normal year. This out of the annual income of Australians, which totals over 250 millions.

But it is in their smaller savings that the real thrift of the people is shown. We find that out of these three million and a half of wage-earners there are no less than two million depositors in the Government Savings Banks. In New South Wales, out of rather more than a million persons of self-supporting age, more than half, over 756,000, are depositors in the Government Savings Banks throughout that State, with a total sum of over £37,000,000. Even this huge sum does not cover other direct savings or prudential provisions, such as life insurance, the annual premiums paid into the New South Wales branches of these companies being not less than £1,800,000 odd. This takes no account of payments into Friendly Societies and similar associations.

From whatever angle we look at these facts and figures, they undoubtedly speak eloquently of the thrift and prosperity of Australians, and the provisions made by the Savings Banks and other such organisations for the encouragement and assistance of thrifty persons.

The Government Savings Bank of New South Wales occupies the unique position of being the second largest Savings Bank in the British Empire—its total deposits being only exceeded by those of the Post Office Savings Bank of the United Kingdom.

The history of the Bank has been one of steady progress, and the following summary of the expansion for the last eight years will show to what extent the facilities of the Bank are availed of by the public of New South Wales:—

Year Ended.	No. of Accounts.	Depositors' Balances.
31st Dec., 1910 ..	368,306 ..	£15,190,819
” ” 1911 ..	407,011 ..	£17,595,694
” ” 1912 ..	460,382 ..	£20,128,598
” ” 1913 ..	506,028 ..	£22,216,985
30th June, 1914 ..	680,060 ..	*£31,996,268
” ” 1915 ..	694,108 ..	£33,537,017
” ” 1916 ..	719,319 ..	£34,615,222
” ” 1917 ..	756,917 ..	£37,049,189

*Includes 150,838 accounts, totalling £8,835,266 18s. 4d., taken over on amalgamation with the Savings Bank of N.S.W.

The Bank is essentially a people's Bank. It receives deposits of even small amounts of one shilling, whilst it offers attractions to the man who, by patient saving, can build up an account of £500. It pays interest at a rate (3¼ per cent.) higher than is paid by any other Savings Institution in the State, and gives to every depositor the best guarantee possible—the guarantee of the Government—for the repayment of all deposits.

Interest is calculated on the monthly balance and added to the accounts on the 30th June in each year.

In addition to having one account in his own name a person may open:

- (a) Joint accounts with other persons.
- (b) Trust accounts on behalf of other persons.

It is important that this Bank should not be confused with the Post Office Savings Bank. Some years ago this Bank had its agencies at the Post Offices, but the business was removed from them in 1912.

There are now 132 branches established in the principal cities, towns and suburbs, and in addition to these there are nearly 500 agencies under the control of State Government Officials, such as Crown Lands Agents, Clerks of Petty Sessions, Police Officers, etc., and others in charge of Municipal and Shire Clerks, Stock and Station Agents, chemists and other professional or business men, under conditions which guarantee to the depositors close attention to their requirements with the strictest secrecy as to their affairs.

The Bank offers its depositors every service and convenience in transacting business. The Commissioners' aim is to further the interests of depositors and the community generally to the best of their ability. The depositor with a small account receives the same attention and courtesy accorded the man whose deposits run into hundreds of pounds. Essentially, the business of the Bank is to encourage thrift.

The Bank is not only a service to depositors whilst they are in New South Wales, but if their business or recreation takes them to other States of the Commonwealth, New Zealand, or to the United Kingdom the facilities of the Bank will follow them.

Every penny saved and deposited in the Government Savings Bank of New South Wales adds so much to the depositor's future prosperity—it may do more, for there is no knowing what op-

no local branch of the Government Savings Bank of New South Wales, this system has been established. By its means the Savings Bank business may be conducted by post without any cost to depositors. To deposit money, the depositor may send an Australian note, money order, postal note, stamps, or adopt any other means most convenient. The Bank returns to the depositor the postage or cost of registration by adding it to the amount of the deposit.

For the encouragement of thrifty habits in children. Penny Savings Banks are established at nearly all the public schools throughout the State, where any amount from 1d. upwards is received. The value of these Penny Banks in promoting thrift among children, at the impressionable age when good habits can be formed as easily as bad ones, is inestimable, and will ultimately have a very close bearing upon the prosperity and soundness of the community. When the children have an account of £1 they are induced to open an account in the Government Savings Bank.

As a further inducement to small savings, deposit boxes for home use, not only by children but by adults, may be purchased at 6d. each from any branch of the Bank. A few months' experience of this system will prove the truth of the old adage that if we look after our shillings our pounds will look after themselves.

The following table will be interesting as showing how money will increase with interest if deposited regularly every week. The results are rather startling:—

Amount Paid in Weekly	WILL AMOUNT TO IN—						
	1 Year	2 Years	3 Years	4 Years	5 Years	6 Years	7 Years
1s.	£2 12 6	£5 6 10	£8 3 0	£11 1 3	£14 1 10	£17 4 8	£20 10 7
2s. 6d.	6 11 9	13 8 2	20 9 9	27 16 8	35 9 1	43 7 3	51 13 11
5s.	13 4 0	26 17 8	41 1 7	55 16 2	71 1 10	86 19 0	103 12 5
10s.	26 8 7	53 16 7	82 5 3	111 15 3	142 7 5	174 2 5	207 11 5
£1	52 17 11	107 14 10	164 12 11	223 13 10	284 18 11	348 9 10	415 8 9

Calculated on the minimum monthly balance at 3¼ per cent. up to £500.

portunities may be seized if one has money available in the Savings Bank for immediate investment when a safe opportunity arrives. Garfield once said, "Things don't turn up in this world until somebody turns them up. Experience teaches that it is the men and women who pay attention to small savings that become wealthy." The business of this Bank is to help the "men and women who pay attention to small savings."

A new departure has been made in the interests of people residing in the country. This is the Banking by Post system. To meet the convenience of those who reside in places where there is

In addition to its Savings Bank Department activities, the Bank lends money on mortgage of approved securities at low rates of interest. The lines on which these loans are made are briefly set out in the following paragraphs:—

Loans from the Advance Department and the Advances for Homes Department are repayable by instalments which include both interest and principal, and repay the loan in the term fixed when the loan is granted.

Valuation fees and legal charges are on a low scale.



FORBES



ORANGE

GOVERNMENT
SAVINGS
BANKS

NARRABRI



OF NEW
SOUTH
WALES

LITAGOW

TAMWORTH
COUNTRY
BRANCHES



The Advance Department may make advances upon any of the following tenures:—

- (a) Freeholds.
- (b) (1) Conditional purchases, with or without associated conditional leases.
- (2) Homestead grants.
- (3) Homestead selections.
- (4) Settlement leases.
- (5) Settlement purchases.
- (6) Conditional purchase leases.
- (7) Additional conditional purchase leases.
- (8) Special conditional purchase leases.
- (9) Crown leases.
- (10) Homestead farm leases.
- (11) Irrigation farm leases (as defined by the Crown Lands Acts).
- (12) Holdings that have been converted into any of the foregoing tenures under the Crown Lands (Amendment) Act, 1908, the Crown Lands (Amendment) Act, 1912, or any amendment or consolidation thereof.

Loans can only be made for the following purposes, which shall be set out in the mortgage—

- (a) To pay off existing encumbrances on, or to purchase the land offered as security.
- (b) To pay off money owing to the Crown in respect of the land.
- (c) To make improvements on the land, or to improve and develop, or to utilise the agricultural or pastoral resources of the land, or to enable the borrower to carry on agricultural or pastoral pursuits on the land.
- (d) To build a home upon the land.

Loans cannot be made by the Advance Department on freehold land situated within the boundaries of any city, town, or village. The minimum sum that may be loaned from this Department is £50 and the statutory maximum £2,000, although £750 is the most that is being advanced to any borrower just at the present time.

The Closer Settlement Promotion Department represents another phase of the activities of the Bank.

The Closer Settlement Promotion Act, 1910, was passed to enable advances to be made to any three or more eligible purchasers desirous of securing blocks on private estates provided the applicants agreed with the vendors as to purchase price.

Application must be made to the Under Secretary for Lands in the prescribed form, and accompanied by a receipt showing that a deposit towards the cost of dealing with such application,

amounting to £5 for each of the applicants, has been lodged with any Crown Lands Agent, or with the Under Secretary for Finance and Trade. Upon the Minister for Lands being satisfied as to the eligibility of the applicants and of the suitability of the land for Closer Settlement purposes, an inspection of the blocks applied for is made by the Bank's Valuator and the Advisory Board, and provided the valuation arrived at is satisfactory, advances up to 94½ per cent. of the official value of the land are arranged by the Commissioners for terms of 35 years, repayable by instalments of £5 10s. for every £100 borrowed. The instalment of £5 10s. per cent. includes interest at the rate of £4 10s. per cent., the balance being credited in reduction of principal.

Under this Act the Commissioners have the power to advance up to three-fourths of the official value of improvements effected by the holders after the original advances are made, provided that such advances shall not exceed two-thirds of the sale value of the security as determined by the Bank's valuator.

Under the Advances for Homes Department, which is to the home-seeker what the Advance and Closer Settlement Departments are to the farmer, advances may be made to any person, who has not a home, for the following purposes:—

- (a) To erect a dwelling house on his holding as a home for himself and his family, or after erection or partial erection of such dwelling house to enlarge or complete same;
- (b) To purchase a house and land enclosed or occupied therewith as a home for himself and family; or
- (c) To discharge any mortgage, charge, or encumbrance already existing on such holding.

The maximum amount to be advanced to any person will be £500, but shall not exceed three-quarters of the value of the property as certified to by the Bank's valuer. No advance less than fifty pounds will be made. The maximum periods for repayment of advances are:—

- (a) For brick, concrete or stone buildings, 30 years;
- (b) For wooden buildings, 20 years;

but the Commissioners may, in their discretion, fix shorter periods.

In Building Loans, progress payments will be made as the work progresses, but at each payment an amount sufficient to finish the building, etc., in accordance with the plans and specifications, will be retained by the Bank until the work is completed, when the final instalment will be paid.

OLIVE GROWING IN SOUTH AUSTRALIA.

G. F. CLELAND & SONS LTD.

SOUTH AUSTRALIA is pre-eminently the Land of the Olive and the Vine. Her dry, sunny climate makes the cultivation of at least two sub-tropical products, oil and wine, a certainty.

As other famous products of Mediterranean countries find congenial climates and soils in the Commonwealth, the olive has put its roots deeply into the sunlit slopes of South Australia.

As far back as 1851, olive oil from South Australia was given honorable mention at the great exhibition. Its clearness, color, and flavor—even in the then almost virgin stages of the industry—were remarked by the judges. Experts of to-day officially declare that “no oil which has ever been produced surpasses it in quality, lucidity and flavor.”

Over 70 years ago, Sir Samuel Davenport, who had lived for some time in the south of France, migrated to South Australia. He saw in the calcareous nature of the soil around Adelaide, and in local climate and condition, a possibility for successful olive cultivation.

Rather as a national demonstration than a means to personal profits Sir Samuel decided to establish near his residence at Beaumont, South Australia, a business having for its object the commercial production of wine and oil.

To quote the *Australian Vignerons*: “He imported from France and parts of Southern Europe choice plants and skilled labor, as well as approved appliances, tools and implements. The vineyards at Beaumont have consequently become universally recognised in their perfection of cultivation, and are justly noted for the quality of the vines as well as the wines produced. The quality of the wines is shown by the high position in which they were placed at the Melbourne Intercolonial Exhibition, receiving the second highest points for the Grand Intercolonial Champion Prize, while the olive oil, on account of its purity, has become celebrated. The Beaumont cellars cover a very considerable area. The visitor is struck with the order and compactness of the arrangements. A large Chilean mill, formed of large masses of granite, and worked by horse power, hydraulic screw and lever presses used in the manufacture of olive oil, stands conveniently adjacent, and as a wine-making plant is equally convenient and the site of the cellars judiciously selected, the saving of labor is immense, although during the height of the olive season the men are constantly employed day and night. After

nightfall the creaking of chains, the tramp of feet, the hoarse shouting of the men, and the grinding of the mill, combined with fitful clouds of steam illuminated by candle and lantern, form a picture at once striking and impressive.”

Although Sir Samuel Davenport initiated the business, the labors of development and expansion fell principally on his nephew, Mr. G. F. Cleland. In 1869 Mr. Cleland, then a lad of seventeen, began his work in the Beaumont cellars. For fourteen years he assisted Sir Samuel Davenport, and gradually acquired from the various experts employed from time to time a thorough practical knowledge of the respective theories and practices. Owing to his intimacy with the subject he was able to recognise the good points of each, and distinguish and rectify the bad; and to adopt from all a theory and practice of his own which have caused him to become an authority in South Australia, not only in olive oil and wine and brandy making and blending, but also in pruning and general viticulture.

The Beaumont olive plantation is the most productive in the State. Stocks from Malaga, Gibraltar, Lisbon, Cannes and Nice, Southern France, Florence and Bari have retained and increased their reputation in Beaumont soils.

Not only have the best species of trees been cultivated, but the whole plantation has been thoroughly trenched and manured—a labor of years.

Mr. Cleland has stated that from fourteen acres he harvested in 1910 seventy-three tons of olives.

He has done much to encourage the planting of olives in South Australia, not only as president of the Vinegrowers' Association, president of the District Councils' Association of South Australia, and chairman of the District Council of Burnside, but as a commercial citizen of special experience who sees in extended olive culture a good thing for South Australia.

The business premises and city cellars of G. F. Cleland and Sons Ltd. now occupy the basement of the A.M.P. Buildings, King William-street, Adelaide, and their trade extends over the Commonwealth and to India, China, Europe and America. In the good times coming for primary producers, not only this pioneer and premier company but the olive growers of South Australia generally are likely to prosper.



A Government Tank

These tanks supply the miners with the only water procurable for many miles, except small quantities for drinking.

QUEENSLAND GEMS

FRASERS LIMITED, BRISBANE

ATTRACTED by the iridescent glitter of peerless black opal through the windows of Frasers Limited, of 142 Queen Street, Brisbane, one sunny day in 1915, the writer slipped into the shop and spoke softly to the manager.

He was subsequently indebted to Mr. Sankey Fraser, of that interesting establishment, for much information concerning the gems of Queensland.

In no country of the world are such varieties of gems unearthed as in this State of "Crystallized Sunshine." Wherever the country is poor in Queensland from an agricultural point of view, Nature seems to have enriched it with precious stones that literally pale the treasured gems of Europe, many of which claim historical associations.

The world-famed opal, the "Burning of Troy," in the crown of Hungary, at one time valued at £200,000, is a pale sickly silicate when compared with one gorgeous opal cut by Messrs. Frasers Limited. This stone burns like a forest fire in a setting of darkest midnight, and shows in addition every colour of the rainbow when moved.

The opal mines owned and worked by Messrs. Frasers Limited are in the desert sandstone

country, where little vegetation grows, and where less water is obtainable.

There is a large belt of this opal-bearing country running from 200 miles in New South Wales to a point near the Gulf of Carpentaria. In Queensland this Opal Sea is 700 miles long by 150 miles wide.

The writer was invited to inspect the gem-cutting establishment of the above-mentioned firm at their workshop in Adelaide Street, Brisbane. There he was allowed to gloat over a collection of gems ready set out for exhibition in the Panama Exposition at San Francisco, which included some thousands of opals more gorgeous in colorings than all the pictures of the year's Academy.

Besides opals Queensland produces sapphires, colored yellow, white, green and the ordinary blue stone. Also topazes, olivines, rubies, garnets, tourmalines, and dozens of other varieties of colored gems. This favored State has also one of the largest pearl fisheries in the world, and sends to Paris and London many perfectly spherical pearls of finest lustre.

Mr. Fraser, one of the directors of Frasers Limited, who had just returned from a holiday spent in digging opals in the firm's mine, showed a number of photos, which he had taken both

underground and on the surface of the Australian opal mines.

Mining for opal is a simple process:—A shaft is dug about 40 or 50 feet deep through the capping of sandstone. Directly the clay is struck a horizontal drive is made, having the "band" at junction of sandstone and clay on the roof. In this band the opal is found.

The life of an opal miner is full of interest. It would be more pleasant if water had not to be carted miles for camp use. The opal drives are perfectly dry, and when ventilated are cool in summer and warm in winter.

Sapphire digging has employed as many as 600 men at a time in the Clermont district of Queensland, where the wash is dug up and puddled before the stones are sorted out. This is the only field in the world where sapphires of five colors are

dug in the one claim. At times a stone is found one end of which is a different color to the other.

Wages of gem-cutters are about three times as high in Queensland as in Germany before the war, so it is only by having up-to-date electrical automatic machines like those used by Messrs. Frasers Limited, that Australia could compete with foreign cutting.

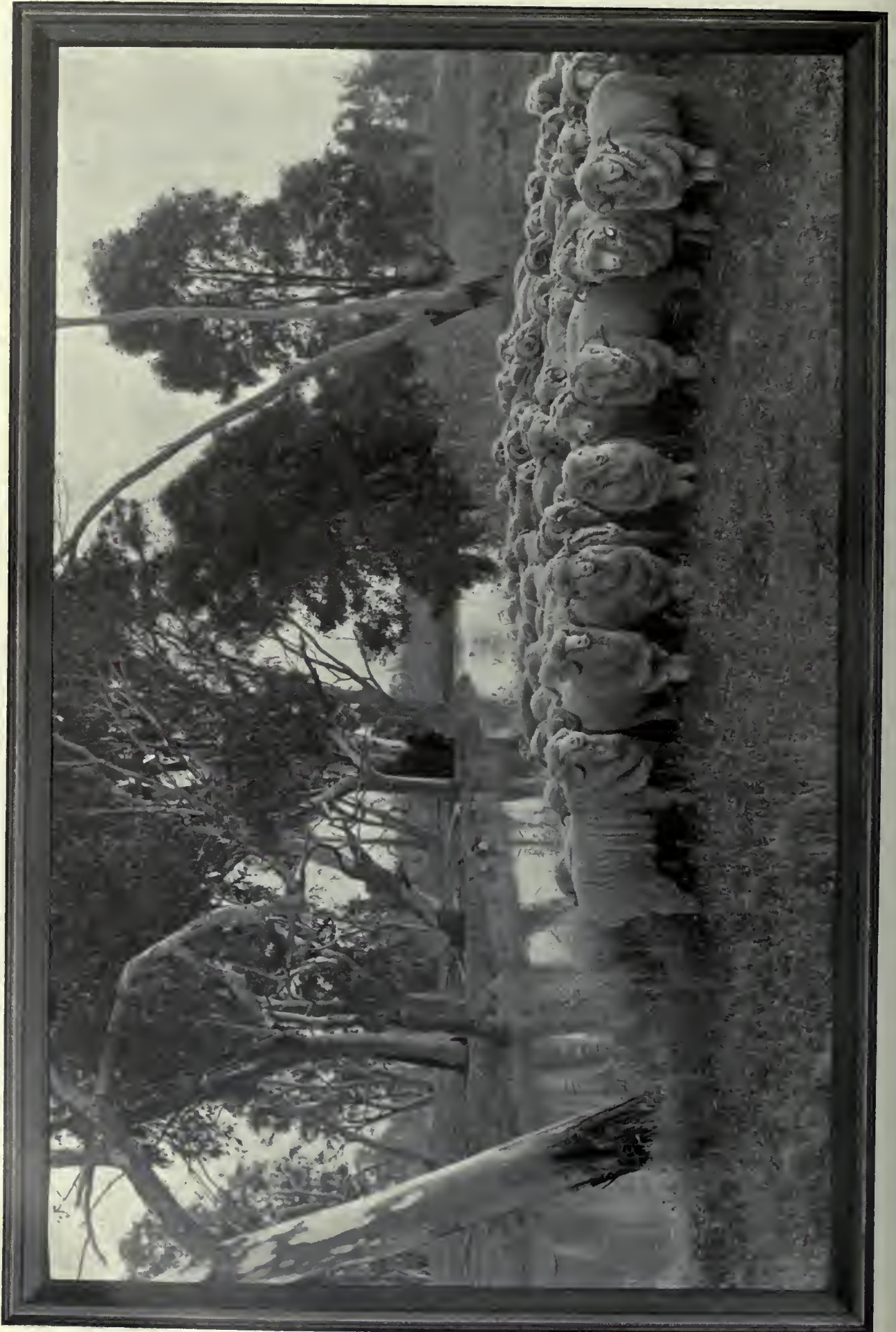
Messrs. Frasers Limited, besides cutting Queensland gems, melt the gold and mount the cut stones as brooches and other jewellery for shipment to Europe and America.

In the same workshop, spectacles and lenses of all kinds are manufactured and ground, electrical machines being used for all the work. It is to the extension of such enterprises that Australian Industry most look in the future. In her gems Queensland possesses an asset of incalculable value.



A Closer View of One of the Mine-Heads

Showing three miners and windlass for pulling up the buckets of opal dirt



The Lachlan River at Burrawang, N.S.W.

CROWN LANDS LAWS OF AUSTRALIA



Orchards Replace the Australian Bush.



Central Railway Station, Sydney

NEW SOUTH WALES: EPITOME OF CROWN LANDS LAWS.

(Compiled for *Australia Unlimited* by Arthur J. Hare, Under-Secretary for Lands, Sydney ;
by direction of the Minister, Hon. W. G. Ashford, M.L.A.)

ADMINISTRATION.

THE State, for the purposes of the Crown Lands Acts is classified into three divisions—the Eastern, the Central, and the Western. These divisions are merely arbitrary, but are important, in view of the fact that the law, in many respects, differs in each. The lines separating each division run irregularly north and south. The total area of the State is 198,058,880 acres, exclusive of Lord Howe Island, and the Commonwealth territory, of which the Eastern division contains approximately 60,684,326 acres, the Central, 57,055,846 acres, and the Western, 80,318,708 acres.

The head office of the Department of Lands is in Sydney, and is presided over by the Minister for Lands, the present occupant of which office is The Hon. W. G. Ashford, M.L.A., the permanent head of the Department being the Under-Secretary for Lands, Arthur John Hare, Esq. Branches of the Department are now situated at various parts of the State.

The Irrigation areas of the State are administered by the Commissioners for Water Conservation and Irrigation, who except as regards matters of public policy, have full control of Irrigation settlement promoted by the State Government.

The Western division is under the management and control of the Western Land Board, consisting of three Commissioners created under the authority of and for the purpose of administering the Western Lands Acts. The Board is empowered to act as a Local Land Board in all matters respecting lands in the Western division which require to be dealt with by a Local Land Board.

At the head office in Sydney an Information Bureau is in existence, where the fullest and latest particulars as to the situation of available land in the Eastern and Central divisions of the State, and the prices and conditions under which it may be taken up, are obtainable. Information with regard to the Western Lands Acts and available land in the Western division may be obtained from the office of the Western Land Board, George St., Sydney.

METHODS OF DISPOSAL OF CROWN LANDS.

The principal methods by which Crown Lands are now alienated or leased are Settlement Purchase, Conditional Purchase, Irrigation Farm, Homestead Farm, Suburban Holding Purchase, by virtue of improvements, Conditional Lease, Crown Lease, Week-end Lease, Lease within an Irrigation Area, Residential Lease, Improvement Lease, Scrub Lease, Inferior Lands Lease, Special Lease, Snow Lease, and Annual Lease. Lands may also be obtained under Occupation Licence.

Prior to the year 1912, lands were also alienated or leased as Homestead Selections, Settlement Leases, Conditional Purchase Leases, and Special Conditional Leases; but no areas are now made available under such tenures, which are practically superseded by Homestead Farm, Crown Lease and Suburban Holding tenures. Lands are not now thrown open for original Conditional Purchase, but there are still large areas in many Districts remaining available for selection under that class of holding. Certain areas also contain land open for Special Conditional Pur-



“The Hole in the Wall”
(On the Road from Glen Innes to Grafton)

chase lease. Land may also, in some instances, be disposed of by Auction, after auction application or by Special Purchase if considered desirable. Leases of town lands may also be offered at Auction or by tender.

LIMITATIONS AS TO SELECTING.

Provision is made to prevent the maximum area allowed for the class of holding applied for being exceeded, except by way of additional as hereafter explained, and persons who have previously selected are in special circumstances disqualified.

So that a selector may obtain a living area, it is provided that the maximum area mentioned hereafter as being that which may be obtained with respect to a Residential Conditional Purchase series, Conditional Purchase Lease, Homestead Selection and Settlement Lease, may (within areas specially set apart for additional holdings) be exceeded by means of an additional holding, which, together with all other lands held by the applicant (except under lease having less than five years to run), does not exceed such an area as in the opinion of the local Land Board is sufficient for the maintenance of the selector's home thereon in average seasons and circumstances.

Lands held by both husband and wife (unless where judicially separated) are taken into account as if such lands were held by one person. In order to make up a home maintenance area Homestead Farms or Crown Leases may under certain conditions be applied for as additional areas to other holdings held under the Crown Lands Acts.

QUALIFICATIONS TO SELECT.

Any person of, or over the age of 16 years, if a male, or 18 years if a female—if otherwise not disqualified—may apply for

or otherwise acquire from the Crown, or may acquire from a private person or hold any purchase (other than a non-residential conditional purchase or a settlement purchase) selection, lease other than a week-end lease or licence.

A person who is not naturalised subject of His Majesty is debarred from applying for an original conditional purchase, an original conditional purchase lease, an original homestead selection, or an original settlement lease until he has resided in New South Wales for twelve months, and then at the date of application he must lodge a declaration of his intention to become a naturalised subject within five years from that date. This residential limit of twelve months does not, however, apply to applicants for homestead farms, crown leases, suburban holdings, week-end leases, and leases within Irrigation areas, but aliens who become the holders of those tenures shall become naturalised within three years after becoming such holders, under penalty of forfeiture of the land and all improvements thereon.

A married woman is disqualified in most cases from applying for an original holding, unless she is judicially separated and actually living apart from her husband, but she may, out of moneys belonging to her separate estate, apply for a homestead farm or a Crown lease, or—where her husband has not acquired one—a suburban holding.

If a woman should, while unmarried, make a conditional purchase, she will be entitled after, as well as before, her marriage, to make additional conditional purchases by virtue of it.

Facilities for acquiring land under the Crown Lands Acts by soldiers absent at the war are also provided. In such cases application and declaration may be made in name and behalf of the absentee by a person duly appointed and empowered under power of Attorney to so act. Under the Returned Soldiers' Settlement Act of 1916, special provision is made for the settlement of returned soldiers on Crown lands or lands acquired under the Closer Settlement Acts. Under this Act land may be set apart for disposal to returned soldiers only, and the Minister may assist such settlers thereunder with respect to clearing, fencing and general improvement of the land, erection of buildings, purchase of implements, stock and other things necessary to satisfactorily occupy and develop the land.

RESIDENCE GENERALLY.

Residence in certain circumstances may be suspended or remitted or may be carried out on a holding of a member of the same family, or on another of applicant's holdings, or in a village or town or elsewhere within reasonable distance, with the consent of the Land Board.

CONDITIONAL PURCHASES.

The Conditional Purchase (or, as it is sometimes called, the Free Selection) system, dates back to the year 1861. As the words imply, a conditional purchase is a purchase in fee simple, subject to the fulfilment of certain conditions before the grant can be obtained. These conditions include residence for a term of ten years, the fencing or other improvement of the land, and the payment by annual instalments of the purchase money with interest at 2½ per cent. per annum. A conditional purchase may be of land in the Eastern or Central divisions, and may comprise unreserved country land not held under lease. The fact of land being held under annual lease or occupation licence and containing improvements is not a bar to purchase, nor is survey or classification of the land a necessary preliminary. If an applicant selects land containing improvements, he accepts an obligation to pay for them, but payment may be spread over a period and arranged for in instalments. In either of the divisions mentioned the minimum area which may be selected as an original conditional purchase is 40 acres, the maximum area being in the Eastern Division, 1,280 and in the Central division 2,560 acres. The maximum areas referred to may be acquired at intervals.



HALF-WAY HOUSE AT THE FOOT OF THE RANGE
BUILT OF CEDAR, IN THE CEDAR COUNTRY.



THE FERRY OVER THE CLARENCE RIVER AT GRAFTON.

that is to say, the selector may take up a comparatively small area at first, and gradually supplement it by what are called additional purchases.

No Crown lands are now set apart for Conditional Purchase, but there are, throughout the Eastern and Central divisions, considerable areas available for selection under this tenure. Where the land has not been set apart at a price it is obtainable at a statutory price of £1 per acre; and in other cases, at prices above or below £1 per acre, as fixed by the notification setting the land apart. In any case, an applicant may obtain an appraisal of an area not in excess of a living area by making the necessary application within the prescribed periods. Lands available for Conditional Purchase are also available for Conditional

of an additional holding as previously explained. With his application, which must be made on the proper form and lodged with the Crown Land Agent, he is required to pay, if the rent has not been notified, a deposit of 2d. per acre (which is taken as a provisional rental until such time as the Land Board appraises the yearly rental of the land), and also a survey fee. The lease has a term of forty years, and is subject to the same conditions of residence, fencing, or improvements as are attached to a conditional purchase. The selector may reside on either the purchase or the lease. The lessee has the right at any time to convert his lease, either wholly or partly, into a conditional purchase.

The term of the lease is divided into three periods, two of 15 years each, and one of 10 years. The annual rent for each



A New South Wales Station Homestead: Dungalear

Lease in association therewith (see Conditional Leases). A deposit of 1/- for every £ of purchase money and survey fee, or one-tenth thereof, must be paid with the application. Stamp duty is also required.

A conditional purchase may be converted into a homestead farm.

CONDITIONAL LEASES.

Conditional leases are associated with residential conditional purchases, and are obtainable in areas available for conditional purchase by virtue of conditional purchases applied for or held. The conditional lease must adjoin the conditional purchase by virtue of which it is applied for unless it be a conditional lease of land within an area set apart for additional holdings. See last paragraph under heading "Limitation as to Selecting." The maximum area that can be leased is limited to an area three times as great as that of the conditional purchase, but the area of the purchase and lease combined must not exceed 1,280 acres in the Eastern, or 2,560 acres in the Central division, except by means

period may, on the application of the lessee, or on a reference by the Minister, be separately determined.

CONDITION ATTACHED TO CONDITIONAL PURCHASES AND CONDITIONAL LEASES

The residence term is ten years, and must be entered upon within three months after confirmation unless suspension is granted. Other conditions are fencing of boundaries or improvements to be effected.

NON-RESIDENTIAL CONDITIONAL PURCHASES.

Non-residential Conditional Purchases are another class of holding, as the name denotes, without residence, but subject to certain other conditions.

ANNUAL LEASES.

Annual leases of unoccupied land, not reserved from lease, may be obtained for grazing purposes, on application to the local



IN A NEW SOUTH WALES IRRIGATION AREA.

Crown Land Agent and payment of a deposit of £1 10s. for each 320 acres or less area, or may be offered by auction or tender. They carry no security of tenure, but are somewhat largely availed of for temporary purposes; and if the land should not be absorbed by conditional purchase, etc., they are renewable from year to year by payment of rent in advance on or before the 30th September. No one lease can comprise more than 1,920 acres; but there is no statutory limit to the number of leases any one person may hold. No conditions of residence or improvements are attached to them, the only condition being, as already explained, payment of rent annually in advance.

With respect to a lease applied for, the rent is appraised by the local Land Board, and the application is subject to the Minister's approval. The Minister may, after three months' notice, terminating at the end of the then current year, cancel any annual lease. In certain circumstances an annual lease may be converted into a lease under improvement conditions for a term not exceeding ten years.

SPECIAL LEASES.

The law provides for a class of leases termed Special Leases. Such leases are chiefly to meet cases where land is required for some industrial or business purpose—such for example, as for a brick kiln, tannery, wool-washing establishment, etc., etc.—but land may be obtained for many other purposes, including grazing and agriculture. Land under the sea or under the waters of any harbor, lake, river, etc., is deemed to be Crown lands, and may be leased for the erection of wharves, bathing places, etc. A special lease may be obtained on application at an appraised rent, or disposed of at auction or otherwise. No one lease can exceed 320 acres, but there is no statutory limit to the number of leases

any one person may hold. The term of lease cannot exceed 28 years. The conditions are accommodated to the circumstances of each case. The rent is payable annually in advance.

Application for a special lease is made to the Crown Land Agent for the district with a deposit of £3 and a survey fee according to a fixed scale.

Provision is made for the conversion of special leases for certain purposes into (1) a conditional purchase lease, (2) a conditional purchase, (3) a homestead selection, (4) a settlement lease, (5) a conditional lease, and (6) a homestead farm.

RESIDENTIAL LEASES.

A "Residential Lease" of land within a gold or mineral field may be granted to the holder of what is termed a "Miner's Right." Such right is obtainable under the provisions of the Mining Act. Application for the lease is made to the local Crown Land Agent with a deposit of £1, a provisional rent of 1s. per acre, and a survey fee according to a fixed scale. The maximum area which may be leased is 20 acres, and the maximum term of the lease is 28 years. The rent is determined by the Land Board, and is payable annually in advance. The Minister may at any time direct a re-appraisal of rent. The principal conditions of the lease are residence during the currency of the lease, and the erection within twelve months from the commencement of the lease of such buildings and fences as are necessary for the performance of this condition. The lessee is given tenant-right in improvements.

Provision is made for the purchase, on application, by the holder of a residential lease at any time after the expiry of the first five years of the lease.

HOMESTEAD FARMS.

A homestead farm is a lease in perpetuity, and for which after five years from confirmation, a grant will be issued subject to conditions of residence and payment of rent. Crown lands are set apart and subdivided into blocks for homestead farms, full particulars being notified in the *Government Gazette* as to the area of each block, attached conditions, capital values, rental, and estimated value of improvements, etc., together with the date when the land will become open to application.

Crown Lands available for Conditional Purchase (unless otherwise notified in the *Gazette*) are also available for Homestead Farms. Land may also be set apart by *Gazette* notification for Homestead Farms—applications therefor being limited to persons who hold certain lands—to provide a home maintenance area.

Qualifications to Apply.—Any person (including an alien) who:—

- (a) Does not own or hold under any tenure—other than a lease having less than five years to run (unless such lease confers a right or power to purchase the freehold which right or power may still be exercised); or
- (b) Owned or held under any such tenure, and has not divested himself of the ownership thereof or purported so to do, in order to evade the provisions of the Act—
an area (except town or suburban land within population boundaries the value of which exclusive of improvements does not exceed one hundred pounds) which when added to the area of the homestead farm applied for may be held by the local Land Board to be substantially in excess of a home maintenance area, may apply for any block notified as a homestead farm.

A married woman may, with moneys belonging to her for her separate estate, apply for and thereafter hold a homestead farm.

A person shall be disqualified from being an applicant for a homestead farm if—

- (1) under the age of 16 years, if a male, or
- (2) under the age of 18, if a female, or
- (3) subject to any legal disability other than marriage or coverture, or to any disqualification specially mentioned or provided in the Crown Lands Consolidation Act, 1913.



The Waratah



A Flock of Merino Stud Rams

A person not qualified to apply for a homestead farm shall also be incompetent to hold a homestead farm, except on devolution under the will or intestacy of a deceased holder.

A person who is rendered incompetent under sub-section (b) may apply, if he obtains and lodges with his application a certificate by the Minister, that the circumstances under which he divested himself of the land do not warrant his disqualification.

Any alien who becomes the holder of a homestead farm must become naturalised within three years, under penalty of forfeiture of all his interests in such farm together with all improvements thereon.

In estimating what constitutes a home maintenance area, the joint area held by husband and wife (unless where judicially separated) is taken into account as if such lands were held by one person.

Rent is at the date of $2\frac{1}{2}$ per cent. of the capital value, and must be paid half-yearly in advance. The capital value of each farm for the first twenty-five years period is fixed by the Minister, and notified in *Gazette* setting the land apart. If the applicant is dissatisfied with such value, he is entitled to have it appraised by the local Land Board on application in the prescribed form lodged within twelve months after confirmation. The prescribed application must be accompanied by the fee of £3. During the first five years of the lease of the farm, the lessee may, instead of payment of rent, expend during each year a sum equal to rent for such year on improvements of a fixed, permanent and substantial character, the same (except boundary fencing) being in addition to those which may be otherwise required as a condition of improvement or expenditure of the lease. Lessee must notify his intention on the prescribed form at least three months prior to date when rent for the period will become due.

In the event of a transfer being approved, within ten years from confirmation, the transferrer may, at the Minister's discretion, pay to the Crown a sum, not exceeding the rent so reserved and unpaid during the first five years of the lease. The annual rent for each subsequent 20 years' period is at $2\frac{1}{2}$ per cent. of the capital value or separately determined by the Board, exclusive of improvements on the farm owned or effected by the lessee, but inclusive of improvements owned by the Crown.

Application and Survey Fee.—Application must be made on the prescribed form and must be accompanied by the survey fee or at least one-tenth thereof, and a half-year's rent, or a notification

that the applicant intends to effect improvements in lieu of paying such rent. The balance of survey fee is payable in nine annual instalments with interest at the rate of 4 per cent. per annum.

Neither deposit nor survey fee need accompany an application for a holding within a classified area if such be lodged during first week land becomes available, but must be paid (unless improvements are to be effected in lieu of rent) as directed by the Land Board.

The application must be lodged personally by the applicant, or by a duly authorised agent, or sent by post to the Crown Land Agent of the district in which the land is situated; if sent by post, it is preferable to transmit the amount required by postal notes, money order, or bank draft.

Applications lodged or received by post during the week between Monday and Saturday next following, both inclusive, will, when conflicting together, be deemed to have been lodged simultaneously on such Monday; but applications which do not conflict will take effect on the date of receipt by the Crown Land Agent, but if any Monday is a public holiday, conflicting applications lodged or received during the week will be held to have been lodged simultaneously at the Lands Office day next following such Monday.

Consideration by Land Board.—The Land Board of the district or any other Land Board in the State, if specially directed by the Minister at the applicant's request, considers all applications as soon as practicable after lodgment and when necessary directs a ballot.

Conditions.—The conditions to be fulfilled are:—

Perpetual residence.

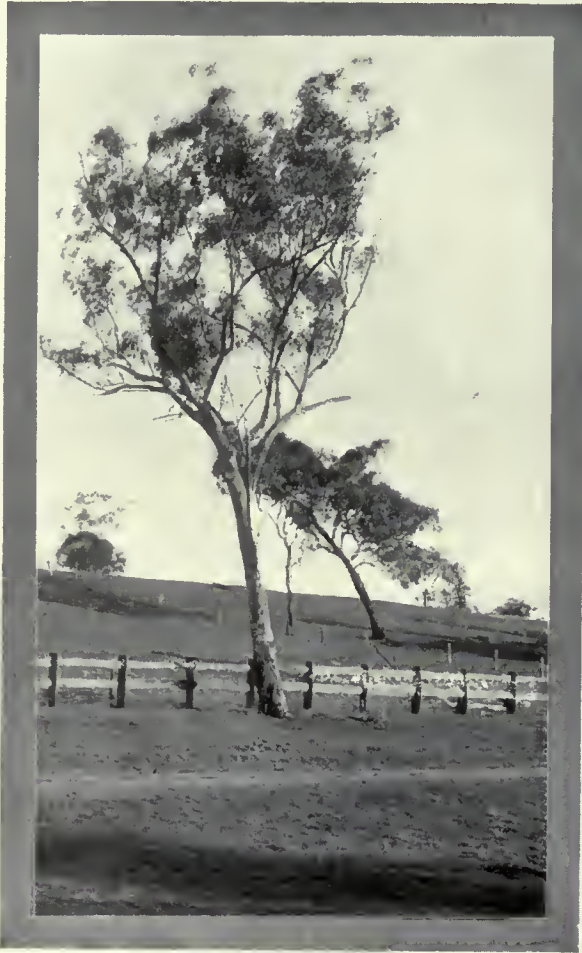
Payment of rent and balance of survey fee.

Payment of value of improvements not owned by the Crown, if any, on the land when applied for.

Any special condition notified when land is set apart must also be carried out.

The residence condition is perpetual and commences within six months after confirmation of the application; the Land Board may, however, on application, permit the lessee to reside in a village, or town, within reasonable distance for the purpose of educating his family. Where the farm is difficult of access, or it is otherwise undesirable that the holder or his family should be compelled to live thereon, the Board may also permit residence

to be carried out anywhere within a reasonable working distance of such farm. It is further provided that in certain circumstances residence may, with consent of the Chairman or Board, be carried out on the holding of a member of the same family.



Residence may also, with permission, be suspended or remitted for such period as the Board may determine, or be carried out on another holding of the selector within reasonable working distance.

Protection against Sale for Debt.—A homestead farm may, under certain conditions, be protected by registering an instrument in the prescribed form with the Crown Land Agent, accompanied by a fee of £1. Where the grant has issued the instrument must be lodged with the Registrar-General, accompanied by a fee of 10s.

Transfer.—A homestead farm is not transferable other than by way of mortgage until five years' residence has been completed, unless in case of sickness of lessee or family, or other adverse circumstances, and with approval of the Minister, or in cases of death or lunacy of holder, or by an execution creditor, or by a mortgagee who has submitted the land for sale by auction. A transfer cannot be made to a person who would hold more than a home maintenance area. The Minister's consent to any transfer is necessary. Transfers of homestead farms, where transferable before grants, must be lodged with the Crown Land Agent in the prescribed form, with parchment copy, and be accompanied by a fee of 7s. 6d. and amount of stamp duty. Application for the Minister's consent to transfer by way of sale, mortgage, lease, or otherwise, must be in the prescribed form and be accompanied by a fee of 10s.

CROWN LEASES.

A Crown lease has a term of 45 years. The title commences from the date of application, if valid. During the last five years of the term the holder may, with the approval of the Minister, unless the contrary be specified in the notification setting apart the land, convert so much of it as will not exceed a home maintenance area into a homestead farm.

Available Land.—Such lands may be applied for as are notified from time to time in the *Government Gazette* as available for Crown lease.

Crown Lands available for Conditional Purchases (unless otherwise notified in the *Gazette*) are also available for Crown Lease.

Application, Rent, and Survey Fee.—The provisions for the making of applications for Crown leases and their lodgment with the Crown Land Agent are very similar to those that govern the making of applications for homestead farms. A half-year's rent, at the rate of $1\frac{1}{4}$ per cent. of the capital value and at least one-tenth of the survey fee, must (unless deferred, as in the case of homestead farms) accompany the application. The capital value of each lease for the first period of fifteen years is fixed by the Minister and notified in the *Gazette* setting the land apart, but if the applicant is dissatisfied with such value he is entitled to have it appraised by the local Land Board on application within twelve months after confirmation in the prescribed form. The rent must be paid half-yearly in advance; annual rent shall not be less than £1. A survey fee in the same proportion as that provided for in connection with homestead farms must also be paid in connection with a Crown lease.

Rent for the first year of the lease will be remitted if in addition to any improvement or expenditure condition attached to the lease the lessee expends in effecting on the lease improvements of a permanent fixed and substantial character a sum equal to the rent for that year. Intention to so effect additional improvements must be notified at least three months prior to expiration of first year of lease.

Residence.—The lessee shall reside on the land leased during the whole term of the lease, and such residence shall commence within six months after the confirmation of the application for the lease, but the local Land Board has the same power of modifying the condition as it possesses in respect to a homestead farm.

Protection against Sale for Debt.—A Crown lease may, under certain conditions, be protected by registration, as in the case of homestead farms.

Transfer.—The provision for and the restrictions in regard to transfer are similar to those that govern such action in connection with homestead farms. Transfer must be lodged with the Under-Secretary for Lands, accompanied by a fee of £1. Stamp duty must also be paid.

Conversion.—During the last five years of the lease, unless debarred by the notification setting the land apart, the holder may, with the Minister's approval, convert so much as the Land Board considers does not exceed a home maintenance area into a homestead farm.

SUBURBAN HOLDINGS.

A suburban holding is a lease in perpetuity, and is subject to the conditions of perpetual residence and payment of rent. After five years, provided conditions have been fulfilled, a perpetual lease grant will issue, subject to conditions attaching to the holding.

Qualifications to apply or hold a Suburban Holding.—Any person (including an alien, who must become naturalised within three years after becoming the holder) whose wife or husband

(unless judicially separated) has not acquired a suburban holding and who is—

- (a) not under the age of 16 years, if a male;
- (b) not under the age of 18, if a female;
- (c) not subject to any legal disability, other than nonage or coverture;

may apply for a suburban holding.

The disqualifications shall not apply to any person who becomes entitled to a suburban holding under the will or intestacy of a deceased holder, or in cases of possession by a mortgagee or execution creditor.

Available Lands.—Only such lands are available as may be notified from time to time in the *Government Gazette* and the applicant is restricted to one holding as set apart.

Application, Rent, and Survey Fee.—The provision for the making of applications for suburban holdings, and their lodgment with the Crown Land Agents, are similar to those that govern the making of applications for homestead farms. A half-year's rent at the rate of $2\frac{1}{2}$ per cent. of the capital value of the land and at least one-tenth of the survey fee must accompany the application, unless deferred as in the case of a Homestead Farm, the rent must be paid half-yearly in advance, and the annual rent shall in no instance be less than 5/-. The capital value of each holding for the first period of twenty years is fixed by the Minister, and notified in the *Gazette* setting the land apart. For each subsequent twenty years' period the annual rent is $2\frac{1}{2}$ per cent. of the capital value as separately determined by the local Land Board, exclusive of improvements effected or owned by the holder, but inclusive of Crown improvements. A survey fee, in the same proportions as that provided for in connection with homestead farms, must also be paid in connection with suburban holdings.

Protection against Sale for Debt.—A suburban holding may, under certain conditions, be protected by registration, as in the case of a homestead farm.

Transfers.—A transfer must be to a person qualified to apply for a suburban holding, but, as already pointed out, this does not apply to any person upon whom such a holding devolves under the will or intestacy of a deceased holder, or in cases of possession by a mortgagee or execution creditor. Transfers, where transferable before grant, must be lodged with the Crown Land Agent on the proper form with parchment copy, and accompanied by a fee of 7s. 6d. and stamp duty.

IRRIGATION FARMS.

An irrigation farm lease is a lease in perpetuity, the principal conditions attaching thereto being perpetual residence and payment of rent (based on $2\frac{1}{2}$ per cent. of capital value), and the carrying out of such other conditions as may be notified when the land is set apart.

The capital value is gazetted for a period of 25 years, at the end of which time it is re-appraised for a period of 20 years, and is subject to similar re-appraisal for every subsequent 20 years' period.

Only such lands are available as may be notified from time to time in the *Government Gazette*, and must be taken in areas as notified.

The land may be protected against sale for debt as in the case of Homestead Farms, etc. Any person other than a married woman not judicially separated of or over 16 years of age, if a male, or of or over 18 years, if a female, or two or more persons jointly may apply.

An alien is not barred, but he must become naturalised within three years under penalty of forfeiture. Transferable with consent of the Commissioner for Water Conservation and Irrigation at expiration of five years; earlier transfer only in case of sickness or other adverse circumstances, death or lunacy of selector, seizure for debt. Lands may also be disposed of as town lands and non-irrigable land. Town lands blocks may be disposed of by auction.





Hobson's Bay, from Claver Cliff, Frankston.

VICTORIA: INFORMATION TO INTENDING SETTLERS.

Supplied for Publication in *Australia Unlimited* by direction of the Minister in charge of Immigration, Hon. W. Hutchinson, M.L.A., Melbourne.

The settlement of the land in Victoria is carried out under three distinct headings, according to the class of land to be disposed of, and its suitability for different branches of agricultural production.

Crown lands, other than lands acquired for Closer Settlement, which are disposed of by the Lands Purchase and Management Board or the State Rivers and Water Supply Commission, are dealt with by the Crown Lands Department. The Commission, allots irrigable land to settlers and supervises their operations.

CROWN LANDS.

Ordinary Crown lands are generally unimproved, and are situated in the more remote portions of the State. About 13,000,000 acres remain in the hands of the Crown, of which nearly 5,000,000 acres are known as "Mallee lands" (wheat growing).

Available Crown lands are divided into the following classes:—

- Agricultural and grazing lands (including Mallee lands),
- Swamp or reclaimed lands,
- Special settlement areas,
- Auriferous lands,
- Land for sale by auction,

and the methods of acquiring such lands will be found briefly stated in the following paragraphs. Selectors should make themselves thoroughly acquainted with the conditions, which are fully set out in every title issued.

AGRICULTURAL AND GRAZING LANDS. SELECTION PURCHASE LEASES.

The land available for selection is divided into three (3) classes, and may be secured under very easy terms. Selection, the popular method of acquiring land, permits a settler to obtain land which, together with any country land held by him, shall not exceed £2,500 in value. The land is selected under a Selection Purchase Lease, which has a currency of 20 years, or, if preferred, of 40 years. The half-yearly payments of rents are credited towards purchasing money. The table subjoined shews the maximum area which may be selected, the rental charged and the improvements it is necessary to effect on each class of land respectively.

The lease is not negotiable during the first six years of its currency, nor can the land be sub-let, but a lien may be registered to the value of the improvements effected on the land. After six years, if the conditions of the lease have been complied with, the lessee may obtain a Crown Grant by paying the balance



Tea-Tree on the Sea-Shore

EXPLANATORY SELECTION TABLE.

Classification of Land	Maximum Area.		(a) Value per Acre.				(b) Value of improvements per Acre to be effected by a Selection Purchase Lessee before the end of Specified Periods.								
			Minimum Price per acre.	Annual Rental (payable half-yearly).		Residence Lease (Section 46, Land Act 1915).				Non-Residence Lease (Section 50, Land Act 1915).					
	Ordinary Crown Lands.	Mallee Lands.		20-Year Period (Residence or Non-Residence.)	40-Year Period (Residence only).	2nd Year.	3rd Year.	4th Year.	6th Year.	1st Year.	2nd Year.	3rd Year.	4th Year.	5th Year.	6th Year.
1st	Ac. 200	Ac. 640	£1	per Ac. 1/-	per Ac. 6d.	3/4	6/8	10/6	£1	6/8	13/4	£1	1/6/8	1/13/4	£2
2nd	320	1,000	15/-	9d.	4½d.	2/6	5/-	7/6	15/-	5/-	10/-	15/-	15/-
3rd	640	1,280	10/-	6d.	3d.	...	5/-	...	10/-	3/4	6/8	10/-	10/-

(a) Under Section 8, Land Act 1915, the value may be fixed higher if the value of the land is greater than the minimum stated, in which case the half-yearly payments are increased *pro rata*.

(b) Any payment made by an incoming applicant for existing improvements is credited as expenditure, and improvements made in excess for any one year (if maintained) are set off against expenditure required the next or following years.

of purchase money due, but, should he prefer, he may continue to hold, under the lease, which is then made a negotiable document, and the title may be operated on as freely as a Crown Grant, into which it may be transformed at any time, on payment of the balance of purchase money.

SELECTIONS OF MALLEE LANDS.

The facilities for selection are extended to the Mallee lands, the great wheat-growing areas of this State. The table supplies information respecting these lands also.

AURIFEROUS LANDS.

Provision is made for the acquisition of small blocks on auriferous lands in order that persons may establish homes and supplement their other means of livelihood.

LAND FOR SALE BY AUCTION.

Crown allotments in cities, towns and boroughs, and isolated blocks up to 50 acres may be sold by public auction on very liberal terms.

SWAMP OR RECLAIMED LANDS.

Swamp or reclaimed lands are disposed of in areas not exceeding as a rule 160 acres (according to the quality of the land and the cost of reclamation) under the following conditions:—

- (a) *Under Conditional Purchase Lease*, the purchase money, together with interest at $4\frac{1}{2}$ per cent. per annum, being payable by equal half-yearly instalments embracing a period not exceeding $31\frac{1}{2}$ years.
- (b) *Under Perpetual Lease*, with an annual rental equal to 4 per cent. of the value of the land, and subject to re-assessment every ten years.
- (c) *Sale by Auction*, as in the case of other Crown lands.

BEE FARMS.

Annual licences for Bee Farms may be granted (not more than three to any one holder for areas not exceeding a total of 10 acres at an annual rental of 1/- (24 cents) per acre. No Bee

Farm Licence is issued without a Bee Range Licence, which may be secured by payment of $\frac{1}{4}$ d. (1 cent) per annum for every acre of Crown lands within a radius of one mile of the apiary, and all timber suitable for bees may be protected from destruction on any such areas, even though held under grazing leases or licences.

GRAZING LICENCES.

Pastoral lands, which comprise a large proportion of the Crown lands of Victoria awaiting development, and also any other Crown lands or reserves, may be licensed for grazing purposes only. The area which may be held is unlimited, and the rental charged is based on the value of the land for grazing purposes. Licences are renewable annually for any term not exceeding seven years, with the right to fence and make dams, provided the permission of the Minister be first obtained, but a licence may be cancelled at any time.

SPECIAL SETTLEMENT AREAS.

Special Settlement Areas may be proclaimed where expenditure for the improvement of the lands has been incurred by the Crown. The land may be acquired under a Conditional Purchase Lease. The maximum area allowed is 200 acres. The Crown Grant will contain a condition that the land shall be used for the purposes of agriculture and residence.

GENERAL CONDITIONS.

Applicants for land, whether male or female, must be of the full age of eighteen years.

Successful applicants are required to pay the cost of survey, and the valuation of improvements (if any) on the land, either in cash or by instalments.

A permit to occupy the land may, if desired, be issued immediately after the first rent has been paid.

Any person who has complied with the conditions of his Selection Purchase Lease may be granted a suspension of payments of instalments up to 60 per cent. of the value of the unencumbered improvements he has effected.

Monthly and fortnightly lists of lands available are published which supply full details of lands available in all parts of the State.



A Fern Gully, Victoria

Some
Australian
Orchids



Pterostylis alpina



Lyperanthus suaveolens



Cymbidium canaliculatum

TERMS AND CONDITIONS UNDER WHICH CLOSER SETTLEMENT LANDS MAY BE ACQUIRED.

The Closer Settlement of repurchased land has been one of the principal features in the policies of successive Governments since 1898, when the first legislation was introduced.

Changing conditions and matured experience have since that period given rise to considerable amendment and liberalization of the Closer Settlement Acts. The extension of the railway systems and improvement generally of transit facilities each year brings new areas within the requirements which are regarded as essential to successful settlement. Proximity to the railway, towns, markets, churches, schools, banks, post-offices, &c., considerably reduces the difficulties of the new settler.

Agricultural Labourer's Allotment to £350 (\$1,680).

Workman's Home to £250 (\$1,200).

(3) Allotments are sold under a conditional purchase lease having a term of 31½ years. Applicants are required to lodge a deposit equal to 3 per cent. of the capital value of the land applied for, together with £1 5s. (\$6.00) lease and registration fees. In the event of an application being unsuccessful, all moneys lodged, less the registration fee of 5s. (\$1.20), is returned.

(4) Residence upon the allotment, or upon the estate of which the allotment forms a part, or upon land adjoining the estate and not separated from it by more than a road or water-course, is compulsory for eight months in each year, in the case of a farm



A Lord of the Forest. An old Gum-tree used as a Church, Gippsland.

The terms and conditions under which Closer Settlement lands may be acquired are within the means of any person of moderate capital and experience. The measure of assistance which may be given under the Act enables the settler to erect the necessary dwelling, out-buildings, and fencing during the early years of settlement without undue strain on his own resources.

GENERAL CONDITIONS GOVERNING THE SALE OF CLOSER SETTLEMENT LANDS.

(1) Applicants, male or female, must be over the age of eighteen years.

(2) The maximum value of land which may be held by one lessee is—*Farm Allotment* to £2,500 (\$12,000), except in the case of an allotment where a valuable homestead is erected, when the value of the land may be increased to £4,000 (\$19,200).

holding. In the cases of Agricultural Labourers' and Workmen's Allotments, residence for eight months in each year is also compulsory, and each lessee by himself or his family must reside on his own allotment. Provision is made for substituted residence on a farm allotment during the first three years of the lease conditionally on the application being made when the land is applied for. The substitute must comply with the residence condition for the prescribed period in each year, and otherwise fulfil the requirements of the lease. On all Closer Settlement land the residence condition carries on into the Crown grant, when obtained, and any sub-lessee or transferee must also comply in this particular. Leave of absence from the land may be obtained under special conditions.

(5) Upon a farm allotment it is a condition of the lease that permanent and substantial improvements to an amount equivalent to 6 per cent. of the capital value of the land shall be effected



Tree-Ferns.

by lessee before the end of the first year. Before the end of the third year, the value of the improvements must be increased to 10 per cent., and by the end of the sixth year to a total value of 20 per cent. of the capital value of the land.

Where substituted residence is granted as provided in par. 4 improvements must be effected as under:—Before the end of the first year, to the value of 10 per cent. of the purchase money; to the increased value of 5 per cent. during the second year; and to a further increased value of 5 per cent. during the third year; and to the total value of 30 per cent. before the end of the sixth year of the term of the lease.

Upon an Agricultural Labourer's Allotment a substantial dwelling to the value at least of £30 (\$144) must be erected by the end of the first year, and the boundaries of the allotment must be securely fenced by the end of the second year.

Upon a Workmen's Home Allotment a substantial dwelling to the value at least of £50 (\$240) must be erected within the first year of the lease, and other improvements to the value of a further £25 (\$120) before the end of the second year. On estates within the metropolitan area the Board is empowered to advance £250 (\$1,200) towards the erection of a suitable dwelling, conditionally on the lessee contributing at least £50 (\$240) in cash.

(6) In the case of a farm allotment, the lessee may after the first six years of his lease transfer, sublet, assign, or mortgage the whole or part of the allotment. Within the first six years of his lease, under special circumstances, a lessee may be allowed to surrender his allotment, and sell his interest in the improvements effected by him. The lease of the incoming person commences from the date of his occupation.

In the cases of Agricultural Labourers' and Workmen's Homes Allotments, lessees may transfer, sublet, assign, or mortgage at any time with the consent of the Board conditionally on the transferee or assignee being eligible and willing to comply with the conditions of the lease.

(7) The Crown Grant may be obtained at the end of any half-year after the first twelve years of the lease have expired on payment of the balance of the purchase money. Residence by the owner or occupier for the time being is required under the Crown Grant.

(8) The Closer Settlement Acts provide that where through unforeseen circumstances settlers cannot meet instalments punctually,

they may obtain a temporary suspension thereof up to 60 per cent. of the security value of the permanent and substantial improvements effected by them, or an advance up to the same amount, provided the instalments are paid to date, may be obtained for a fixed period in order to enable them to continue working and further improving their allotments. All advances or suspensions carry an interest charge of 5 per cent. per-annum upon the amount suspended or advanced. The maximum advance or suspension which may be made to a settler on a farm allotment on account of improvements effected within the first six years of his lease is £500 (\$2,400). If the lease has been in existence over six years, the Board may increase the advance by an amount up to 60 per cent. of the principal which has been repaid, the total advance not to exceed £1,000 (\$4,800).

(9) Advances may be made to licensees or lessees under certain sections of the Land Acts, not being Closer Settlement lessees. Such advances are made only up to 60 per cent. of the security value of the permanent and substantial improvements effected by the licensee or lessee, and are repayable over a period of years not exceeding twenty, and carry an interest charge of 5 per cent. Interest and principal are repayable half-yearly.

(10) Where advances or suspension of instalments are made, the insurable improvements must be insured, either with the Board or an outside company. If insured with the latter the policy must be in the joint names of the lessee and the Secretary. Lands Purchase Board. Premiums must be paid by the lessee.

AVAILABLE ALLOTMENTS.

All information in regard to the allotments available for application, together with amount of instalment thereon and cost of improvements, if any, should be made to the Secretary of the Lands Purchase Board, or the Inquiry Branch of the Lands Department. Railway tickets at half rates will be available for the purposes of inspection. Occupation of lands available will be given immediately on approval of the application by the Board, and on payment of the fees due.

IRRIGATION AREAS.

The State has acquired and subdivided land in Irrigation Districts, and offers it to settlers, under the Closer Settlement conditions above described, in holdings of from 2 to 100 acres, and at prices varying from £6 (\$28.80) to £30 (\$144.00) per acre.

Each holding is connected by channel with the Government Water Supply Works (administered by the State Rivers and Water Supply Commission, Melbourne).

The most northerly areas, those within the Cohuna, Koon-drook, Swan Hill, Nyah and Merbein Districts, are supplied from the Murray River, while the Shepparton, Stanhope, Tongala and Rochester areas in the famous Goulburn Valley are served from its principal tributary, the Goulburn. The Werribee District, in the Southern portion of the State, and within 17 miles of Melbourne, is supplied from the Werribee River.

Water for irrigation is supplied by the Commission at the boundaries of the settlers' holdings, the charges made being only those necessary to cover the cost of supply, without profit. These charges range, in the Northern districts, from 5/- (\$1.20) for gravitation water, to 15/- (\$3.60) for pumped water, per acre foot of the water delivered to the irrigator. The charge at Werribee, where there are special conditions, is at present 20/- (\$4.80) per acre foot.

The Commission makes a practice of advising and assisting settlers, in the matter of the erection of buildings, preparation of land for cultivation, and generally regarding dairy farming and other forms of agriculture under irrigation.

Applications are invited from intending settlers, or those interested in irrigation. Full and reliable information will be furnished all enquirers.

Applications and all letters should be addressed to the State Rivers and Water Supply Commission, Melbourne, Victoria, Australia.



Coal-train at Bundamba, near Ipswich, Queensland.

QUEENSLAND'S LAND LAWS

(Information supplied by the Secretary for Lands, by direction of the Hon. the Premier).

Land Laws.—Queensland offers her broad acres of exceptionally fertile lands to settlers on the most liberal terms and conditions in the world. At the present time there are many millions of acres of agricultural and grazing lands available for selection, made up as follows:—Agricultural farms, prickly-pear selections, grazing farms. These areas may be taken up under the following modes and conditions:—(1) Agricultural selections, i.e., agricultural farms, perpetual leases, agricultural homesteads, and free homesteads; (2) Grazing Selections, i.e., grazing homesteads and grazing farms; (3) Prickly Pear Selections; (4) Unconditional Selections. Priority is given to applications for land under the perpetual leases clause of the Act.

Agricultural farms suitable for dairy and general farming, may be taken up in areas up to 2,560 acres under personal residence conditions at prices ranging from 10s. per acre upwards, the payments therefor extending over 20 years. The annual rental is one-fortieth of the purchasing price.

Perpetual Lease Selections.—The conditions of personal residence and improvements as prescribed for agricultural farms apply to selections under this mode. Rent for first period of 10 years, $1\frac{1}{2}$ per cent. on the notified purchasing price of agricultural farms. The rent for each succeeding period of ten years is determined by Land Court.

Agricultural Homesteads.—Maximum area, 320 acres; price, 2s. 6d. per acre; annual rent, 3d. per acre; term, 10 years. These areas are only available in remote localities.

Grazing Selections.—Maximum area, 60,000 acres; personal residence conditions, improvements compulsory; rent, from 1 $\frac{1}{4}$ d. per acre upwards; term of lease, not to exceed 28 years. Annual rentals after first period of seven years are determined by Land Court.

Unconditional Selection.—Maximum area, 1280 acres; price, from 13s. 4d. per acre upwards, payable in twenty annual instalments.

Prickly Pear Selections.—Maximum area, 2560 acres; lease, 25 years, divided into two periods; peppercorn rental during first period, compulsory eradication of prickly pear. In the case of badly infested land, it is optional for the Lands Department to offer a bonus to the selector for the clearing of the land, and when freed from the pest, he is entitled to a deed of grant without any payment except the deed fees.

Selection by Aliens.—All aliens must become naturalised before they can acquire land, and pass a test in reading and writing in such language as the Minister for Lands may direct. An alien must reside two years in the Commonwealth before he can become naturalised.

Assistance to Settlers.—The Government issues to the intending settler desirous of inspecting Crown lands with a view to selecting an area not greater than 5120 acres, a railway ticket from the railway in Queensland nearest to his home at half the ordinary fare. If the intending settler subsequently selects a selection subject to personal residence conditions, and not exceeding 5120 acres in area, the half-fare paid by him is refunded, and his family, self, ordinary household furniture and effects, agricultural implements, seed, one dray, and one set of

harness, are carried free to the railway station nearest to his selection.

Every assistance is afforded the man on the land to improve his homestead. Since the inauguration of the State Agricultural Bank in 1902, the loans to the end of June, 1915, are as follows:—Advances approved, £416,190; instalments paid, £296,396; total advances to date, £1,147,996.



An Orchard, Mapleton



Coke-making, Bundamba Collieries

The Agricultural Bank Acts Amendment Act of 1911-14-15 provides for advances to holders of lands held in fee-simple, and used or about to be used bona-fide for agricultural or dairying purposes, agricultural farms, agricultural homesteads, grazing farms, grazing homesteads, unconditional selections, or mining homestead leases, held under Part VIII. of the Mining Act of 1898; also any other lands which the Governor-in-Council may, by Order-in-Council, published in the *Gazette*, declare to be agricultural lands for the purpose of this Act.

Advances.—Advances are made for the following purposes:—Payment of liabilities already existing on the holding; purchase of stock, machinery or implements; agricultural, dairying, grazing, horticultural, or viticultural pursuits on the holding, and adding to the improvements already made on the holding.

Advances for any of the following purposes, namely, buildings not exceeding £40, silos, ringbarking, clearing, fencing, draining, or water conservation, may be made of an amount not exceeding £200 to the full value of the improvements proposed to be made: Provided that, in the case of an advance being made for the purpose of freeing land from prickly-pear, the managing director shall retain such proportion of the advance as he thinks proper, not exceeding one-half part thereof, for such period as he thinks proper in order to secure the effective and permanent freeing of the land from prickly-pear. Advances at the rate of 13s. 4d. in the £ on the value of land improvements may also be made up to £200 for unspecified purposes.

In no case shall the total amount of the advances under this Act, exclusive of the advances made under the last preceding paragraph, exceed 12s. in the £ of such estimated value.

For the purposes of making advances under this Act on the security of a miner's homestead lease, as defined by the Mining Act of 1898, such leasehold shall be considered as if it were held in fee-simple by the lessee thereof.

No advance under this Act shall be made to any aboriginal native of Asia, Africa, or the Pacific Islands, who has not first obtained in the prescribed manner a certificate that he is able to read and write from dictation words in such language as the Secretary for Agriculture may direct.

No security other than a first mortgage will be accepted as sufficient. At no time can the advance to any one person exceed

£800. Applications for advances not exceeding £200 will have priority.

Form of Improvements.—Clearing, breaking up, ringbarking, fencing, draining, bores, wells, dams, and reservoirs, buildings, machinery (if a fixture) silos, cattle-dips, stockyards, and any other improvements which may be prescribed by regulation.

Mode of Payment of Advances.—Where advances are made for the purpose of payment of liabilities already existing on the holding, the advances will be paid upon the execution of the necessary securities; for stock, machinery, and implements, orders may be given to the vendors when the securities have been registered; and when made for the purpose of agricultural, dairying, grazing, horticultural, or viticultural pursuits on the holding, or adding to the improvements already made, advances will be paid on the value of prospective improvements effected, and proportionally as the improvements are being carried out, i.e., applicants can receive instalments of the advance while the work is proceeding, or in a lump sum on completion of the improvements.

Rate of Interest.—Interest at the rate of £5 per centum per annum will be charged upon all advances, and must be paid half-yearly on the 1st of January and 1st July in each year. In respect of any advance made by instalments, the date on which the first instalment is advanced shall, for the purposes of the Act, be deemed to be the date on which the advance is made, but interest will only be payable on the amount of the actual instalment from the date of payment thereof.

Fees Payable.—All applications must be accompanied by a valuator's fee of £3, in post-office order, cash, or postal notes, or it may be paid to the credit of the trustees in the nearest Government Savings Bank (No. of Pass-book P 5597). Should the application be declined, half the fees will be refunded. Applicants must pay all costs of investigation, preparation, and registration of securities for advances.

Repayment of Loans.—In cases where advances have been made for the purpose of payment of liabilities already existing on the holding, purchase of stock, machinery, or implements, the borrower shall, on the 1st day of January or the 1st day of July, as the case may be, following the date of the advance, begin to redeem his advance, inclusive of interest, by payment of £4 os. 3d.,

half-yearly for each £100 borrowed, until the whole has been paid; the first instalment of such repayment shall be due and payable on the 1st January or July next ensuing after the advance was made. In cases where advances are made for the purpose of agricultural, dairying, grazing, horticultural, or viticultural pursuits on the holding, or for the purpose of effecting improvements or adding to those already made, loans may have a currency not exceeding twenty-five years. During the first five years simple interest only is payable. At the expiration of five years from the 1st day of January or the 1st day of July, as the case may be, following the date of the advance, the borrower shall begin to redeem his advance by payment of £4 os. 3d. half-yearly for each £100 borrowed, inclusive of interest, until the whole has been paid. Provided always that the advance may be repaid sooner than is here provided, and in larger instalments.

Miners' Homestead Leases.—Under the provisions of "The Miners' Homestead Leases Act of 1913," homestead leases can be taken up by qualified persons on any mining field in the State as follows:—Within the boundaries of a town, 1 acre; within 1 mile radius, 20 acres; outside 1 mile radius, from 80 to 640 acres, the latter being the maximum area. During the first period of thirty years the annual rental on homesteads up to 40 acres is 1s. per acre, and 6d. for any additional acreage in excess of this area. This rental does not apply to homesteads acquired by tender or sale. After the expiration of the thirty years' lease a nominal rental of 1s. only can be demanded. The minimum annual rental for any lease is 5s. On the recommendation of the warden, and with the approval of the Minister, leases of homesteads may, in certain areas, be tendered for or sold by public auction. They can also, with the approval of the Minister be transferred by the lessee to a qualified resident of the district in which they are situated. The annual rentals are payable on or before the 31st December in each year. Applicants for leases must be qualified residents of the districts in which the homesteads are situated. Applications for leases made between the 1st January and 1st July must be accompanied by a year's rent, and those made between the 1st July and 1st January by half a year's rent. During the first period of thirty years, the lessee must keep the prescribed fences or improvements on

the land in good order, keep the land clear of noxious weeds and plants, and, in all cases where residence applies, occupy the land by the residence thereon of himself or some qualified person. The Minister may, however, grant the lessee exemption from the personal residence conditions for such time and on such terms as he thinks fit, and may make reservations and stipulations in regard to the right of the lessee or anyone mining on the homestead to cut or destroy timber. The qualifications of aliens in respect to their becoming lessees are specifically defined in the regulations of the Act. These homestead leases are suitable for mixed farming, dairying, market gardening, &c.

To 30th June, 1914, 5,014 dwellings under the above Act have been erected the monetary advances aggregating £1,288,074.

The Workers' Dwelling Act.—This Act, which has been so much availed of since its introduction, provides a means of enabling persons under certain conditions to obtain their own homes by an easy process of repayment.

For general information the provisions of the Act as now amended are here briefly summarised:—

- (a) The Act applies to any part of Queensland.
- (b) The maximum sum that can be borrowed is £300, at the rate of 75 per cent. of the total security.
- (c) The borrowed amount is repayable at the rate of 13s. 3d. per month per £100 for 20 years, but may be paid off at any time during that period. The interest is charged only on the monthly balance.
- (d) Amount payable to the Department with each application to cover expenses is £3, plus 10s. registration fee of mortgage.

To ascertain the amount an applicant may borrow, the following items are added together:—Value of land, fencing, dwelling, and plans and stove, and the advance will be three-fourths of the total.

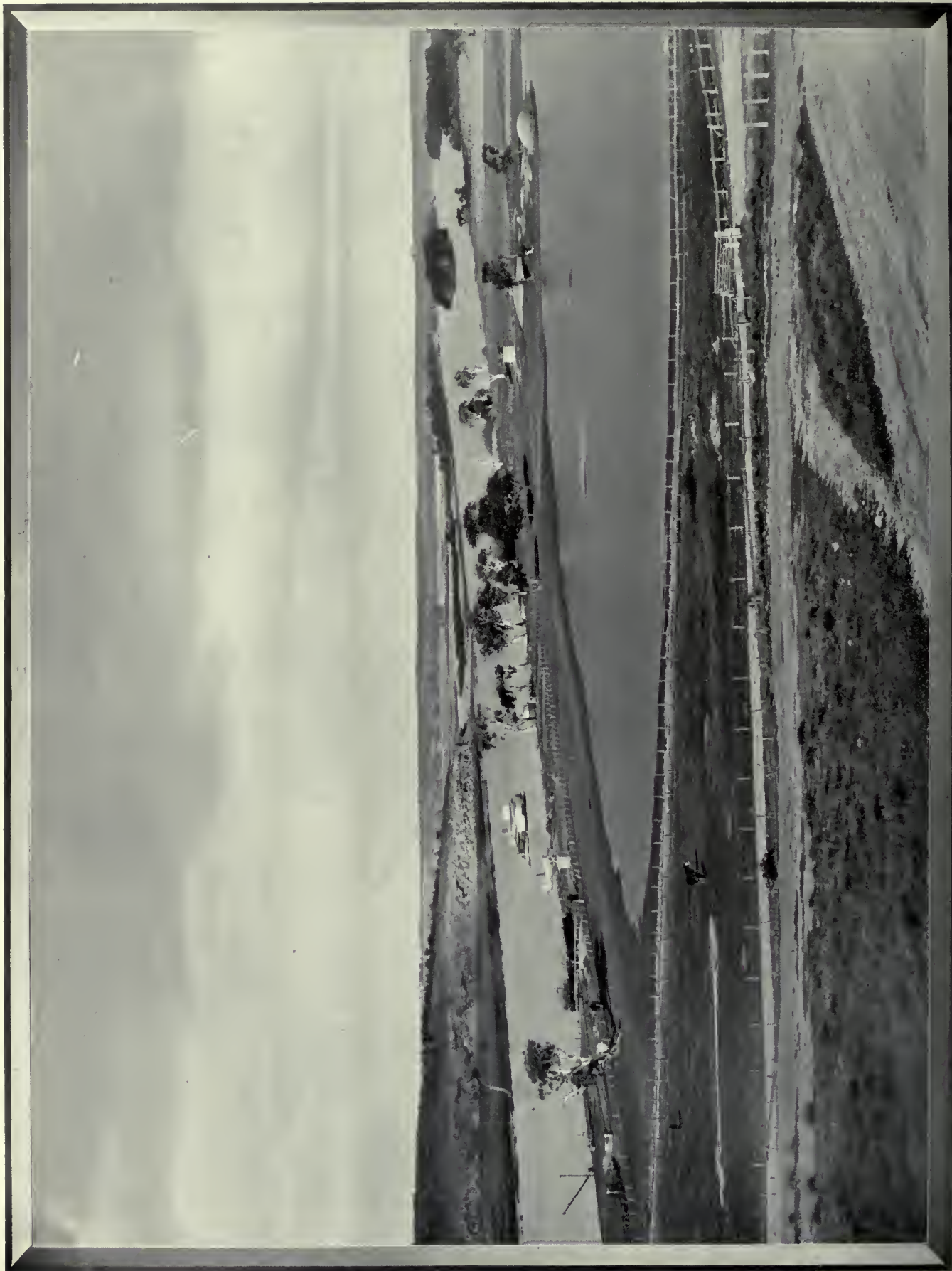
The conditions to be observed by intending borrowers are:—

- (a) Land must be freehold;
- (b) Applicant must not possess any other dwelling in Queensland or elsewhere;
- (c) Salary must not be over £200.

All information will be promptly supplied by the Secretary.



A Queensland Home



Summer Tende on the River Murray South Australia

SOUTH AUSTRALIA: LAND SETTLEMENT.

CONDITIONS OF ALLOTMENT. PURCHASE-MONEY AND RENT.

Crown lands in South Australia are subdivided into such sized blocks as may be recommended by the Land Board and approved by the Commissioner of Crown Lands. The land is then gazetted open to application at purchase-money and rent fixed by the Board and approved by the Commissioner; the full rent under the present law is, as a rule, fixed at 4 per cent. on the purchase value of the land.

The Crown Lands Act, 1175 of 1914 (re-enacted by Act 1190 of 1915) provides that on certain lands where the Commissioner of Crown Lands directs (principally mallee areas) perpetual leases, or agreements with covenant to purchase, may be granted without any payment during the first four years of the term. During the following six years the settlers will be required to pay interest at the rate of 2 per cent. per annum on the purchase value of the block, and from the commencement of the eleventh year, in the case of agreements to purchase, the purchasers must pay the purchase-money and interest in sixty half-yearly instalments of £2/16/5 for every £100 of purchase-money. The agreements will, therefore, be for a term of 40 years. In the case of perpetual leases the rent from the expiration of the

tenth year will be at the rate of 4 per cent. per annum on the purchase value fixed on the blocks.

The holder of land under agreement has the right to complete purchase at any time after the expiration of six years of the term, provided he has complied with all the covenants of the agreement, and has expended a sum equal to 5/- per acre in effecting improvements on the block to the satisfaction of the Commissioner.

The holders of both agreements to purchase and leases will be required to clear and render available for cultivation not less than one-eighth of the cultivable area, as specified in the *Gazette* notice, during the first two years of the term of the agreement or lease, and also a similar area during the second two years of the term, and thereafter during each succeeding year they must clear and render available for cultivation not less than one-eighth of the specified cultivable area until three-fourths of such area has been cleared and rendered available for cultivation. The area so cleared must be maintained in a cultivable condition during the currency of the agreement or lease.



Fruit-Drying, River Murray, South Australia



Cowan's Reclaimed Area on the Murray

The settlers are also required to reserve five acres out of every 250 acres comprised in their blocks for the growth of timber, and must not destroy any timber trees on the area so reserved.

SIZE OF BLOCKS.

As pointed out, purchase-money and rent are fixed by the Land Board on the value of each block according to location and its quality ascertained after inspection. No purchase-money or rent can be quoted for any particular district. After survey of the necessary roads and reserves has been effected, the Land Board recommends the size of the blocks into which the land is to be divided. These blocks generally vary from about 1,000 to 1,500 acres, which is quite sufficient for a farm where the land is fairly good for wheat-growing.

APPLICATIONS—HOW MADE.

After the land has been surveyed it is gazetted open to application for periods ranging from one to two months. All applications must be lodged with the Secretary for Lands by a specified date, which is notified in the *Government Gazette*, and subsequently places and times are fixed at which the Land Board will hold meetings to take evidence from persons desirous of making oral statements in support of their applications. The evidence is given on oath in open court, and persons present have the right, and are invited, to challenge any statement made which they believe is incorrect. After the Board (which consists of three members) has heard all the applicants, or as many as have attended to give evidence personally in support of their applications, it proceeds to make the allotment, each application being dealt with on its merits. All other things being equal, the Board is required by Act to allot the land to the applicant who agrees to reside on it for at least nine months in each year; and if it is not so allotted, a reason must be assigned for departing from the directions of the Act. The Board's decision on allotment is final.

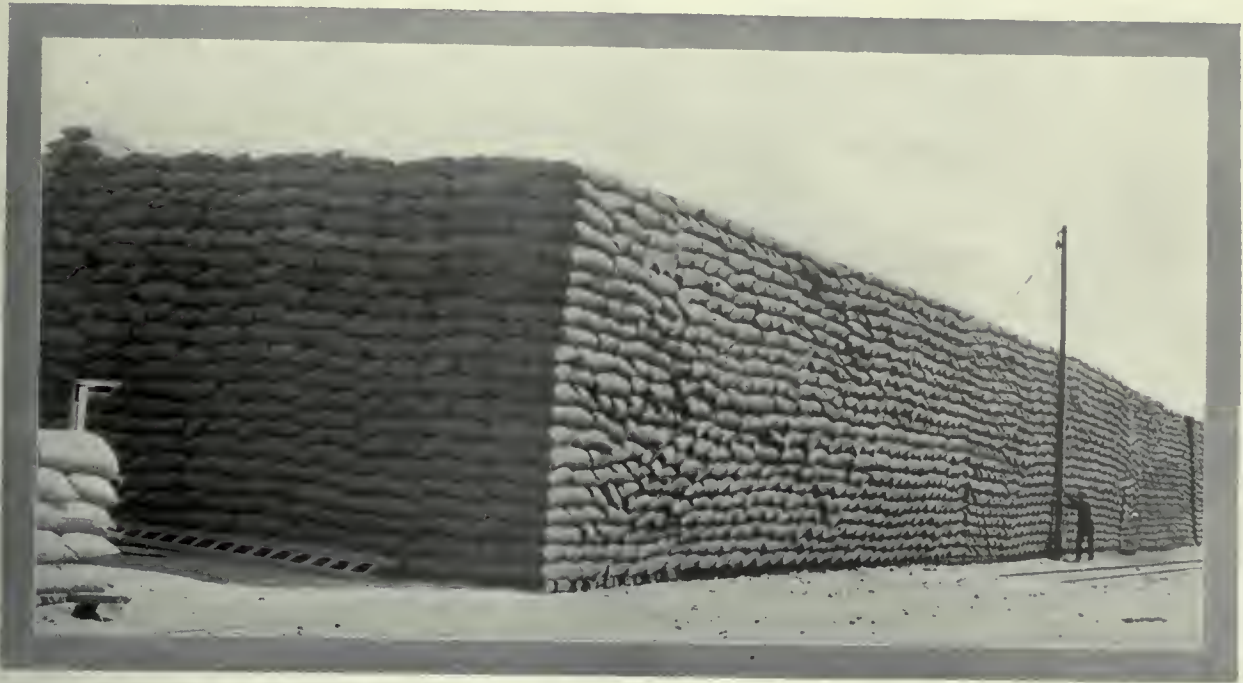
PROVISION FOR WATER AND ROADS.

During recent years considerable alteration has been made in the method of dealing with Crown lands suitable for agriculture. In the country north and south of the Tailem Bend and Brown's Well railway line, east of the River Murray, wells and bores have been put down in the hundreds offered for application, and roads have been and are still being cleared for the use of settlers. The cost of these works is added to the price of the land, and, considering the great benefit which will be derived by the new settlers, the small additional amount per acre which they will be called upon to pay will be scarcely felt by them. The same provision will be made on the lands in course of survey and to be surveyed for settlement in all hundreds in this district.

On the land in course of survey for offer on Eyre's Peninsula, water will be provided for the use of new settlers by means of tanks and reservoirs, and roads will be cleared and the cost charged to the blocks in a similar manner to that previously described.

In addition to the above provision for water, settlers on Crown lands held under perpetual lease or agreement with covenant to purchase may, in accordance with the provisions of Section 26 of "The Crown Lands Act, 1915," apply to the Commissioner of Crown Lands to have rain sheds and tanks erected on their holdings (for the purpose of conserving water) on giving an undertaking to pay the cost of the work as certified by the Commissioner, with interest (from date of certificate) as may be fixed from time to time by proclamation, the payments to be made concurrently with the rent of half-yearly instalments.

This provision in the Act will be of great benefit to many settlers in districts where water is not obtainable except at considerable cost, as it will enable them to get on to the land with a sufficient supply of water for them to proceed with the work of development until they can construct tanks or reservoirs, as the nature of the country may permit. These sheds will not only afford catchment for water, but can be utilised as temporary dwelling places, and a protection for machinery, etc.



A Stack of Wheat at Port Wakefield

LANDS REPURCHASED FOR CLOSER SETTLEMENT.

Closer settlement lands are allotted in the same manner as ordinary Crown lands.

The first measure authorising the repurchase of land for closer settlement was passed in 1897. This Act provided that the land repurchased was to be offered on perpetual lease only at a rental of not less than 4 per cent. per annum on the cost of the land, including expenses of subdivision, &c.

In 1902 an Act was passed abolishing the system of leasing repurchased land in perpetuity, and providing for such land being offered on agreement with covenant to purchase. Under this Act the term of the agreement was for 30 years, the purchase-money, with interest thereon, being payable in 60 equal half-yearly instalments at the rate of £2 16s. 5d. for every £100 of purchase-money. The Crown Lands Act of 1903 contained the same provisions. The purchaser had the right of completing purchase at the expiration of six years if he had fulfilled all the conditions of the agreement.

In 1905 a further Act was passed which extended the term of the agreements to 35 years, during the first five of which the purchasers are required to pay interest only at the rate of 4 per cent. per annum on the purchase-money fixed for the blocks, after which purchase-money and interest become payable as under the Acts of 1902 and 1903. The purchasers cannot, however, complete purchase until the land has been held for nine years.

The legislation of 1914 (re-enacted by Act 1199 of 1915) further extends Closer Settlement Agreements entered into after the passing of the Act, where the Commissioner of Crown Lands directs, by increasing the term to 64 years, the instalments of purchase-money and interest for the first 16 half-yearly payments being at the rate of £1/11/5 for every £100, and the subsequent instalments being at the rate of £2/8/4 for every £100 of the purchase-money. In this case the purchaser has the right to complete purchase at any time after six years from date of agreement, if all the conditions have been complied with, and provided that interest at the rate of 4 per cent. per annum is paid from the date of the agreement to the date of completion in addition to purchase money.

The conditions of closer settlement agreements require the purchasers to expend during the first five years of the term a sum

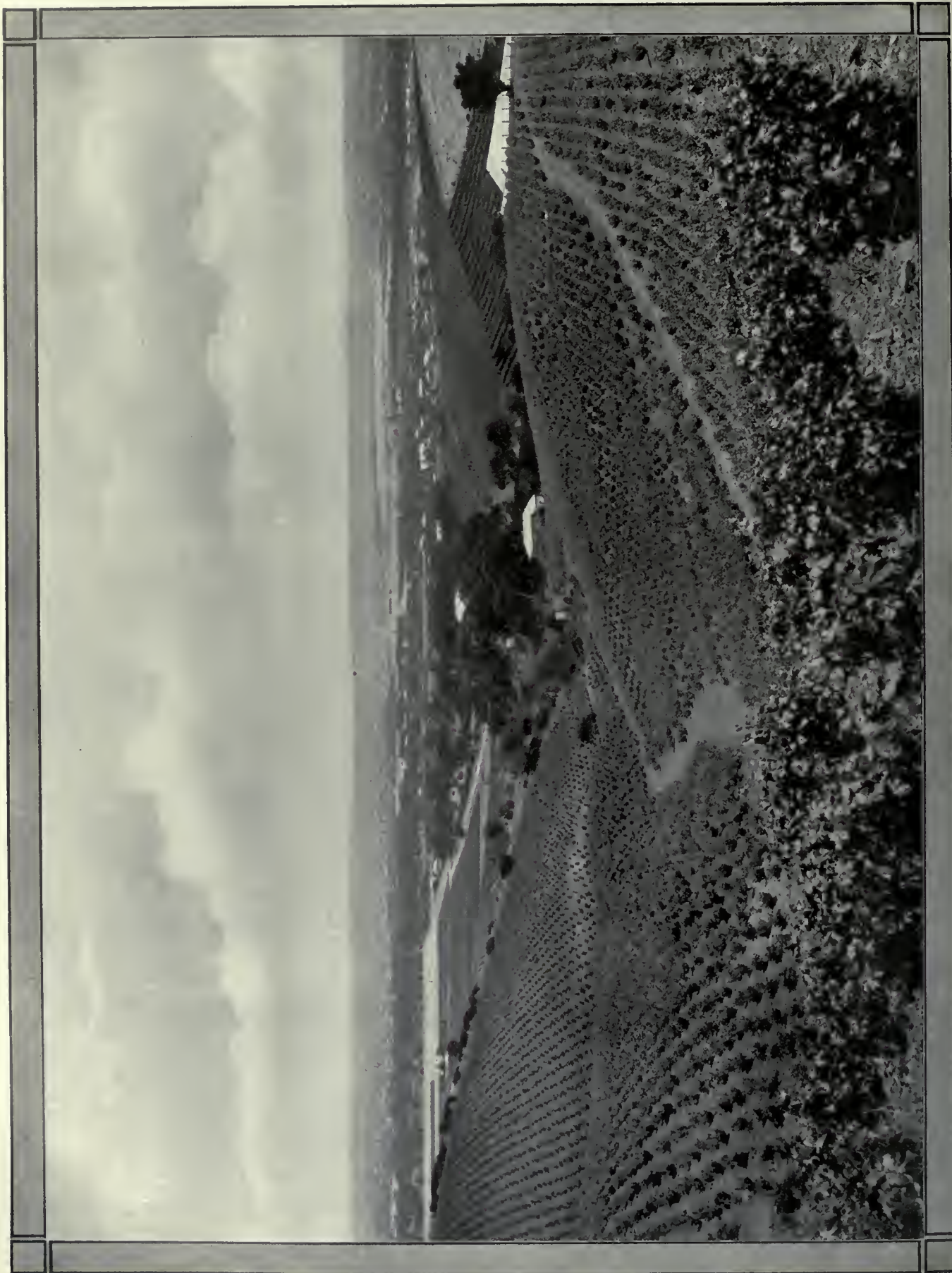
equal to £3 for each £100 purchase-money in substantial improvements, such as buildings, fences, or making provision for water, &c. The purchasers are also required to fence the boundaries of the blocks within five years from allotment of the land. If there are improvements on the land at the time of allotment, they are paid for in precisely the same manner as the land, or the purchaser has the option of paying for them in cash, and the amount which he is required to pay for such improvements is set against that which the conditions of the agreement require him to expend in improvements during the first five years of the term.

Since the passing of the Crown Lands Amendment Act of 1911, the purchaser can—on any date when his instalments are payable—pay off the purchase-money any sum of not less than £50, or any multiple thereof; this, however, does not entitle him to obtain the grant of the land until the prescribed period has expired.

The holders of these agreements are not entitled to cut any growing timber on the land during the first five years, except for the purpose of effecting improvements or rendering the land available for cultivation, and then only with the written consent of the Commissioner of Crown Lands.

HOMESTEAD BLOCKS.

Land for working men is offered in blocks, the unimproved value of which must not exceed £100, and the holder, or a member of his family, must reside on the land for at least nine months in each year. The lands are offered on either agreement to purchase or perpetual lease, and the purchase-money and rent are fixed in the same manner as for ordinary Crown lands. The holders of these blocks have one advantage which is not granted to the other Crown tenants; they can protect their holdings from sale by creditors by having their titles indorsed as "Protected Homestead Blocks." This indorsement can also be carried on to the land grant when the holder completes purchase. The effect of this indorsement is that no subsequent mortgage will have any validity, nor can any creditor take action for the sale of the holder's interest in the lease or agreement for the recovery of any debt contracted after the indorsement of the deed. The indorsement cannot be removed except in the case of transfer, when the transferee may request that such indorsement be removed from the title.



Vineyards at Magill, near Adelaide.

TRANSFERS OF LEASES AND AGREEMENTS.

No transfer of any lease or agreement can take effect unless first approved by the Commissioner of Crown Lands on the recommendation of the Land Board, and no land that has not been held for five years can be transferred unless the holder thereof proves that refusal to allow the transfer would inflict great hardship on him. This restriction does not, however, apply to trans-

ASSISTANCE TO SETTLERS ON CROWN LANDS.
ADVANCES TO SETTLERS' BOARD.

The holders of agreements or leases, which include the lessees of reclaimed and irrigation lands, can apply to the Advances to Settlers Board for loans up to £850, for the purpose of effecting improvements on their holdings, paying off mortgages, purchasing stock, or for any other purpose.



Haymaking at Saddleworth, South Australia

fers by executors or administrators to devisees. All applications to transfer—except those last mentioned above—must be gazetted for not less than two weeks; this also applies to applications for permission to sublet where the land has not been held for six years and the term of the proposed under-lease exceeds three years.

Should the holder apply to transfer any agreement or lease of land allotted under the provisions of Acts 1175 of 1914 and 1199 of 1915 before the expiration of the tenth year of the term, the Commissioner may require that instalments or rent shall be payable as from the time when the transfer takes effect, *i.e.*, the transferee will not necessarily receive the concession as regards rent or interest during the balance of the first ten years of the lease or agreement, as the case may be.

MAXIMUM AREA OF HOLDINGS.

Of ordinary Crown lands, suitable for agriculture only, or for agricultural and pastoral purposes combined, one person can hold an area which, together with land already held by him under any tenure—excepting pastoral lease—would not exceed £5,000 unimproved value; or if the land is suitable for grazing purposes only, and is within Goyder's line of rainfall, he can hold up to the carrying capacity of 5,000 sheep or an equivalent number of great cattle, whilst if the land is outside Goyder's line of rainfall the limitation is a carrying capacity of 10,000 sheep or an equivalent in great cattle. This provision applies to land whether acquired by allotment, transfer, or under-lease.

Of land repurchased for closer settlement the purchaser can hold up to the unimproved value of £4,000, if suitable for agriculture or for agricultural and grazing purposes combined, or up to the unimproved value of £5,000, if the land is suitable for pastoral purposes only. In cases where there are excessive improvements there is no limitation of the unimproved value of repurchased land which may be held by one person.

The Board has power to advance up to £650 for the purpose of effecting improvements, paying off mortgages, or for any other purpose. It can also lend up to £200 for the purchase of stock with which to stock the holding; the security in this case must be equal to one-third more than the advance to be made. For effecting improvements the first £400 can be advanced £1 for £1 on the full value of improvements and of lease to that amount, and the balance of £250 up to 75 per cent. of any additional value of such improvements and lease. For the other purposes the money can be advanced up to 75 per cent. of such value.

Examples.—Suppose a lessee holds a lease which with improvements is worth £360; he would be entitled to a loan of £360 for effecting further improvements, or for any other purpose to a loan of £270, *i.e.*, 75 per cent. of such value.

If his lease, with improvements, were worth £600 he could obtain for effecting improvements a loan of £550, arrived at as follows:—

For £400 value, £1 for £1	£400
For £200 additional value at 75 per cent.	150
	£550

The borrower pays interest only for the first five years of the term, after which he commences to pay the principal and interest in half-yearly payments extending over 35 years. The interest is charged at a rate fixed from time to time by proclamation, and if it be paid within 14 days from due date a rebate of one-half per cent. is allowed, *i.e.*, if the rate fixed at the time of granting the loan is 5½ per cent. and the borrower pays within the specified period of 14 days, only 5 per cent. interest will be required from him.

The Advances to Settlers Act has been largely availed of, especially under the more liberal terms provided in recent Acts. Up to the 31st March, 1917, £474,568 had been advanced to 1,662 settlers.

ADVANCES ON HOMESTEAD BLOCKS.

Loans not exceeding £50 can be granted to the holder of a homestead block on half the value of existing improvements for the purpose of effecting additional improvements on the land, and are repayable with interest at the rate of 4 per cent. per annum in twenty equal annual instalments at the rate £7 7s. 2d. per centum. The borrower has the right to pay off the loan at any time.

ADVANCES FOR WIRE NETTING AND VERMIN-PROOF FENCING.

Loans are granted to agriculturists, pastoralists, and others for the purchase of wire netting for the purpose of protecting crops from the ravages of rabbits, and for erecting dog-proof fences to prevent the inroads of wild dogs. These loans are repayable by twenty annual instalments with interest at a rate fixed from time to time by proclamation. Since 1890 £710,000 has been advanced for the purchase of wire netting and for the purpose of erecting vermin-proof fencing. The system has proved highly satisfactory, and, but for the assistance given the settlers in this direction, a large area of land, which is now successfully occupied for agricultural and pastoral purposes, would have remained practically unoccupied, while the yield of wheat would not have been nearly so great as at present had the farmers not protected their crops with wire netting.

TOWN LANDS.

Town lands are surveyed in lots usually one-quarter of an acre in area, and each town is, where practicable, surrounded by park lands. The town lands are offered at auction at upset prices ranging from £10 per acre upwards, the purchaser being required to pay 20 per cent. of the purchase-money at the time of sale, and the balance within one month. Until recent years there had been no limitation to the number of allotments which could be purchased by one person; but under the provisions of present Acts the Commissioner of Crown Lands may direct that not more than a specified number of allotments shall be purchased by or on behalf of any one person, and should more than such number of allotments be acquired contrary to the provisions of the Act the sale will be cancelled and become void, notwithstanding the fact that the title may have been issued for the allotments so purchased. Allotments purchased under these provisions cannot be transferred, mortgaged, or otherwise dealt with within a period of six years from date of the sale without the consent in writing of the Commissioner of Crown Lands; and if any dealing takes place contrary to this condition the sale will become void and the land revert to the Crown.

LANDS AVAILABLE FOR SETTLEMENT.

There are at the present time about 1,500,000 acres of Crown Lands in hundreds in various parts of the State, available for application for allotment by the Land Board under perpetual leases or agreements to purchase. In addition a large area of about 1,000,000 acres, chiefly on Eyre's Peninsula and the West Coast and between the Pinnaroo hundreds and the River Murray, is in course of survey or to be surveyed during the next two or three years. As these lands are thrown open to application particulars will be published in the *Government Gazette* and supplied to any person desiring to obtain information.

A large area of land for pastoral purposes is also available for application for allotment by the Pastoral Board.

PASTORAL LANDS.

Pastoral lands, outside hundreds, are let for a term of 42 years, except when the land is likely to be required for closer settlement, in which case leases are issued for 21 years only. Leases for a term of 42 years are subject to revaluation of rent

for the last 21 years thereof. At the expiration of the term of the leases the value of improvements, which are the property of the lessee, is payable by the incoming tenant, and then paid to the outgoing lessee. Lands comprised in pastoral leases issued under the present Pastoral Act can only be resumed for public works, such as railways, roads, public buildings, water conservation, etc., or for mining or any purpose incidental thereto, or as a site for a town, park lands, etc., or for the purpose of intense culture, which is defined as cultivation by irrigation. Pastoral leases cannot be transferred or sublet without the written consent of the Commissioner of Crown Lands.

WHERE TO OBTAIN INFORMATION.

The Lands Department affords every facility for intending applicants and other enquirers to obtain information relative to land open to application and to be offered. An officer has been specially appointed for the purpose of answering inquiries in this direction. This officer is conversant with a large portion of the land which is in course of survey and obtains information as to the best means of inspecting the Hundreds and other particulars of interest to intending applicants. He also advises them of the conditions under which various lands may be taken up.

This department distributes free of cost about 16,000 plans annually to enquirers for lands open. These free plans are accompanied by details giving the areas of the blocks and the prices at which they are offered, as well as a short general description of the land and the conditions under which it may be applied for. When any land is gazetted open to application, placards are distributed over the State notifying the fact and also that plans and full detail may be obtained on application to the Secretary for Lands.



Orchards and Virgin Lands, Mylor



A Camel Team Resting, in the Far North.

THE NORTHERN TERRITORY: HOW LAND MAY BE ACQUIRED.

Information supplied by the Hon. Atlee Hunt, Secretary for Home and Territories, under direction of the Minister.

TENURE.

Northern Territory vacant Crown lands are disposed of under The Crown Lands Ordinance 1912 on a leasehold system. Under the Northern Territory Administration Act 1910, Section 11, no Crown lands shall be disposed of for any estate of freehold. There are five ways of disposing of land, namely, by (a) Agricultural Lease, (b) Pastoral Lease, (c) Grazing Licence, (d) Town Lease, and (e) Miscellaneous Lease.

AGRICULTURAL LANDS.

Agricultural lands comprise cultivation and mixed farming and grazing lands. The classes into which agricultural lands are to be classified are as follows:—

Subdivision A.—Cultivation Farms.

Class 1.—Maximum area	1,280 acres
" 2 " " "	2,560 "

Subdivision B.—Mixed Farming and Grazing.

Class 1.—Maximum area	12,800 acres
" 2 " " "	38,400 "

The terms and conditions governing agricultural leases are set out in the Ordinances in detail. Before being offered for lease these lands have to be first surveyed and then advertised open for application. The work of surveying is being pushed ahead as quickly as possible, and openings of this class of land will take place from time to time. Advertisements will be issued specifying the areas available and the conditions attaching to their occupancy.

These leases are perpetual, that is, granted for all time. The lessee is under certain obligations as set out in the Ordinance, which will be set out in detail in the covenants and conditions of the lease. If these are not complied with, the lease may be forfeited. In the case of the first five thousand blocks of agricultural lands taken up on perpetual lease after the commencement of the Ordinance, no rent shall be payable for the period of the successful applicant's life, or twenty-one years, whichever is the longer period. Where rent becomes payable it is subject to reappraisal every twenty-one years.

Every lease of agricultural lands shall contain a covenant by the lessee that he will establish a home on the land within two years after the commencement of the lease; and subject to any

exemption granted by the Land Classification Board for cause shown, that he will thereafter reside on the leased land for a period of six months in each year in the case of land for cultivation, and for four months in each year in the case of land for mixed farming and grazing.

Lessee is also bound by fencing and cultivating conditions, and in case of mixed farming and grazing by stocking conditions. The extent of cultivating, fencing, and stocking is determined by the Board, and inserted in the Gazette notification that the land is available for leasing. The time allowed for performance of these conditions will be as liberal as possible, and the Board may extend such time in any case where lessee has been unable to comply with the conditions within the time specified.

PASTORAL LEASE.

Pastoral leases are granted for twenty-one and forty-two years (according to the classification) under the terms and conditions set out in Divisions 1 and 2 of the Ordinance. No residence conditions are imposed, but provision is made for insertion in the lease of fencing and stocking conditions. A considerable extent of the vacant Crown lands of the Territory is eminently suited for pastoral purposes. It is not yet available for pastoral lease. In the meantime it can be applied for as a grazing licence. A grazing licensee holds his land on a year-to-year tenure at a rental based on the carrying capacity of the land. He pays at the rate of 1s. for every head of great cattle and 3d. for every head of small cattle per square mile, with a minimum of 1s. per square mile. He may obtain permission to effect improvements on the grazing licence area. When the land has been surveyed and advertised open for application for pastoral lease, he may moreover apply for the whole (or part depending on classification) of his licence area as a pastoral lease. He will be entitled to compensation for the value of any improvements effected by him on the grazing licence area in the manner prescribed, not included in any pastoral lease which may be granted to him.

TOWN LEASE.

Leases of town and suburban lands are offered for sale by public auction to the highest bidder at an upset annual rental fixed by the Land Classification Board. Among other things



On the Finke River

the lease shall contain a covenant to erect on the lands within such time as is notified in the conditions on which the land is offered buildings to a value specified in those conditions.

MISCELLANEOUS LEASE.

Miscellaneous leases may be granted for any period up to twenty-one years for any Crown or reserved or dedicated lands for any purpose approved of by the Minister. Such leases shall contain such reservations, covenants, &c., as the Administrator shall deem advisable.

MODE OF APPLICATION.

Applications for lease may be made on the prescribed form. Forms are obtainable at the Lands Office, Darwin, or at the office of the Department of External Affairs, Melbourne. Applicants for agricultural or pastoral lands advertised open for application should see that their applications are at the office of the Land Board, Darwin, or the Department of External Affairs, Melbourne, on or before the last day for the receiving of same.

Applications for miscellaneous leases may be made at any time whether the land has been gazetted as available for leasing or not, but must be sent to the Lands Office at Darwin. Applications for grazing licences may be made at any time, and must also be sent to the Lands Office, Darwin.

ADVANCES TO SETTLERS.

Advances to Settlers' Ordinance 1913.

TO WHOM ADVANCES CAN BE MADE.

Under the Ordinance advances may be made to any person residing in the Northern Territory who is the holder of any land under freehold or leasehold from the Crown or under agreement

with the Crown, by which he is entitled to acquire the freehold, provided that such land is being cultivated or improved, or bona fide intended to be cultivated or improved for the production of any commercial product.

APPLICATIONS.

All particulars and forms of applications may be obtained from the Secretary to the Advances to Settlers Board, Darwin, or from the Secretary, Department of External Affairs, Melbourne. No fees are payable on application.

PURPOSES FOR WHICH ADVANCES ARE MADE.

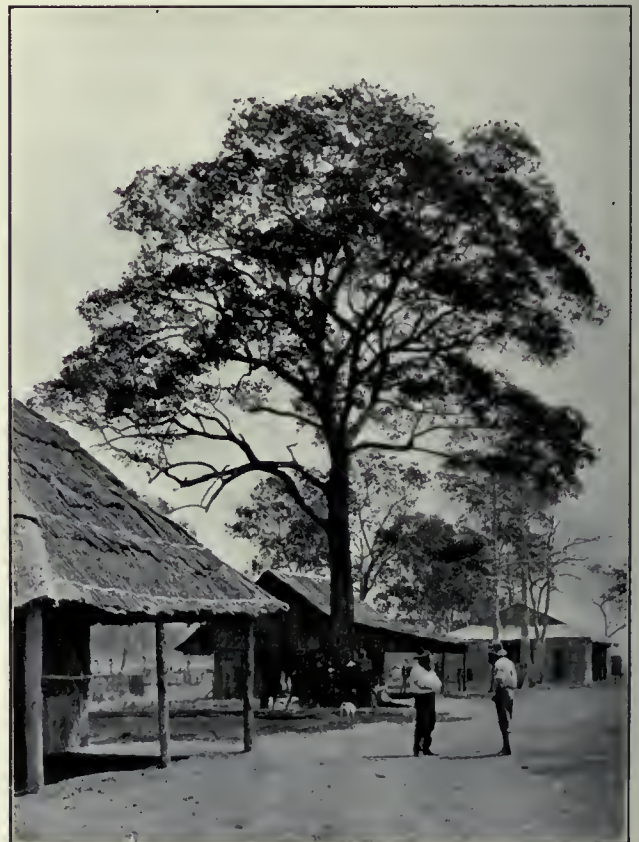
Advances are made to settlers for the following purposes:—

- (a) For making improvements on their holdings;
- (b) For purchasing any implements, plant, or machinery, approved by the Board, for use on their holdings;
- (c) For stocking their holdings; or
- (d) For paying off mortgages or charges on their holdings.

LIMIT OF ADVANCES.—PRO RATA ADVANCES.

The total advances made to any one person shall not exceed £800, and may be granted as follows:—

- (a) For purchasing approved building material a sum not exceeding *one hundred pounds*.
- (b) For purchasing approved fencing material a sum not exceeding *one hundred pounds*.
- (c) For erecting buildings *thirteen shillings and fourpence* in the pound, not exceeding *one hundred pounds*.
- (d) For erecting fencing *thirteen shillings and fourpence* in the pound, not exceeding *one hundred pounds*.



Bathurst Island

- (e) For ringbarking, clearing, breaking up water conservation, and other improvements approved by the Board, *fifteen shillings* in the pound.
- (f) For the purchase of approved stock *fifteen shillings* in the pound on the value of the holding with the improvements made thereon, after taking into consideration all sums already advanced and still owing on the security, not exceeding *three hundred pounds*.
- (g) For the purchase of implements, machinery or plant approved by the Board, *fifteen shillings* in the pound on the value of the holding with the improvements made thereon, after taking into consideration all sums already advanced and still owing on the security, not exceeding *on hundred pounds*.
- (h) In case the holding is not of sufficient value in excess of all encumbrances (or at all) to permit of an advance being made as provided by the last two preceding paragraphs, the Board may grant an advance not exceeding *ten shillings* in the pound on the value of the stock, implements, machinery or plant proposed to be purchased.
- (i) For paying off mortgage, *fifteen shillings* in the pound on the value of the holding.

An advance may be paid by instalments as the improvements have been effected or the purchase made.

Attention is especially invited to sub-clause E above-mentioned, under which he is able, subject to the Ordinance and Regulations, to obtain 15s. in the pound up to £800, for improvements

effected. The undermentioned table shows the advance which he may obtain under this sub-clause:—

Value Improvements	Amount of Loan	Value Improvements.	Amount of Loan.
£66 13 4	£50 0 0	£666 13 4	£500 0 0
133 6 8	100 0 0	800 0 0	600 0 0
266 13 4	200 0 0	933 6 8	700 0 0
400 0 0	300 0 0	1066 13 4	800 0 0
533 6 8	400 0 0		

REPAYMENT OF ADVANCES.

For the first five years next following the date on which an advance is made the settler is not asked to repay the loan, but is to pay interest only on the advance of 4 per cent. per annum, the first payment of interest becoming due on the 1st July in the year following the granting of the advance.

After the expiry of the first five years, however, the settler shall repay the advance to the Board by twenty-five equal yearly instalments, together with simple interest on the balance of the advance for the time being unpaid at 4 per cent. per annum. The instalments on the 1st July in each year.

Any advance may at the option of the settler be repaid at any time sooner than prescribed, or in larger instalments.

An Immigrants' Home has been erected at Port Darwin to meet the requirements of intending settlers arriving there with their families.



Men who "Make Good" in the North



Sons of Gwalia Gold-mine, Western Australia

WESTERN AUSTRALIA: LAND LAWS AND CONDITIONS OF SETTLEMENT.

(Information supplied for inclusion in *Australia Unlimited* by direction of the Premier,
Hon. Henry Bruce Lefroy, C.M.G., M.L.A.)

Land Selection. [Not more than 2,000 acres of Agricultural Land, including a Homestead Farm, can be held by any one person, or its equivalent in Grazing Land, *i.e.*, 5,000 acres. The husband or wife of the holder of 2,000 acres may select an additional 1,000 acres of Agricultural Land, or 2,500 acres of Grazing Land.]

In 1898 a Consolidated Land Act was introduced, which came into operation on the 1st January, 1899, and this Act, together with amendments that have been made to it from time to time, comprise the Land Laws in force at the present time, and under these laws land may be selected, subject to the following conditions:—

HOMESTEAD FARMS.

On payment of a fee of £1 1s. (including 1s. duty stamp), and the cost of survey, any person, if the head of a family or male who has attained the age of 16 years, and who does not already hold more than one hundred acres of land, may obtain a Free Homestead Farm of 160 acres subject to the following conditions:—

Personal residence for six months in each of the first five years. Expenditure of 4s. per acre in improvements during the first two years; a further six shillings per acre during the next three years, and 4s. per acre during the last two years; making a total of 14s. per acre in seven years. Fencing of half the boundaries in the first five years, and the whole in seven years. £30 of the expenditure on a habitable house is allowed towards the amount of improvements required. At the end of the term of seven years, provided all conditions have been complied with, a Crown Grant is issued, costing thirty shillings.

CONDITIONAL PURCHASE, WITH RESIDENCE, SECTION 55.

From 100 to 1,000 acres may be acquired at a price to be fixed on survey and classification at an annual rental for the first five years of the term equal to interest at the rate of 7 per cent. per annum on the cost of survey and the value of the improvements (if any) thereon, the term of the lease not to exceed 30 years. Provided that the minimum rent during the said five years shall be ten shillings per annum, subject to the following conditions:—

Personal residence on the land (or on an adjacent holding) for six months in each of the first five years. Residence by wife, parent or child over 16 years may also be accepted as compliance with this condition. Expenditure on improvements must equal the purchase money but need not exceed £1 per acre, at the rate of one-fifth of the purchase money every two years from date of lease; one-half of the land must be fenced within five years, and the whole within ten years.

CONDITIONAL PURCHASE, WITHOUT RESIDENCE, SECTION 56.

The same area of land as under the previous section may be acquired without the condition of residence but subject to all of the conditions prescribed for selections under Section 55, except that the total value of improvements shall be 50 per cent. over and above the amount of purchase money, but need not exceed 30s. per acre.

CONDITIONAL PURCHASE, BY DIRECT PAYMENT.

From 100 to 1,000 acres may be acquired under this Section, the purchase money being payable in twelve months; 10 per cent. being paid on application and the balance by four quarterly instalments, on the 1st January, April, July, and October, the first of such instalments to be paid on the first day of the quarter next following the commencement of the licence.

The licensee must, within three years from the date of the commencement of his licence, fence in the whole of the land, and

than cultivation. From 100 to 5,000 acres may be acquired, the price ranging from 3s. 9d. to 10s. per acre, fixed and payable as in Sections 55 and 56.

Residence for six months in the first year, and nine months in each of the next four years by the lessee, or residence may be performed by an agent or servant. Improvements valued at one-fifth of the purchase money must be made during every two years of the first ten years of the lease. The land must be fenced within ten years.



Grape-pickers, Armadale, W.A.

within seven years from such date expend upon the land, in prescribed improvements, in addition to the exterior fencing, an amount equal to 10s. per acre.

Maximum Area.—Including a Homestead Farm and Conditional Purchase (with and without residence), the total area a selector may acquire is fixed at 2,000 acres, but the holder's wife (or husband) may take up a further 1,000 acres under Section 56 (non-residence), or 2,500 acres Conditional Purchase Grazing Lease under Section 68.

CONDITIONAL PURCHASE LAND FOR ORCHARDS, VINEYARDS, OR GARDENS.

Small blocks of land, from 5 to 50 acres, can be acquired at from 10s. per acre, payable by 10 per cent. deposit, and the balance in half-yearly instalments in three years, subject to the following conditions:—

The whole must be fenced, and one-tenth of the area must be cultivated as a vegetable garden, or planted with vines or fruit trees within three years.

CONDITIONAL PURCHASE, GRAZING LEASES.

These so-called Grazing Leases are merely conditional purchases of non-cultivable land, or land which is more suitable for grazing

NOTE.

(a) In estimating the area held by a selector, 5,000 acres of Grazing Lease, or non-cultivable land, is deemed to be equivalent to 2,000 acres of ordinary Conditional Purchase, or cultivable land, and therefore, a person holding 1,000 acres of cultivable land may select 2,500 acres under Grazing Lease; and if the selector holds 2,000 acres of cultivable land, or 5,000 of non-cultivable land, the husband (or wife) in addition, may take 2,500 acres under Grazing Lease, or 1,000 acres of cultivable land under Sections 55 or 56.

(b) Selectors under each of the three foregoing classes of conditional purchase (Sections 55, 56 and 68) may, on the expiration of the lease, or at any time after five years, acquire the Crown Grant of the land, provided the required conditions have been fulfilled and the full purchase money paid. Under Sections 57 and 60, the Crown Grant may be acquired at any time on completion of conditions and payment of the balance of the purchase money.

(c) In selections under each of the foregoing classes of conditional purchase land, the cost of survey and the proportionate amount of the cost of any road clearing, water supply, etc., in the immediate vicinity, and the value of any improvements that



A Flock of Sheep at Minigin, Narrogin, W.A.

may be on the land (which has been carried out by the Government) is added to and included in the price of the land.

(d) In the case of selections under Sections 55, 56 and 68, a deposit of one-half the yearly instalment of interest on survey and improvement (if any) plus five shillings lease fee, and five shillings registration fee is required, and in the case of Sections 57 and 60, 10 per cent. deposit must accompany the application.

(e) Any person of 16 years of age or over can select land and mortgage and transfer as if of the full legal age.

PASTORAL LEASES.

Crown lands within the State may be leased for pastoral purposes as follows:—

RENTALS.

Pastoral Leases are granted for a term expiring on or before the 31st December, 1948, at a rental fixed after appraisalment:—

Previous to appraisalment the following rents are payable:—Kimberley and North-West Divisions 10s., Eastern Division, 5s., and Eucla Division 3s. per thousand acres per annum.

A quarter or half-year's rent is payable with application.

At the end of fifteen (15) years the rent is subject to re-assessment for the residue of the term of the lease, but will not be increased by more than half of the rent fixed for the first term of the lease.

AREA.

The maximum area that can be held by one person or firm is 1,000,000 acres, but in specified Districts the Governor may fix the maximum area at less than 1,000,000 acres. Any combination of persons cannot hold more than 1,000,000 acres in any one division.

IMPROVEMENT CONDITIONS.

Within 5 years from the commencement of the lease, to the value of £5; and

Within 10 years from the commencement of the lease, to the value of £10 (inclusive of the value of improvements effected during the first five years of the term), for every 1,000 acres of the area leased, and such improvements shall be maintained in good repair, and so far as necessary renewed during the term of the lease.

STOCKING CONDITIONS.

Within two (2) years from the commencement of the lease, at the rate of 10 head of sheep or 2 head of large stock for each 1,000 acres of the area leased.

Within five (5) years from the commencement of the lease and until the expiration of the first seven years of the term, at the rate of 20 head of sheep or 4 head of large stock for every 1,000 acres of the area leased.

During the remainder of the term of the lease, at the rate of 30 head of sheep or 6 head of large stock for each 1,000 acres of the area leased.

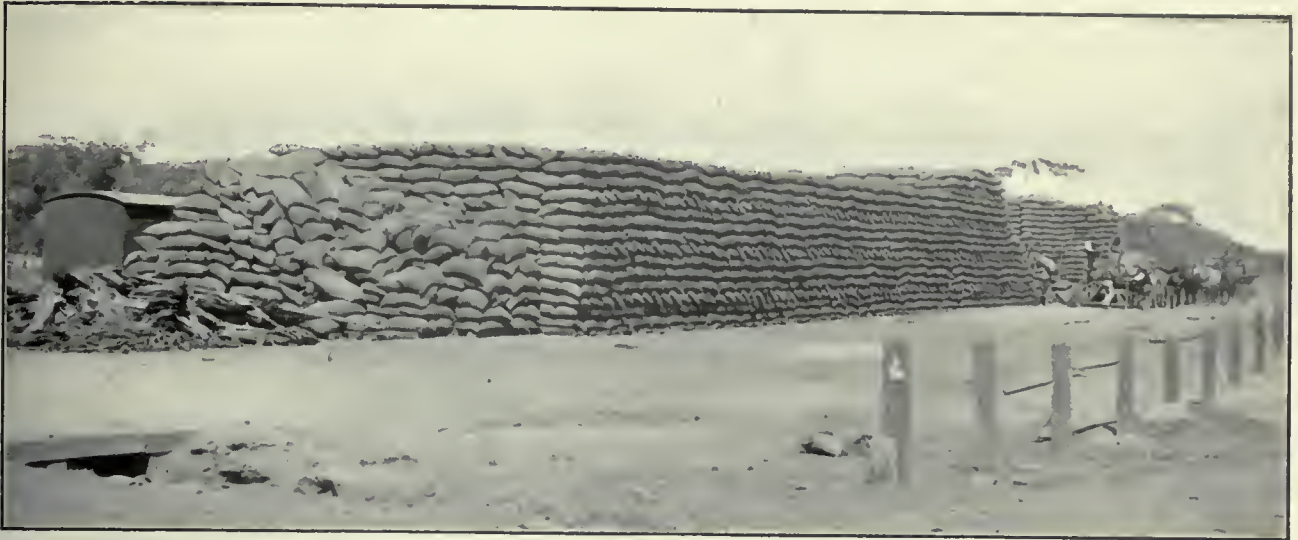
SOUTH-WEST DIVISION.

Land in the South-West Division is granted at a rental of 20s. per thousand acres per annum without re-appraisalment or improvement conditions, but subject to the stocking conditions mentioned above.

AGRICULTURAL LANDS PURCHASE ACT.

This Act, which was originally passed in 1896, and Consolidated and amended in 1909, provides for the repurchase by the Government of land situated within 20 miles of a railway for the purposes of agricultural settlement. Lands so acquired are deemed to be Crown Lands, and are disposed of under the provision of the Land Act, subject to slight modifications.

The selling price is fixed at a sum that will cover the amount paid for the land, plus five per cent. and the cost of survey, etc. Selectors are charged five per cent. interest per annum on the unpaid balance of purchase money, and the purchase money, as received, is paid to the credit of a Special Trust Fund to be



Wheat at Railway Siding, Pingelly, W.A.

applied in payment of interest and the redemption of debentures by which the land was purchased.

In the case where a special date is appointed for throwing open an area, and there should be more than one applicant for the same block, the matter is referred to a Land Board for decision as to whom the block shall be allotted usually within two weeks from date appointed for lodgment of applications. Railway tickets at excursion rates are issued by Railway Department to enable applicants to attend the Land Board; application for same to be made to the Secretary of the Land Board.

Copies of the Regulations embodying the above provisions and giving further details may be obtained on application.

On a selector proceeding to any district for the purpose of selecting land, the nearest Government District Land Office will supply all information, plans, and pamphlets. Similar information, may also be obtained at the Head Office of the Lands Department.

The Railway Department grants a special concession in the way of fares and freights for a new selector's family and goods on production of a certificate of *bona fides* from the Lands Department up to six months after date of approval notice.

A registration fee of 5/- (but no lease fee) is payable with every application, for Homestead Farms, Orchard Lands, and Land purchased by direct payment.

THE AGRICULTURAL BANK.

Advances up to a maximum of £2,000 are made by this Institution to assist farmers on the security of Conditional Purchase, Homestead Farm, or Freehold Land, to improve their holdings, or to pay off existing mortgages, purchase stock or machinery. The rate of interest is 5 per cent., except for advances on stock and machinery when it is 6 per cent., and unusually long terms are allowed for the repayment of the principal.



A Crop of Potatoes at Osbourne Park (estimated 10 tons per acre).



Kellaway's Farm, Adventure Bay, Tasmania.

TASMANIA: LAND LAWS RELATING TO SELECTION

(Information supplied by the Department of Lands and Surveys, Hobart; and officially verified for publication in *Australia Unlimited*).

Classification of Land.—The Crown Lands of Tasmania are divided into two classes—(1) Town lands and (2) Rural lands. The former comprise lands within the boundaries of any city, town or town reserve; and within a distance of five miles of any city. Rural lands comprise (a) First-class land; (b) Second-class land; (c) Third-class land. Town lands can only be purchased at auction, or if, after having been offered at auction and not sold, by private contract, within one year after the auction sale. Rural lands may be purchased at auction, or may be selected for purchase privately.

Selection.—Any person of 18 years of age and upwards may select an area not exceeding 200 acres of First-class land, 300 acres of Second-class land, and 600 acres of Third-class land.

Survey Fees.—In order to make the payments during the first year of purchase as light as possible, the Lands Department advances to the selector of any First-class land four-fifths of the amount of the fee necessary for the survey of the land. The balance is payable in four years, to which is added 2s. 6d. in the pound interest. For lands at Auction and for Second and Third-class lands the Survey fee must be paid in full.

Terms of Purchase.—The price of First-class land is not less than One Pound per acre, with one-third of that price added as a premium for credit, which extends over a period of eighteen years. For second-class land Ten Shillings an acre is the minimum price, with one-third added for credit, the period of which is fourteen years. For third-class land, the price is not less than Five Shillings an acre, with one-third added for credit for fourteen years.

Homestead Areas.—Any person of the full age of eighteen years or over who has not previously purchased land in Tasmania may make a selection of a Homestead Area of First-class land not exceeding 50 acres, at One Pound per acre, with one-third added for credit.

The selector of a Homestead Area pays a cash deposit of Two-pence per acre at the time of sale, but pays nothing more towards the purchase-money until the fourth year, when the payments for that and the fifth year are at the rate of Ten-pence an acre, and for the remaining eighteen years an annual payment of Two Shillings an acre.



Australian Hardwood. The Finest in the World.
Timber Train in Geeveston Forest, Tasmania



Fruit for the English Market, Hobart

Mining Areas.—“A Mining Area” under the Crown Lands Act comprises land in the vicinity of a mining field, and which is specially proclaimed a mining area. The land so proclaimed may be selected as First-class Agricultural land, not exceeding 100 acres, on the terms provided for the purchase of these lands.

Second-class lands within a mining area may be sold at auction, but no lands within a mining area can be sold as Third-class. All lands purchased within a mining area are open to any person to search or mine for gold or other metals or minerals; but before any such person can commence searching or mining he must obtain permission in writing from the Secretary for Mines, or the nearest Commissioner of Mines.

Conditions of Purchase.—Upon all First-class land selected or purchased under the present Act habitual residence is necessary for five years, commencing one year after date of purchase, and shall be continuous; but on land within a mining area the period of residence is three years. In both cases this may be complied

with by the selector himself, or some member of his family, or some one employed by him or on his behalf.

Improvements.—All Town lands purchased on credit must be improved to the value of a sum at least equal to the sale price of the land.

Upon First-class lands the selector must expend a sum of not less than 2s. 6d. an acre of the whole area in substantial improvements every year for the first eight years.

By paying off before the expiration of the period of credit all selectors obtain a rebate of the added premium in proportion to the unexpired period of credit.

Second-class land must be likewise improved to the value of at least One Shilling an acre per annum for the first five years before the selector can pay up and obtain his Grant Deed.

Third-class land must also be substantially improved to a value of at least Sixpence an acre per annum during the first five years before balance of purchase-money can be paid, and Grant Deed issued.

Crown land cannot be selected as Third-class if it is within the boundaries of a pastoral lease.

Improvements on all lands must be of a substantial nature, and include dams, wells, cultivation, fences, clearing or draining of land, the erection of a habitual dwelling, or farm or other buildings upon and permanently attached to the soil of such land.

Mode of Selection.—When the intending selector has decided in which part of Tasmania he will make his choice of land—to assist him in doing which he will obtain ready assistance from the District Surveyors or from the officers of the Crown Lands Office—he must fill in a form of application obtainable from the various Post and Police Offices throughout the State, from any Bailiff of Crown Lands or District Surveyor; and at the Crown Lands Office, Hobart, and Lands Branch Office, Launceston.

The land having been surveyed, and plan furnished to the Surveyor-General, if it is found that the land is not reported as likely to contain minerals or timber of commercial value, the applicant is called upon to pay deposit, and on payment a contract of sale is mutually entered into. Further particulars of the Land Laws may be obtained from “The Crown Lands Guide,



Apple-picking in a Glenora Orchard



A Farm Scene at Longford, Tasmania.

1912"; cost 1s.; obtainable from the Crown Lands Office, Hobart, and Lands Branch Office, Launceston.

AGRICULTURAL BANK.

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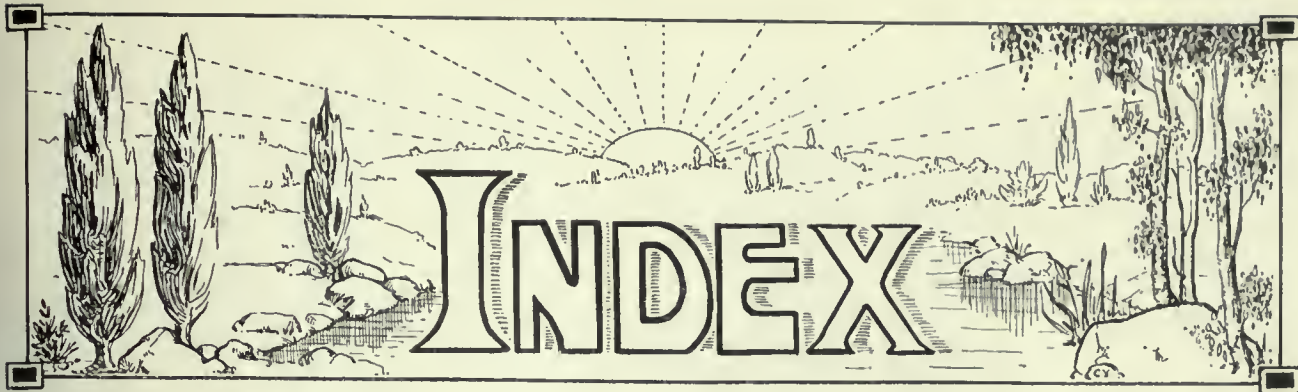
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A Tasmanian Forest



	Page		Page		Page
Abbott Family	853	Anaconda Bore	74	Austin, A. J.	889
Abbott, J. H. M.	126, 856	Anakie Gem-field	425, 480	Austin, Robert	52
Abercrombie River	93	Anama	1059	"Australia," H.M.A.S.	799
Abminga Creek	78	Anderson's Creek	297	<i>Australia del Espiritu Santo</i>	18
Aboriginal Mission Stations—		Anderson's Inlet	340	<i>Australia Felix</i>	43, 294, 330
343, 542, 668, 815		Angas Family	829	Australian Alps	41, 233, 339, 346
Aborigines, Australian—		Angaston	626, 832, 834	Australian Army and Navy	121, 795
22, 28, 46, 50, 295, 452, 559		Angelo	662	Australian Flying Corps	798
603, 728, 730, 732, 754		Anglesea	322	Australian Imperial Force	796
Abroholos, Houtman's—		Angling	138, 179, 220, 267	Austrians	146
19, 24, 25, 660		Anglo-Indians	749, 771	Authors, Australian	123
Acacias	76, 83, 188	Anglo-Persian Oil Co.	790	Aviation	797
Acheron River	364	Agora Goats	80	Avoca	777
Adam Bay	566	Anise	437	Avoca River	43
Adam Khan	618	Animals, Australian	135	Avon River	339, 345, 737
Adamson's Peak	757, 773	Anlaby	1014	Ayers Rock	589
Adelaide	48, 52, 611, 652	Anna Reservoir	84, 604	Ayrshire Cattle	840
Adelaide River—		Annar River	457		
48, 516, 524, 546, 563, 606		Ant-hills	432, 520, 590	Babbage, B. H.	47
"Adventure," The	758	Anthony's Lagoon	74, 528, 583	Bacchus Marsh	320, 386
Adventure Bay	758, 784	Anthony's Well	579	Bacon	378, 415
Afghans	247, 618	Anthrax	377	Badilla Sugar-Cane	429
Agache, Prof. D. Alf.	69	Antimony	156, 407, 443, 701	Bagdad Valley	773
Agricultural Banks, State—		Apple-bush	211, 250	Baines, T.	51
409, 416 738		Apples—		Bairnsdale	87, 339, 343, 345
Agricultural Education—		161, 167, 331, 503, 625, 699, 745, 773		Baker, Richd. T.,	103, 128
336, 357, 372, 382, 809		Appin	191, 218	Balaclava	622
Agriculture—		Apricots	161, 237, 579, 625, 638, 678	Bald Hill	209
77, 300, 318, 368, 444, 472		Apsley Strait	517	Bale, W. M.	128
Agriculture, Department of	120	Arabs	17	Ball, Geologist	480
Albany	19, 46, 400, 680	Arafura Sea	520	Balla Balla	101, 664
Albany Pass	46	Araluen	156	Ballarat	297, 315, 318, 332
Albatross Island	782	Ararat	297, 331	Ballenger, Messrs.	336
Alberga River	77, 79, 730	Arbitration, Industrial	116	Ballina	202
Albert District	505	Archer Bros.	977	Balranald	280
Albert River	52	Ardmona	394, 396	Bamawm	386, 389
Albertsz, Pieter	22	Ardno	330	Bamawm State Farm	370
Albion Peak	220	Areca Nut	437	Bamboo	421, 790
Albury	92, 163, 885	"Ariel," The	47	Bamboo Creek	676, 705
Alcohol	519	Arltunga Goldfield	78, 83, 579, 596	Bananas—	
Aldinga	653	Armidaire	144, 208, 953, 959, 969	161, 412, 438, 455, 458, 527, 678, 790	
Alexander, A. D.	1000	Armored Motor Car	796	Banfield, E. J.	126, 434
Alexandra	318, 362	Army, Australian	66, 795	Bangalow Palms	190, 219, 428
Alexandra Sugar-Mill	429	"Arnhem," The	19	Banking, Australian	114, 298, 488
Alexandrina, Lake	92, 349	Arnhem Land	22, 540, 572, 594	Banks, Sir Joseph	26, 29, 32
Alfalfa	237, 241	Arrowroot	519, 527, 678	Banks Island	109
Alford Family	707	Arsenic	156	Banksia	188
Alice River Goldfield	452	Artesian Basin, Great—		Bankstown	191
Alice Springs—		94, 466, 655, 660		Banyan-trees	212, 219
50, 82, 84, 578, 592, 607, 619		Artesian Water—		Baobab-tree	673
Aliens	409	44, 46, 52, 72, 74, 76, 78, 80, 94		Baragoot	269
Alkalies	102, 104, 676	97, 104, 240, 245, 473, 496		Barcaldine	420, 424, 470, 472
Allamandas	527	Artists, Australian	124	Barclay, H. V.	51
Alligator Creek	568	Asbestos	156, 407, 701	Barcoo River	44, 52, 469
Alligator Rivers	548, 607	"Ascedant," The	833	Barkly Tableland—	
Alligators	138	Asche, Oscar	128	76, 530, 577, 586, 600	
Allipo Creek	206	Ash, Mountain	82	Barley Grass	249
Allora	491, 498	Ashburton	596, 701, 729	Barmoya Scrub	478
Alluvial Mining—		Ashburton River	19, 52, 676	Barossa Ranges	652, 832
77, 156, 297, 332, 361, 701, 706, 723		Ashton, Julian	128	Barraba	232
Almonds	625, 678	Aspendale	308	Barracoota	153
Alps, Australian	41, 233, 339, 346	Assignment System	58	Barramundi	138, 569
Alps, Victorian	195, 355	Atherton	416, 438, 464	Barren Island	782
Alroy Downs	76	Atherton Tableland—		Barrenjoey	179
Alum Cliffs	765	46, 102, 170, 415, 445		Barrett, Chas.	128
Aluminium	104	Athletics	128	Barrett-Leonard, G.	685
Alumite	156	Atolls	424	Barrier Range	42, 254
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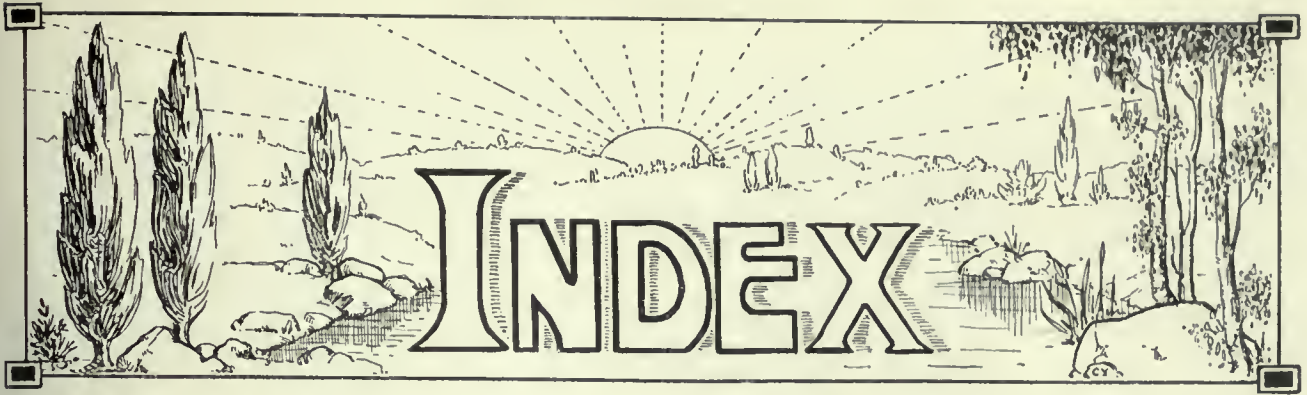
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	Page		Page		Page
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Alumny Creek	206	Atolls	424	Barrington	246
Ambergris	154	Austin Excavator	651	Barron Falls	440, 444, 457
Amphinome Shoals	667				

	Page		Page		Page
Barron River	440	Birdsville	469, 618,	Bradshaw, Joseph	590
Barrow Creek	84, 580, 583,	Bishop and Clerk Island	784	Brahe, Wm.	50
Barton, Sir Edmund	66	Bismuth	156, 407,	Brandt, Otto	526
Barwon Heads	322	Bitter Springs	573	Brandy	163
Barwon River, N.S.W.	232	Bittern	136, 308	Branxholme	331
Barwon River, Vic.	322	Blackall	416, 472	Bread-fruit	437, 678,
Basalt Rocks	201, 309, 590,	Blackall Ranges	507	Break o' Day Valley	779
Baskerville, Margaret	128	Black, Andrew	279	Bream	138
Bass (Fish)	151	Blackbutt-trees	267, 310,	Breinl, Dr. Anton	532
Bass, Surgeon George	291	Black Duck	134, 569	Bremer, Sir Gordon	518
Bass Strait	291	Blackfish	138	Brennan, Christopher	126
Bastion Rock	346	Black Flat	313	Brennan, Louis	128
Batavia	20, 24	Blackmore River	594, 606	Brereton, John de Gay	126
"Batavia," The	19, 25, 660	Black Range Minefield	710	Bridge Creek	606
Batavia River	452	Black Soil Plains	227, 233, 470,	Bridgetown	699
Batchelor Demonstration Farm—		Blacks' Spur	365	Bridgewater	756
	535, 538	Blackwood River	22, 693	Brierley, Sir Oswald	270
Bateman's Bay	267, 275	Blackwood-trees	310	Brigalow	476, 490
Bathurst	39, 43, 66, 161, 297,	Blair Athol Coal Mine	407, 486	Bright	353, 357, 360
Bathurst Island	517	Blanchetown	90	Brighton	306
Batman, John	294, 322	Blaxland, Gregory	39	Bringles	674
Battery Tank	250	Blayne	137	Brisbane	52, 417
Baudin, Capitaine	292, 661	Blue Grass	466, 1003	Brisbane, Governor	58
Baw Baws, The	343, 360	Bligh, Capt.	455, 758	Brisbane River	41, 417, 423
Baxter	45	Blimbing	527	Brisbane Valley	508
Bayley & Ford	701	Block 10 Mine	257	British Immigration League	120
Bayswater	313	Blood's Creek	77, 80	Broad Arrow Gold Mine	702
Beachport	650	Bloodwood-trees	76, 227	Broadford	318
Beaconsfield	310	Bloomfield River	456	Broadmeadows	318
Beagle Bay	53	Blowhole, The (N.S.W.)	221	Broadmount	475
Bean, C. E. W.	126	Blowhole, The (Tas.)	773	Broadsound	484
Beaumaris	306	Bluebush	72, 249, 588	Broadwater River	206
Beche-de-mer	106	"Bluebush" Wethered	705	Brockman, F. S.	53
Becke, Louis	126	Blue Lake	625, 653	Brockman Family	698, 700
Bedford, Randolph	126	Blue Mountains—		Brock's Creek	537, 548, 606
Bedford, Ruth	126		38, 167, 182, 225, 866	Brodribb River	347
Bedford Hall Cave	692	Blue Mud Bay	516	Broke, Lord Willoughby de	120
Bee-Keeping	164, 336, 378,	Blue-wing Duck	266	Broken Bay	38, 180
Beech, Native	310	Blunder Bay	592	Broken Hill—	
Beechworth	297, 355	Blunno, M.	162		43, 238, 240, 248, 252, 254, 615
Beef-cattle	415	Blyth	622		621, 721
Beenleigh	505	Blythe River	768	Broken Hill Proprietary Co.	256
Beet Sugar	345	Boar-fish	153	Brolgas	280
Beetaloo	652	Board, Peter	803	Bronzewing Pigeon	134, 137
Bees-wax	379	Bodalla	143, 268,	Brookman, Geo. and Wm.	720
Bega	143, 183,	Bogan River	43, 233	"Brookman's Farm"	721
Bega River	272	Bogong Plains	349	Broom Millet	497
Belar Trees	249, 250, 478	Boisdale	345	Broome	661, 667, 726
Belgium	171	Bolac, Lake	332	Broome's Head	206
Belgrave	313	Boldrewood, Rolf	126	Brown, H. Y. L.	596, 602, 606
Bellambi	220	Bonang	347	Brown Coal	407
Bellata Bore	94	Bond, W. P.	478	Brown Mountain	270
Bell Bay	752	Bonney, Chas.	45	Browne, Dr.	42
Bell-birds	71, 208	Booberoi Station	249	Bruce, Mary Grant	126
Bell Family	859	Boolaboolka, Lake	252	Bruce Rock	738
Bellerive	761	Booligal	282	Brunette Downs	76, 586
Belling River	87, 143, 209,	Boolman	598	Bruni Islands	757, 784
Bellpajah Out-station	250	Boomah Mountains	478	Brunswick State Farm	687
"Bell's Line"	859	Boree	472	Brush Turkeys	72, 137
Belltrees	947	Bores	72, 94, 240, 246, 401, 528,	Bruthen	317
Beltana	51, 617	Boronia	188	Buchan	365
Belyando River	44	Borook Station	587	Buchan Caves	347
Benalla	361	Borrooloola	540, 599	Buchan River	348
Bendigo	258, 297, 320, 387, 845,	Bossley Park	217	Buchanan, Wm. T.	590
Bendock	347	Botanic Gardens—		Buckland River	358
Benevolent Asylums	815		173, 373, 419, 525, 545	Buffaloes—	
Bennett, Hon. Walter	210	Botany Bay	28, 32, 38, 184, 291		138, 170, 515, 517, 556, 561, 567
Benson, Albert H.	410	Botany Heads	153	Buderim	438, 507
Berembid	99, 274	Bottle-tree	511	"Bulletin," Sydney	123, 705
Bermagui	268	Bougainvillea	441, 527	Bulli	191, 219
Bernier Island	661	Boulder City	719	Bulli Pass	189, 219
Berri	90, 97	Boulter, G. J.	445	Bulman Station	574
Berrigan	94	Boundary Dam	644	Bunbury	690, 698
Berry	221, 263	Bounties Act, Federal	170	Bundaberg	485
Berseem Clover	690	"Bounty," H.M.S.	455	Bundaleer	652
Bertrand, M.	225	Bourke—		Bundamba	504
Beryl	596		145, 234, 238, 239, 245, 281, 471	Bundock, C. L. Wyndham	996
Betts Camp	195	Bourke, Governor	58	Bungaree	1043
Big Scrub Lands	202, 445	Bovril Australian Estates Co.—		Bungaree North	1051
Big Spring	79		558, 590	Bungowannah	93
Big Springs Station	909	Bowen	434, 484	Buninyong	297
Biggenden	407, 410	Bowen, Lieut. John	292, 758	Bunny, Rupert	123
Bight, Great Australian	45, 52, 76	Bower-birds	138	Bunyip	310
Billabong Creek	94	Box-trees	81, 211, 226, 238, 249,	Burdekin Duck	137
Bimera	96	Boyd, Benjamin	270	Burdekin River	44, 87, 133, 416, 486
Bingera	416, 485	Boyd, Carr	53	Burdett	650
Birds, Australian	139, 280, 952	Boyne River	508	Burke, Robt. O'Hara	48

	Page		Page		Page
Burke Goldfield	459	Cardwell	434, 457	Cleland & Sons Ltd.	1083
Burnett	415	Carmichael, Hon. A. C.	803	Clermont Coalfield	406, 486
Burnett River	486	Carnarvon, Tas.	755, 779	Cleveland	505
Burnie	744, 766	Carnarvon, W.A.	23, 88, 662	Cleveland Bay	434
Burnley School of Horticulture—		Carnegie, D. W.	53	Clifton Springs	322
	373, 376	Carpentaria, Gulf of	44, 48, 192	Climate—	
Burra Burra Mine	621	Carrathool	280	32, 37, 70, 84, 144, 198, 302	
Burraborang	756	Carr's Creek	206	413, 531, 608	
Burrawang	927	Carrum	308	Cloncurry	407, 443, 468
Burrendong	93	Carstenz, Jan	19	Cloncurry River	48
Burrier	263	Carter, Norman	128	Closer Settlement—	
Burrinjack Dam	147, 275, 878	Cashmere Gorge	446	148, 367, 380, 396, 650	
Burru Coalfield	406	Casino	201	Cloudy Bay	784
Burt Plain	83	Cassava	437	Cloudy Lagoon	784
Burton Stock Route	729	Cassilis	349	Clover	202, 693
Bushgrove	206	Casterton	136, 328, 330	Club Lake	197
Busselton	690	Castlemaine	226, 293, 318	Club Terrace	347
Bustards	72, 137, 280, 467, 583	Castlereagh River	233	Clunes	297
Butcher, Mr.	686	Castles, Amy	128	Clyde River	267
Butter	168, 300, 415	Caswell, H.	69	Clydesdales	836
Buxton Range	604	Catani, Mr.	358	Coaches	78, 191
Bynoe Harbor	606	Cathcart Gold Mine	332	Coal—	
Byrock	245	Cattle—		35, 104, 154, 188, 219, 406, 444	
		39, 78, 81, 83, 269, 297, 339, 415		486, 503, 579, 589, 660, 680, 790	
Cabbage Palms	137, 219, 221	482, 494, 590, 673		Coal, Brown	340 343
Cable Service	111	Cattle-cane	202	Coalcliff	153, 219
Cadels	795	Cattle Creek	448	Coapin	527
Cadia	156	Cavanagh Ranges	730	Coast Range	221
Caffery, P.	263	Caves, Buchan	347	Cobar	105, 157, 243, 248
Cairns	199, 416, 433, 435, 441, 447	Caves, Margaret River	690	Cobargo	272
"Calcutta," H.M.S.	294	Caves, Yallingup	690	Cobb & Co.	191, 265
Caledon Bay	574, 600	Caves, Yaragobilly	353	Coburg Peninsula	518
Calgardup Cave	735	Cawarral	407	Cocaine	438, 527
Callide Coalfield	407	Cawker, Mr.	330	Cocoa	437, 527, 678
Cambage, R. H.	128	Cecil Hills	218	Cocoanuts—	
Camberoona	93, 279, 387	Cedar Pine	102, 206, 433, 441	412, 428, 437, 525, 536, 572, 575	
Cambewarra	183, 221	Central Australia	28, 51, 76	678, 787, 792	
Cambooya	496	Central Mount Stuart	47	Cockatoos	138, 280, 532
Cambridge Gulf	730	Central Queensland	416	Cockburn	259
Camden	136	Central Queensland Meat Ex- port Co.	482	Cod	425
Camden Haven	212	Centre Island	572	Coen Goldfield	451
Camels—		Ceylon	437	Coffee	438, 441, 525, 678, 787
78, 247, 468, 618, 672, 704, 740		Chaffey Brothers	88, 93, 649	Coff's Harbor	210
Cameron, Dr. S. S.	369	Chambers' Creek	47	Cohuna	385, 387
"Camilla," The	429	Chambers' Pillar	584	Colac	325
Camooewal	469, 528	Champion Bay	20, 730	Coldstream River	136, 206
Campaspe River	387, 397	Chapman, Fredk.	128	Collier Bay	732
Campbell, A. J.	128	Chapman State Farm	736	Collingrove	834, 836
Campbell, Duncan	973	Charleville	244, 472	Collins, Hy. & Co.	1065
Campbell, J. A.	973	Charlotte Waters	79, 578, 594, 619	Collins, Lieut.-Governor—	
Campbell, Major	517	"Charon," S.S.	659	294, 746 758	
Campbelltown, N.S.W.	191, 217	Charters Towers	443, 461	Colonial Sugar-Refining Co.	206
Campbelltown, Tas.	763	Chatsworth	204	Colored Labor	408
Camperdown	327	Cheese	378, 415	Comet River	486
Camphor	438	Chelsea	308	Combienbar Creek	347
Canberra	68	Cherry, Professor	323, 326	Comboyne Scrub	214
Candelo	272	Childers	409, 482, 485	"Comeback" Wheat	401
Cane-grass	74	Chillagoe	443, 446	Commerce	113
Cangai	206	Chillies	674	Commonwealth, The	67, 795
Cann River	346	Chillingollah	401	Commonwealth Bank	114
Canning Fish, Fruit, Vegetables—		China	159	Como	181, 184
152, 277		Chinese—		Complex Ores Co.	747
Canning Stock Route	727, 730	263, 438, 445, 470, 498, 522, 546		"Concordia," The	665
Cape Arnhem	600	551, 571, 596, 659, 791		Condobolin	224, 232, 248
Cape Barren Island	781	Chintawanta	640	Condomine River	44
Cape Barrow	574	Chlorides	256	Conferences, Federal	66
Cape Everard	27, 291, 346, 354	Christmas Bells	188	Conigrave, Explorer	53, 735
Cape Farewell	27	Christmas Creek	350	Connor, J. M. B.	699
Cape Felix	754	Christmas Hills	314	Conservatorium of Music	805
Cape Gooseberries	674, 706	Christmas Mine	599	Continuation Schools	806
Cape Howe	27, 291, 346	Chromite	407	Convention, Commonwealth	66
Cape Inscription	19, 494, 661	Churchill Island	292	Convicts	31, 58, 60
Cape Lambert	663	Cigars	170	Coochin Coochin Station	483
Cape Leeuwin	19, 346, 646, 693	Cinnamon	438, 527, 787	Coodinga	596
Cape Leveque	23, 673	Circular Quay, Sydney	60, 173	Cook, Capt.—	
Cape Moreton	423	Citronella	437	24, 27, 31, 184, 291, 452, 458, 758	
Cape Nelson	790	Citrus Fruits—		Cook's River	184
Cape Otway	137, 322	88, 92, 212, 236, 245, 247, 413		Cooktown	28, 413, 443, 451, 456, 663
Cape Schanck	308	494, 507, 527, 625		Coolangatta Estate	221
Cape Solander	184	Claraville	83	Coolgardie	596, 679, 702, 716
Cape Tribulation	456	Clare	622	Coolie Labor	530, 667
Cape Wilberforce	576	Clare Innes Station	592	Cooma	103, 144, 192, 223, 270
Cape York	28, 30, 47, 59, 451	Clarence River	87, 136, 143, 199, 204	Coonamble	275
Carbide of Calcium	444	Clarendon	612, 867	Coongan River	669
Carbonates	258	Clarke, Marcus	126, 322, 755	Coonong	878
Carcoar	156	Clarke Island	781	Co-operation	212, 262, 340, 378
Card, G. W.	104	Clays	104, 157	Co-operative Settlement	693
Cardamon	437				

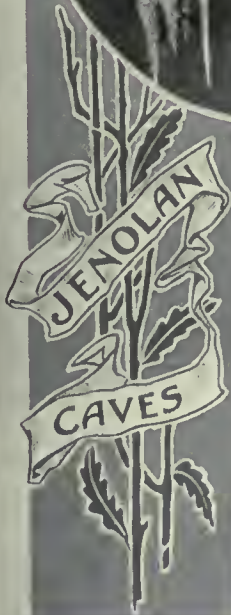
	Page		Page		Page
Cooper's Creek	48, 128, 484	Cuthero	243	Diorite Creek	574
Coorong River	626	Cuttagee	269	Dirck Hartogs, Capt.	18
Coorcy	507	"Cygnet," The	23	Dirranbandi	498
Cootamundra	231, 400	Cygnat Bay	23	Disaster Bay	153
Coots	136	Cypress Pine	225, 231, 245, 494, 615	"Discovery," The	758
Copley & Patterson	590	Daintree River	457	Diseases, Tropical	530
Copmanhurst	206	Dairy-farming—		Divers	136
Copper—		146, 148, 168, 201, 212, 221, 269		Dividing Ranges—	
102, 104, 156, 206, 250, 407, 459		272, 277, 300, 325, 327, 340, 368		38, 94, 99, 208, 215, 232, 269, 310	
468, 479, 486, 503, 597, 660		380, 415, 444, 476, 497, 652		357, 362, 380, 654	
680, 701, 749, 767		751, 768, 770, 777		Divining Rod	239, 915, 945
Coppin's Gap	734	Dalby	246, 490	Dixson's Homestead	696
Copra	536	Daley, Victor J.	126	Doherty & Durack	590
Coral Reefs	425	Dalgleish, Capt.	659, 674	Domestic Economy	806, 813
Coral-trees	527	Dalgonally Station	482	Donkeys	740
Coramba	208, 210	Dalhousie District	74	Donnybrook	318
Corio Bay	320	Dalhousie Station	79	Dookie Agricultural College	382
Cormorants	136, 280	Dalhousie Thermal Springs	74, 578	Dora Creek Farm Home	820
Cornelius, Jerome	20	Daly River—		Dorre Island	661
Coromandel Valley	612, 756	524, 537, 550, 561, 590, 597		Dorrigo	136, 205, 208
Corowa	163, 227, 230	Daly Waters	48, 53, 545, 583	Dory	153
Corrimal	219	Dalyup River	648	Dottrals	137
Corryong	347, 353	Dampier, William	23, 31, 659	Douglas, F.	645
Cossack	659, 694	Dampier Archipelago	663	Dover Bay	757
Cotter River	70	Dandenong	309, 365	Downies, of Glenelg	1074
Cotton—		Dangar Family	953	Drake	199
170, 437, 519, 536, 575, 662		Dapto	136, 220	Dried Fruits	161
678, 787, 790		Dare, H. H.	94	Driffield	606
Cotton, A. J.	981	Darling, Governor	41, 58	Dromana	309
Cotton, A. S.	536	Darling Downs—		Drought	77, 80, 97
Cotton-plant	250	43, 238, 246, 415, 417		Drouin	310
Couch-grass	201	Darling Harbor, Sydney	174	Drummer Mountain	346
Coulter, R. C. G.	69	Darling River—		"Dry" Belt, The	444, 730
Councils, Legislative	59	41, 48, 88, 92, 94, 99, 232, 234, 238		"Dryblower" Murphy	705
Country Roads Board	303, 369	241, 245, 250, 262, 279, 318, 490		Dryblowers	703, 707
Cowan Creek	179	Darwin	516, 539, 595	Dry Country	45, 80, 97
Cowes	308	Darwin River	606	Dry-farming	234, 245, 251, 284
Cowper, Chas.	60	Date Palms—		Drysdale	322
Cowra	137, 280	79, 84, 244, 428, 438, 526, 676		Drysdale River	732
Cox, A. W.	256	678, 736		Dubbo	275
Cox Family	862, 865	Davenport Ranges	580	Duck, Wild	134, 266, 280, 569, 583
Cox's Pass	866	David, Professor	128	Duffield, Hon. W.	1039
Cox's Peninsula	525	Davidson, Allan	580, 592, 602	Dugong	425
Cox River	867	Davidsonian Plum	437	Duke of Edinburgh	758, 763
Cranes	136, 202	Dawson, Peter	128	"Duke of York," The	830
Crawford, Alice	128	Dawson River	44, 52, 476, 486	Dulacca Experimental Station	492
Crayfish	152	Day Dawn	660	Dulcie Ranges	76
Credit Foncier System	367	Daylesford	320	Dumaresque River	500
Creel River	194	Daysures	132	Dunglear	973
Crescent Head	199	Deakin, Rt. Hon. Alfred	66	Dunk Island	434
Cressy	763	Death Rate	119, 146	Dunlop Station	244, 283
Creswick	318, 332	De Baun, M.	716	Dunn, E. J.	128, 598, 847
Cricketer	131	Deep Creek	297	Dunn Brothers	239
Croajingalong	346	Defence, Australian	66, 795	Dunstan, B.	406, 480
Crocodile Creek	479	De Freycinet	18	Duntroon	70, 796
Croker Island	575	De Grey River	52, 730	Durack, Professor	128
Cronulla	184	Delegate River	347	Dutch	18, 26, 693, 732
Crookhaven	223, 263	De Lissaville Plantation	525	Dutch East India Company	18, 26
Crossley, Ada	128, 721	Deloraine	764	Dutton Family	1014
Croton	438	Demetrius	666	"Duyfken," The	18
Crown Lands—		Denial Bay	640	Dyer, Mr.	350
61, 148, 249, 354, 416, 488, 752		Denman, Lord and Lady	70	Dykes	594
771, 782, 784		Denmark	170	Eaglehawk Neck	773
Crown Point	81, 1032	Dennis, C. J.	126	East-West Railway	71
Crowsfoot Grass	249	D'Entrecasteaux	758	Ebony	790
Crow's Nest	489	D'Entrecasteaux Channel	773	Echidna	35, 140
Croydon	313, 443, 452, 458	Depuch Roads	665	Echuca	88, 318, 387
Cu-Cania	447	Derby	673, 740	Eden	223, 265, 270
Cucumber-fish	153	Derham, Enid	126	Edinglassie	941
Cudegong River	93, 867	Derwent River and Valley	756, 773	Edith River	606
Cudgewa	347	"Desert" Country—		Edols Family	927
Cue	710	32, 37, 39, 41, 43, 73, 589, 593		Education, State	683, 803
Culgoa River	233, 247	628, 642		Eel Creek	449
Cullen River	606	"Desert Oak"	465	"Eendracht," The	18
"Cumberland," The	292	Despessis, A.	674	Eendracht's Land	19
Cumberland Islands	434	Devil's Kitchen	773	Egg-fruit	437, 674
Cumberland Storage	83, 353	Devon Sheep	937	Egg-laying Competitions	378
Cunnamulla	244, 472	Devonport	744, 752, 763, 774, 777	Eggs	164, 378
Cunningham, Allan	43, 490	Diamond Ranges	76	Egrets	136
Cunningham, Richd.	43	Diamantina River	48, 51, 469	Eleanor Claim	599
"Cuprum," The	665	Diamonds	44, 156, 588	Elections	61
Currant-bush	250	Diamond Creek	316	Electric Lighting and Power—	
Currents	92, 161, 388, 623, 718	Digby	330	260, 458, 720, 746	
Currawang Station	45	Dight Family	959	Elizabeth Town	764
Cuscus Grass	437	Dilli	539	Elkedra	84
Custard Apples	413	<i>Dillwynia</i>	188	Elkedra Creek	580
Customs	111	Dimboola	338		
Cutbush, Mayor	703				

	Page		Page		Page
Ellendale	757	Fingal Mine, Great	660	Frome, Lake	254
Elliott, Mount, Copper Mine	347	Finke River 74, 78, 80,	578	Frost	413
Elmore	387	Finniss, Lieut. B. T.	520	Fruit—	
Elsey, J. R.	51	Finniss River 595, 597,	606	93, 161, 208, 215, 236, 249, 271,	
Elsey Creek 45, 52,	573	Finniss Spring	836	313, 322, 331, 348, 354, 388,	
Eltham 295, 314,	365	First Fleet, The 31, 37		410, 472, 632, 645, 648, 660	
Emancipists	58	Fish—		687, 699, 718	
Embley River	451	39, 106, 138, 151, 153, 220, 243,		Fruit Pigeon	137
"Emden," The	799	280, 425, 580		Furneaux	758
Emerald	313	Fish River	136	Furneaux Islands 291, 781	
Emerald Creek	444	Fisher, Rt. Hon. Andrew	71		
Emerson, E. S.	126	Fisher Falls	450	Gabo Island 28, 346	
Emigration 57, 298		Fisheries Commission, Tas-		Galah Parrots 138, 280	
Emily Plain	81	manian	756	Gallet Creek	458
Emu Creek	509	Fitzcarron, Rev. Dr. W. H.	126	Game Birds—	
Emu Park	486	Fitzroy, Governor	60	39, 73, 243, 280, 564, 583	
Emus 72, 138, 242, 230,	583	Fitzroy River 99, 475,	486	Gang-gangs	138
"Encounter," H.M.A.S.	800	Five Islands	220	Gardner's Ranges	580
"Endeavour," The—		Flannagan, Mr.	702	Garnets	596
25, 30, 186, 456,	507	Flannel Flowers	186	Gascoigne Stock Route	729
Endeavour River	456	Flathead 183, 152, 153		Gascoyne River 23, 51, 662,	676
Endeavour Straits	30	Flat Top	426, 429	Gatton Agricultural College	416
English Company's Island	575	Flax	102	Gawler	626, 833
Ensilage 90, 93,	416	Flaxman, Chas.	831	Gawler Ranges	640
<i>Epacris longiflora</i>	188	Flemming, Jas. 292,	306	Gee, Lionel C. E.	592
Era Downs Station	583	Flinders	308	Geelong 297, 320,	325
Eringa Station	80	Flinders, Capt. William—		Geese, Wild	136
Erskine River	323	220, 291, 452, 516		Geeveston	758, 779
Escape Cliffs	520	Flinders Grass 466, 470, 591,	1003	Geigor, Adolf	687
Esk River	746	Flinders Island	781	Gem Stones 156, 1084	
Esperance 640, 645,	735	Flinders Ranges 45, 617		Gembrook	310
Esson, Louis	126	Flinders River 48, 96,	470	Genoa Peak	346, 347
Estuary of Tamar River	774	Flock Pigeon	137	Geodetic Survey	577
Etheridge	128	Flora River 590,	592	George, F. R.	607
Etheridge Goldfield	459	Florida Bore	487	George, Lake	41
Euabolong 230, 248,	250	Flounders	749	George River	776
Eucalypts 35, 105,	105	Flowerdale	318	George's Bay	773
Eucla 52, 640,	645	Flowers, Wild 55, 186		George's River	218
Eunella Ranges	428	Fly River	789	Georgetown	458
Eureka Mine	607	Flying Fishes	424	Georgina District	469
Eureka Stockade	334	Flying Foxes	424	Geraldton 19, 25, 52,	659
Eurobin Creek	359	Flying School	797	German Pass	832
Eurobin Valley 356,	358	Fogarty, Constable	732	German Tank	250
Eurobodalla	273	Football	131	Germans and Germany—	
Euston	401	Forests—		88, 113, 146, 204, 232, 480, 726	
Evans, Hy.	832	150, 209, 267, 270, 310, 322, 346, 347		779, 791	
Evans, Leslie 744, 761,	771	348, 353, 445, 508, 625, 673, 697		Gerogery	286
Evans, Surveyor Geo. W. 39,	867	Forrest, Alexander 51, 52		Gerringong	221
Evelyn Mine	607	Forrest, John—		Gidyea Scrub 72, 74, 77, 245, 246,	471
Everard, Cape 27, 291,	354	51, 52, 66, 644, 694, 716, 729		Gilbert, Mr.	44
Everton	361	Forsyth	458	Giles, Ernest	50
Excise 63, 112		Fort Constantine Station	468	Giles, J. A.	586
Exmouth Gulf	22	Fort Dundas	517	Gillies, W.	128
Experimental Farms—		Fort Hill	539	Gilruth, Dr.	530
161, 201, 206, 225, 227, 277, 370	689, 809	Fortescue	663	Ginger	790
Exploration	37	Fortescue River	52	Gipps, Governor 58, 60	
Exports 159, 173,	680	Forth	776	Gippsland—	
Extended Union Mine	607	Fountain Head	606	27, 45, 297, 308, 310, 339, 360	
Eyre, E. J.	45, 640	Fourtor, Adolf	272	Gippsland Lakes	343
Eyre's Peninsula 45, 627,	639	Fowler's Bay	45	Gladsville	178
		Fox, E. Phillips	128	Gladstone, Rt. Hon. W. E.	66
		Foxes 272, 424		Gladstone 136, 407, 416, 485, 503	
Fairfax Harbor	788	Francis Well 80, 81		Glassford Creek	407
Fairview	451	Frangipanni	527	Glasshouse Mountains	423, 507
Fairymead	416, 485	Frankford	778	Glenelg	323, 626
Fallowfield & Co.	25	Franklin	758	Glenelg River 43, 51, 330,	352
Fantail Pigeon	137	Franklin, Sir John	754	Glen Huon	780
"Fantome," H.M.A.S.	800	Franklin Harbor	642	Glen Innes	143, 201
Farming, Dairy (see Dairy-Farming)		Frankston	308	Glenore	763, 773, 781
Farming, Dry	234, 245	Fraser, Foster	717	Glenorchy	773
Farming, Mixed—		Fraser Limited	1084	Glenreagh	210
160, 207, 337, 485, 587		Frazer's Mine	711	Glen Waverley	313
Farrer, Wm.	171, 287	Frederics, Arthur	217	Glen Willis	349
Favenc, Ernest	51, 586	Free Settlers 58, 337		Glenugie Peak	210
Fawkner, John Pascoe	294	Freehold Gemfield	480	Gloucester	163, 215
Federal Capital	68, 223	Freeling, Col.	47	Glynn, Hon. P. H.	527
Federal Land Tax	115	Freer	568	Goats	80, 561
Federation, Australian 63, 64		Freezing Works	538	Godwit	137
"Federation" Wheat	401	Fremantle 22, 46, 659,	682	Gold—	
Ferguson, Constable Bob	237	French	292	18, 44, 71, 83, 154, 156, 196, 206	
Ferguson River 595, 606		French Island	303	296, 316, 318, 332, 334, 346, 347	
Fern Tree Bower, Hobart	759	Frenchmen 146, 162		352, 361, 362, 407, 415, 452, 459	
Fern Tree Gully	310	Freshwater Point	748	462, 478, 503, 521, 588, 596, 599	
Ferries	174, 178	Fresne, Marion de	758	660, 680, 701, 845	
Fever	519, 588	Frew River 76, 84,	582	"Golden Dragon," The 22, 693	
Figs	161, 662	Freycinet Peninsula	784	Golden Mile	720, 722
Finance, Public	150	Friedman, Mr.	703	Golden Plovers	137
"Finch," The	22	Froggatt, W. W.	128	"Golden Sea Horse," The	19

	Page		Page		Page
Golden Valley Goldfield	701	Guildford	686, 690	Henrietta	768
Golf	192	Guinea Grass	542	Henty Brothers	294
Gol-Gol	282, 284	Gulf of Carpentaria—		Herbarium, National	371
“Good Hope,” The	22	44, 48, 96, 192, 451		Herbert River	446
Goodah	729	Gum Swamp	899	Herberton	416, 443
Goode Island	455	Gum-trees	75, 249, 625, 692, 766	Hereford Cattle	483, 840, 933, 969
Goolgumbula	880	Gumeracha	832	Hergott Springs	616
Goonabooka Pool	24	Gun Island	24	Hermansburg	82
Goonegerah	347	Gunbar	275	“Hermitage, The,” Blacks’ Spur	365
Goonery	96	Gundagai	92	Hérons	136
Goose Island	782	Gunn, Mrs. Aeneas	126, 519	Hey River	451
Gordon, Adam Lindsay—		Gurnard	153	Heysen, Hans	128
126, 322, 330, 626		Guthrie, F. B.	128	Hicks, Lieut. Zachary	27
Gordon, D. J.	582	Gutter-percha Tree	678	Hidden Vale	981
Gordon and Mills Reef	773	Guy Fawkes	208	Hidden Valley	601
Gordon Downs Station	590, 602	Guyra	208	High Court	116
Gordon River Gorge	775	Gwydir River	43	Hill River	836
Gormanston	767	Gympie	407, 444	Hillston	230, 280
Gorn Sugar-cane	429	Gypsum	77	Hinchinbrook Channel	434
Gouger, Robt.	829			Hinchinbrook Island	434
Goulburn Islands	575	Hack, Stephen	47	Hindmarsh, Lake	337
Goulburn Plain	41	Haggard, Sir Rider	209	Hinton Bridge	109
Goulburn River	318, 362, 385	Hagley	763	Hobart	66, 749, 753
Goulburn Weir	385, 387	Hale River	75, 578	Hobson, Capt. Wm.	831
Goulburn Valley	382	Halifax	434	Hobson’s Bay	306
Gould’s Country	779	Hall, Robt.	128	Hodgkinson Goldfield	443
Governors	60, 63	Hall, W. Hessel	164	Hodgson River	573
Gowrie	496	Hall’s Creek	546, 602, 727	Holtze, Maurice	525, 530, 537
Goyder, Surveyor-General	47, 521	Hall’s Gap	331	Holtze, Nicholas	575
Goyder River	574, 600	Hamilton	331	Home Defence	66, 795
Graceburn Weir	314	Hamilton Goldfield	452	Honey	168, 208, 379
Gracemere Station	476, 977	Hamilton River	79	Hood, Wm.	923
Grafton	136, 143, 201, 204, 206, 210	Hamilton Springs	48	Hope Valley Reservoir	652
Grainger, Percy	128	Hammersley Range	52	Hopetoun, Earl of	67
Grampians, The	329, 331	Hamond Island	18	Hopkins Plateau	332
Granadillas	412, 428	Hampden-Cloncurry Copperfield	470	Hops	366, 756, 780, 1076
Granite—		Hampton	306	Horn Island	452
75, 82, 103, 195, 347, 503, 595, 773		Hann, Wm.	47, 53	Horses	83, 415, 587, 591, 1032, 1051
Grant, Lieut.	292	Hannan, Patrick	702, 720, 723	Horseshoe Bend	78, 81
Grant Island	575	Happy Valley Reservoir	652	Horseshoe Creek	597, 601
Grapes—		Harbor Trust, Sydney	173	Horsham	336, 338
161, 163, 236, 286, 349, 388, 396		Harcourt	395	Horticultural Society, Schools	814
650, 678		Harding River	24, 678	Hospitals	815, 821
Graphite	407	hardwoods—		Hotspur	330
Grasses—		105, 143, 150, 208, 211, 223, 267		Houschildt’s Diggings	606
81, 83, 202, 249, 269, 340, 561, 580		346, 347, 353, 364, 444, 692		Houtman’s Frederick de	18
590, 644, 690		Harrietville	362	Houtman’s Abrolhos	19, 24
Grass-tree	104, 106	Harrison, O. L.	263	Hovell, Capt.	294
Gray, Chas.	48	Hart Range	596	Howe Hill	346
Grazing Licenses	60	Hartnett Falls	746	Howitt’s Relief Party	50
Great Australian Bight—		Hartogs, Dirck	18	Howley, The	551, 606
45, 52, 76, 644		Hartz Mountains	773	Hugh River	80
Great Barrier Reef	425	Harwood	206	Hughenden	464
Great Boulder Mine	721	“Hashemy,” The	60	Hughes, Rt. Hon. W. H.	103
Great Central Plateau	472	Hastings	308	Hume, Hamilton	41, 294
Great Fingal Gold Mine	660	Hastings River	87, 143, 212	Hungerford	246
Great Dog Island	782	Hatch Creek	596	Hunt, H. A.	97, 128
Great Lake Scheme	747	Hattah, Lake	401	Hunter, Governor	291
Great Northern Tableland	489	Hawdon, Joseph	45	Hunter Islands	782
Great Northern Tin Mine	443	Hawkes, W. S.	1039	Hunter River—	
Great Swanport	763	Hawker, Hon. Geo. C.	1043	87, 94, 143, 163, 183, 279, 853	
Great Western Railway	94, 528	Hawker, M. C.	1051	Hunter’s Hill	178
Great Western Vineyard	334	Hawker, R. M.	1046	Huntley, Erle	470
Grebes	136	Hawker, Walter	1059	Huon District	757, 772
Green, Patrick	255	Hawkesbury Agricultural Col- lege	809	Huonville	758
Green Ant Creek	551	Hawkesbury River	38, 143, 179	Hurlstone Agricultural High School	809
Greenbushes	698, 701	Hawks	583	Hutton Vale	844
Green Island	782	Hay	90, 277, 280	Hydro-Electric Power	68, 87
Greenmount	496	Hay, R. D.	150		
Greensborough	314	Hayes, Webbe	20	Iandra	169
Greenwell Point	223	Hayes & Sons	81	Ibis	136, 202, 280
Gregory, A. C.	51, 486	Hayes Bros.	578	Ice-Skating	192
Gregory, F. F.	52	Hcalesville	304, 310, 314, 362	Illawarra	28, 143, 186, 219
Gregory, H. C.	51	Health, Public	118, 144	Illawarra Fig-tree	191
Gregory, Lieut. J.	51	Heathcote	188	Iluka	206
Gregory Search Expedition	45	Heavitree Gap	82	Immigration—	
“Gregory’s Salt Sea”	729	Hedley, C.	128	56, 119, 120, 147, 380, 679	
Grenfell	169	“Heemskirk,” The	21	Imports	173, 680
Grey, Earl	60, 121	Heidelberg	314	Indented Head	295, 305
Grey, Sir George	51	Helena River	714	India	159
Griffin, W. B.	69	Helensburgh	188	Indian Ocean	41, 76
Grimes, Chas.	292	Helium	35	Indigo	519, 527
Griffiths, W. Scott	69	Hell’s Gate	573	Industrial Legislation	116, 816
Groote Eylandt	573, 576	Hematite	407	Industrial Schools	815
Ground-pigeons	138	Hemp, Sisal	415	Industries	101, 300, 368, 765
Guano	25, 452, 677, 682, 693	Henley-on-the-Yarra	131	Infirmaries	815
Guavas	428, 662				



THE MYSTERY



NELLIE'S GROTTO



TOWER CHAMBER, RIVER CAVE

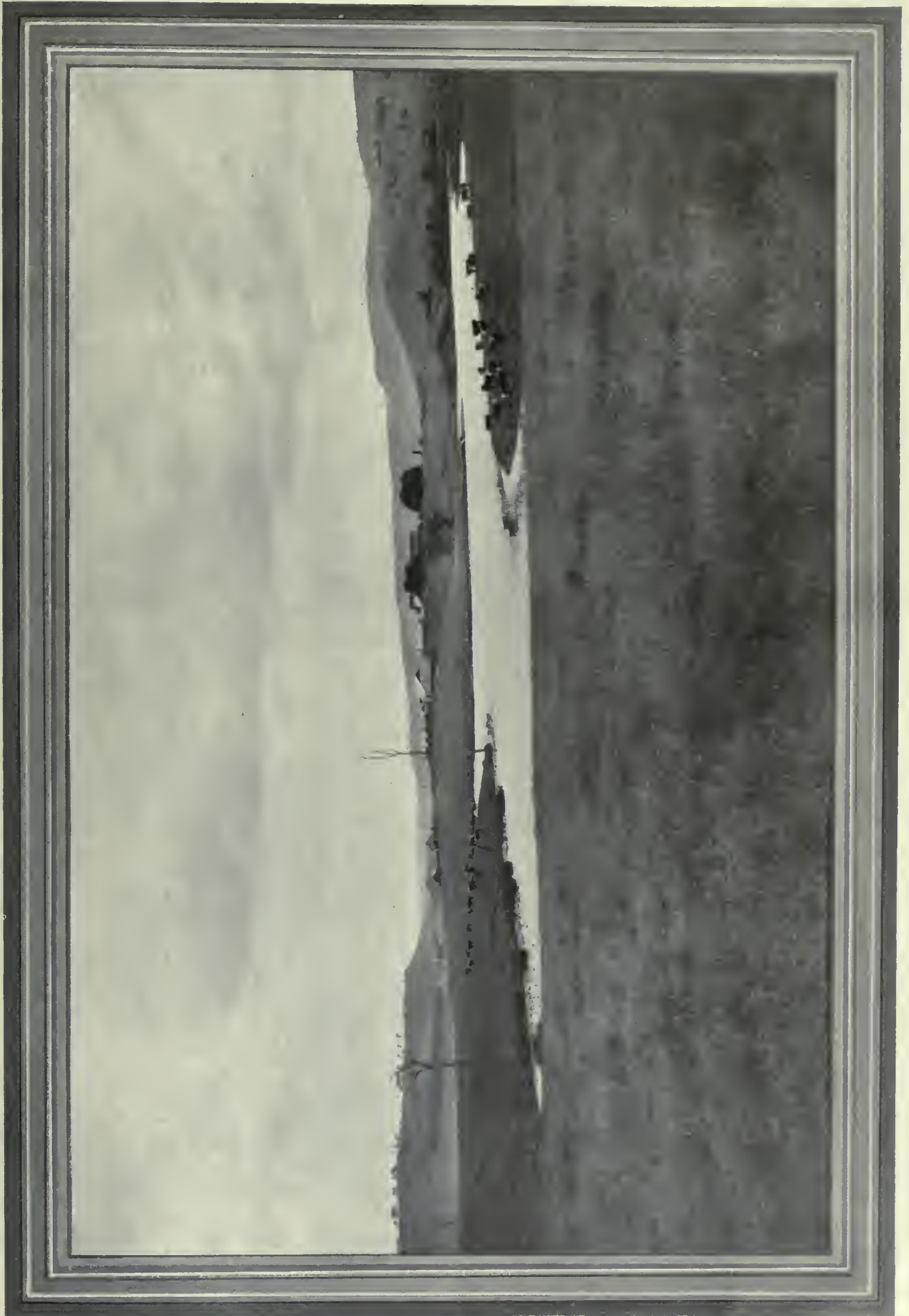
	Page		Page		Page
Ingham	434	Kangaroo Hills	407	Laancoorie Basin	386
Ingleburn	218	Kangaroo Island	782, 830	Labillardiere, M.	186
Innisfail	434, 450	Kangaroos—		Labor Colony, Leongatha	340
Innumbra Creek	75	72, 134, 244, 280, 467, 564, 583, 729		Lacepede Islands	668
Institute of Tropical Medicine	530	Kangaroo Valley	221	Lachlan Range	231
Intensive Farming—		Kanowna	702	Lachlan River—	
84, 160, 207, 215, 394		Kapok	438, 787	39, 41, 93, 224, 228, 232, 248, 279	
Invalid Pensions	118	Kapunda Mine	621	Lady Elliott Island	424
Inverloch	340	Karkaroc	399	“Lady Mary Pelham,” The	830
Invermay Station	590	Kars Station	250	“Lady Nelson,” The	292, 758
“Investigator,” The	292, 452	Karri-trees	692, 739	Lake Albert	92, 650
Ipswich	407, 417, 502	Karridale	692	Lake Alexandrina	92, 349, 650
Irish Bulls	941	Katayama	225	Lake Amadeus	589
Irishtown	776	Katherine River—		Lake Bananee	282
Iron	35, 154, 407, 452, 459, 621, 663	48, 528, 583, 590, 616		Lake Barmera	92
Iron Island	407	Kathleen Falls	592	Lake Barrine	443
Iron Knob Mine	621	Kava Plant	438	Lake Bathurst	41
Ironbark-trees	222, 345, 489	Kellaway, W. C.	550	Lake Bolac	332
Ironstone	258, 407, 664	Kelly Gang	362	Lake Bonney	632
Ironwood	583	Kelly's Well	580	Lake Boolaboolka	252
Irrigation—		Kelp	152	Lake Cargellico	230
81, 87, 146, 207, 215, 234, 244, 251		Kempsey	212	Lake Cawndilla	94, 241, 252
252, 263, 367, 385, 416, 478		Kendall, Hy.	126	Lake Coila	268
649, 654, 662, 682		Kenilworth	507	Lake Colac	326
Irvine, Hans	334	Kennedy, E. B.	46	Lake Conjola	265
Irvinebank	443	Keppel Bay	424, 486	Lake Connewarre	322
Irwin River	51	Kerang	387	Lake Eacham	446, 449
Isaacs River	44	Kernot, Professor	364	Lake George	41
“Isabella,” The	517	Keynes Family	1035	Lake Hartz	757, 774
Isis	485	Keyneton	876, 1035	Lake Hattah	401
Italians	146, 162, 204, 448	Kiacatoo Station	249	Lake Hindmarsh	337
Ivanhoe	250, 252	Kiah River	143, 271	Lake Illawarra	189
		Kiama	189, 221, 263	Lake King	343
		Kiandra	145, 198	Lake Leake	763
		Kidman, Sidney	1023	Lake Lonsdale	337
Jacaranda-trees	417, 428	Kidson, Mr.	577	Lake Menindie	94, 241, 252, 279
Jack, Dr.	480	Kieselguhr	103	Lake Mountain	365
Jack-fruit	438	Kiewa River	90, 355	Lake Pamamaroo	94
“Jacky-Jacky”	46	Kilferra Station	250	Lake Pambula	270
Jacobs, Adrian	20	Kilkivan	507	Lake Rat-catcher	252
Jaggan	445	Killara Station	244	Lake St. Clair	777
Jam-making	161	Killarney	498	Lake Speculation	250, 252
Jamberoo	221	Killen, W. W.	915	Lake Tuross	268
James Range	80	“Killer” Whale	154, 271	Lake Tyers	343
Jamieson	362	Kilmore	318	Lake Victoria	92, 252, 343
Jamieson, Sir John	866	Kimberley—		Lake View Consols	702
Jansz, Willem	18	21, 22, 437, 540, 673, 701, 726, 732		Lake Wallaga	269
Japan	112, 159	Kin Kin	507	Lake Way Station	728
Japanese	435, 663, 671, 791	Kindergarten	804	Lake Wellington	343
Jardine Brothers	47, 455	Kindred	776	Lake's Creek	482
Jarrah Wood	52, 692, 695	King, Governor	292, 306	Lakes' Entrance	339, 343
Jarrahdale	694	King, John	48	Lalor, Peter	334
Jasminum	76	King George's Sound	45	Lambert, George	128
Java	20, 137, 159, 536	King Island	292, 782	<i>Lambertia formosa</i>	188
Javarere	792	King Leopold Range	677	Lancefield	318
Jensen, Dr. H. I.	575, 598	King Parrot Creek	318	Lancewood	583
Jensen's	347	King Parrots	138	Land and Emigration Commis- sion	59
Jerilderie	280	King Sound	23	Land Boards	149
Jervis Bay	69, 143, 154, 223, 799	Kingaroy	463, 507	Land Settlement	120
Jervois, Sir W. F. D.	650	Kingfishers	71	Land Tax	115
Jervois Ranges	76	Kinglake	316	Land Values	59, 148, 340
Jimbour Station	44	Kingscote, Hy.	830	Lander River	84
Jindabyne	194	Kingsgate	155	Lands Department	120
Jingera Ranges	223	Kingston	90	Landsborough	415
Johndery	153	Kitchener Mine	676	Landsborough, Wm.	50
Johns, Fred.	124, 612	Kittool Fibre	437	Lands Purchase Board, Victoria	396
Johnson, Major	650	Knibbs, G. H.	159	Lane, Zeb.	721
Johnson, Mr.	703	Koepang	670	Langi Logan Mines	332
Johnstone River	445, 457	Kola-nuts	437, 527	Langwell, Hugh	283
Jones, Dr. Richd.	532	Kookaburra	130	Landsdowne	218
Jones & Co., H.	762, 765, 773	Koolatong River	574	Lansell, George	845
Jowett, Edmund	987	Koonoona	1039	La Perouse	41
Joplin, Thos.	831	Kooralbyn	996	“Lark,” The	22
Judge and Clerk Island	784	Koorboora	407	Latrobe	765, 774
June	232	Koorringa	1011	Latrobe River	343, 345
Jungle	208	Koo-wee-rup	309	Launceston	294, 743
		Koroit	327	Launching Place	314, 365
		Koyuga	386	Laura	451
Kadina	621	Kuranda	438, 441	Laverton	305, 797
Kaffir Corn	410	Kuring-gai Chase	179	Lawrence	136, 206
Kairi	445	Kurnalpi	643	Lawrie, W.	563, 602
Kalgoorlie	71, 645, 703, 715	Kurnell	28, 184	Lawson, Lieut. W.	39, 867
Kalimna	341	Kurrajong-trees	281	Lawson, Hy.	744
Kallara	97	Kyabram	387, 395	Leach, Dr. J. A.	128
Kameruka	268	“Kyarra,” The	423, 680	Lead	156, 261, 407, 459, 660
Kamerunga State Nursery	437	Kyneton	318, 378	Leatherjacket	153
Kangaroo Grass	473				

	Page		Page		Page
Leeton	276	McBride, Robt.	1011	Manly	175, 308
"Leeuwin," The	19	McCaughy, Sir Saml.	230, 877	Mann Ranges	730
Leeuwin, Cape	19, 346, 646, 693	McCubbin, Fredk.	128	Manna Honey	167
Legal System	58	McCulloch, G. W.	255	Manning River	87, 143, 212, 214
Legendre Island	664	MacDonald, Constable	563	Mansfield	362
Legislatures	56, 58, 60	Macdonald, Donald	126, 128	Manufacturers	300
Leichhardt, Ludwig	44, 52, 486, 732	Macdonald, Wm.	284	Manures	381
Leigh Creek	617	MacDonnell	451	Mapoon Mission Station	451
Lemons	88, 212, 388, 428, 662	MacDonnell Ranges—		Maranboz	608
Leongatha	340	47, 74, 77, 82, 84, 470, 528, 577	577	Maranoa River	44
Leonora	727		596, 627	Marble Bar	666, 734
Leopold Ranges	53, 673, 732	MacDonnell's Creek	448, 586	Marble Island	407
Le Souef, Dudley	128	McDouall Ranges	580	Marbles, Australian	103, 157
Leven River	778	Macintyre River	227	Marburg	507
Leveque, Cape	23	Mack, Louise	126	Mareeba	443
Lewis, J. W.	50	Mackay—		Margaret Creek	595
Libral Well	729	426, 438, 441, 448, 484, 560	560	Margaret River	606, 690, 696
Licensing Act, N.S.W.	212	McKeddie's Diggings	606	Margarine	102
Lignum	71, 244, 249	Mackennal, Bertram	128	Maria Creek	457
Lightning Creek	350	Mackenzie River	44, 406, 476, 486	Maria Island	761, 784
Lilydale, Tas.	733, 777	Mackellar, Dorothea	16, 126	Marian Sugar-mill	429
Lilydale, Vic.	310, 314, 365	McKinley, John	50	Marion Bay	758
Lime	693	McKinley Mine	594, 606	Maritime Trade	173
Limes	437	Macksville	211	Marlo Bar	194, 343, 347
Limestone—		Maclean	206	Maroochy	507
71, 72, 154, 309, 348, 407, 444, 446	599, 622, 625, 770	Macleay River	143, 211	Marora Hill	204
Limmen River	572	McMaster, C. J.	283	Marquis de Rey	204
Lincoln Sheep	208, 840, 924	McMillan, Angus	45, 339	Marriages	119
Lindenow	345	McMinn, G. R.	521	Marshall River	75
Lindsay, David	53, 589	McPherson's Station	44	Mary River	548, 595, 606
Lindsay, Lionel	128	Macquarie, Governor	39, 57, 191, 866	Maryborough, Vic.	297, 338
Lindsay, Norman	128	Macquarie Island	784	Marysville	310, 364
Ling	106, 153	Macquarie Pass	220	Maryvale	498
Linlithgow, Marquis of	67	Macquarie Plains	773	Mason, Arthur	642
Linseed	105, 170	Macquarie River, N.S.W.—		Mataranka Station	574
Lionsville	206	39, 93, 233, 279	279	Maternity Bonus	815
Lismore	199, 201, 206	Macquarie River, Tas.	763	Mathinna Falls	311
Litchi	437	McRae, Dorothy Frances	126	Matthews, Julia	334
Lithgow	103, 154, 156	McRae, George Gordon	126	Maude	280
"Little Dove" (Duyfken), The	18	McRae, Hugh	126	Maude Creek Gold Mines	601, 606
Little Phillips River	606	Macrozamia	267	Mauritius, The	19
Little Plain	209	Macumba Station	78	Mawson, Sir Douglas	128
Little River	305	Madame Berry Mines	332	Maybell Mine	607
Little Swanport	784	"Madras," The	832	Mead, Dr. Elwood	385
Little Taylor's Bay	784	Maffra	339, 345	Meander River	764
Liverpool	191, 218	Magnesite	596	Meat	485
Liverpool Plains	41	Magnetic Island	434	Medical Inspection of Children	808
Lobster Creek	778	Magnetic Shoals	663	Mein	451
Lobsters	152	Magnetite	407	Melba, Madame	128, 314
Local Government	299	Magnusshi, R. de S.	255	Melbourne	59, 115, 290, 295, 365
Loch Ard Gorge	328	Magpies	189	"Melbourne," H.M.A.S.	800
Lockey Creek	404	Magpie Geese	136	Meldrum, Max	128
Loddon Falls	191	Mahon, Hon. Hugh	68	Melons	662
Loddon River	43	Maiden, J. H.	128	Melville Bay	607
Logan District	87, 505	Mails	110	Melville Island	517, 561, 605
Londonderry Gold Mine	702	Main Range	302, 347, 451, 506	Menindie—	
Long, Sid	128	Maitland	154	42, 48, 238, 242, 252, 288	
Long Tunnel Mine	346	Maitland, H. N.	876	Menpes, Mortimer	128
Longerenong Agricultural College	336	Maize—		Mentone	306
Longreach	470	84, 87, 204, 211, 217, 327, 263	263	Menzies Goldfield	702
Longstaff, John	128	267, 269, 270, 272, 348, 388, 445	445	Merbein	90, 92
Lorne	322	476, 489, 508, 554, 678, 787	787	Merimbula	270
Lory, Crimson	138	Malanda	445	Merino Sheep	160, 208, 763, 840
Low Head	749	Malaria	532	(also see Pastoral Section)	
Lower Murray River	87, 93	Malays	17, 516, 527, 659	Merribee	915
Lower Roleystone	686	Malaysia	159, 524	Merri Creek	295
Lubeck	338	Mallacoota Inlet—		Mersey River	746, 765, 774, 783
Lucerne—		28, 134, 137, 266, 346, 354	354	Merthon, Capt.	294
92, 212, 215, 230, 241, 247, 251, 368	391, 400, 415, 476, 489, 650, 660	Mallacoota Lakes	346	Messageries Maritimes	110
Lucernedale	1065	Mallee, The	398	Metropolitan Reservoir, Adelaide	652
Lucinda Point	434	Mallee—		Mica	82, 596
Luggers	539, 668, 726, 732	46, 71, 76, 249, 283, 302, 328, 337	337	Michell's Nob	607
Lung-fish	35, 140	380, 382, 398, 615, 621, 633	633	Middle Harbor, Sydney	178
Lyell, Geo.	128	Mallee Fowl	136	Milk and Dairy Supervision Act	376
Lyne, Dr. C. C. Butler	435	Mammoth Mine	352	Mildura	88, 93, 276, 283, 367, 387
Lyre-birds	140	Manangatang	400	Military College, Duntroon	70, 798
Lyrup	90	Mandana, Alvares de	17	Milk	416
		Mandarin	413, 662, 686	Milking Machines	214
		Mandurah	675	Millar's Ltd.	693
		Manfield Downs	96	Millbrook Reservoir	652
		Manganese	225, 407	Miller, Col. David	68
		Mangoes—		Millet	497
		412, 428, 454, 527, 540, 662	662	Millicent	656
		Mangosteen	437	Millie Camp	710
		Mangrove Swamps	48, 449	Mills, Chas.	893
		Manjinnys	688	Millstream Falls	446
Macallister	490			Milparinka	232
MacArthur, Captain	518, 853, 869				
MacArthur, Port	572				
MacArthur River—					
528, 572, 575, 583, 599, 607	607				
Macartney, J. A.	992				

	Page		Page		Page
Milton	143, 223, 265, 273	Mount Feathertop	349, 355	Murray River—	
Mineral Oil	105, 407	Mount Gambier	59, 136, 328	41, 43, 87, 92, 136, 193, 227, 233	
Mineral Springs	74, 79, 496	Mount Garnet	443	297, 347, 389, 626, 631, 649	
Minerals—		Mount Gipps Station	255	713, 733	
35, 38, 76, 104, 143, 156, 364, 407	443, 503, 594, 665	Mount Gates	606	Murrayville	399
Minnamurra River	220	Mount Heughlin	579	Murrin Murrin	708
Minto	218	Mount Hicks	768	Murrumbidgee River—	
Minyip	334	Mount Hoertz	757	42, 87, 90, 92, 275, 318	
Miranda, Lalla	128	Mount Hope	249	Murrumbidgee Irrigation	147, 275
Mirboo	343	Mount Imlay	270	Murtoa	336
Miriwinni	447	Mount Keira	220	Musgrave	451
Mirrool	276	Mount Kembla	220	Musgrave Ranges	580, 596
Mirtleford	357	Mount Kosciusko—		Musha Khan	617
Missionary Plain	82	192, 347, 349, 353, 360		Mutton-birds	782
Mitcham	313, 365	Mount Leviathan	407	Myall Blacks	28, 51
Mitchell, E. L.	687	Mount Lofty	611	Myall Scrub	72
Mitchell, J. P.	480	Mount Lyell	766	Myrtle Mountain	272
Mitchell, James	885	Mount Macedon	43, 318, 360	Nally, P. J.	876
Mitchell, Sir Thos.	43, 46, 294, 330	Mount McMinn	573	Nambour	507, 512
Mitchell Grass—		Mount Maria	784	Nambucca River	211
44, 466, 470, 472, 578, 588, 1003		Mount Martha	309	Namoi River	233
Mitchell Library	124	Mount Molloy	457	Nanango	507
Mitchell River	345, 362, 452	Mount Morgan	478	Nandewar Ranges	137
Mitta	353	Mount Mulligan	444	Nangatta	347
Mitta Mitta River	90, 349	Mount Nicholas	779	Nangeenan State Farm	736
Mittagong Farm Home	818	Mount Olga	589	Nanneela	386
Mixed Farming—		Mount Olinda	313	Nanngai	153
160, 207, 251, 288, 443, 587		Mount Olympia	777	Nannine	729
771, 776		Mount Palmer	596	Nannup	696
Mjoberg, Dr.	437	Mount Perry	486	Naracoorte	625
Mobilong	650	Mount Peter Bott	456	Narbethong	365
Mohair	80, 561	Mount Remarkable	836	Narooma Inlet	273
Molesworth	362	Mount Ringwood	606	Narooma River	269
Molongolo River	69	Mount Roland	765	Narrabeen	180
Molybdenum	156, 407, 443, 503	Mount Saunders	456, 576	Narrabri	275
Monaro	144, 161, 192, 347	Mount Shoobridge	594, 597	Narracan	343
Monbulk	313	Mount Stanley	357	Narrandera	275
Montague Island	220	Mount Todd Tin-mines	597, 601	Narrogin State Farm	736
Montalbion	443	Mount Tolmer	597, 606	Narromine	93
Monterey Pine Trees	764	Mount Wellington	752	Natimuk	338
Montez, Lola	334	Mount Wells	548, 597, 606	National Herbarium, Melbourne	371
Montrose	313	Mount Wheeler	480	National Parks	186, 313, 320
"Monumental City," The	291	Mount Williams	441	Naturalisation	118
Moody, J. F.	687	Mount Wills	349	Nature Study	808
Moolibah	447	Mount Windsor	457	Naval College	223, 799
Moonta	621	Mount Victoria, Tas.	779	Navy, Australian	121, 795
Moorish Castle	206	Mount Victoria, Papua	789	Nectarines	236
Moorville Road	777	Mountain Ash	82, 310, 348	Neerim	310
Mordialloc	306	Mountain lands	166	Nelia Bush	250
Moreton Bay	415, 505	Mourilyan	434	Nepean River	38, 94, 280, 866
Moreton Bay Fig-trees	137, 173	Mucka	592	Nethercote	271
Moreton Telegraph Station	452	Muckadilla Bore	496	Netley Station	239
Morgan	631	Muckadilla Creek	44	Neville Wolfram Mine	407
"Morialta," S.S.	638	Mudgee	867	New Britain	791
Mornington	308, 330	Mueller, Ferd. von	51	New Caledonia	111
Morphett & Co., A. W.	651	Mueller River	597	New England, N.S.W.	163, 417
Mort, T. S.	268	Muldwa	443	New England, Tas.	779
Morton, Fred.	448	Mulga Scrub	71, 74, 75, 77, 80, 83	New Ground, Tas.	777
Morton Island	407	Mulgoa Valley	866	New Guinea (Papua)—	
Moruya	143, 267	Mulgrave	447	18, 23, 55, 67, 105, 787	
Morwell	343	Mulgrave River	446, 448	New Hebrides	18, 109
Morwong	153	Muller River	347	New Holland	22, 27
Moss Vale	220	"Mullock" heaps	707	New Ireland Settlement	204
Mossgiel	249, 251	Mundaring	714	New Norfolk	756, 773
Mossman River	457	Mundijong	698	New South Wales—	
Mount Abundance	44, 494	Mungindi	232	32, 55, 59, 87, 94, 143, 160	
Mount Alexander	457	Municipal Councils	298	N.S.W. State Education	803
Mount Arden	45	Murat Bay	640	New Thunderer Mine	599
Mount Bellenden-Ker	437	Murchison, Vic.	395	New Zealand	22, 27, 58, 67, 111
Mount Bogong	349	Murchison Goldfield, W. A.—		Newcastle	94, 151, 154, 156, 188
Mount Brown	260	596, 701, 710		Newcastle Waters	47, 78, 528, 583
Mount Buck	347	Murchison Ranges	580	Newhaven	308
Mount Buffalo	349, 357	Murchison River	51, 730	Newlands, Simpson	589
Mount Buller	362	Murgha	889	Newmarracarra	725
Mount Carlyle	347	Murphy, Constable	620	Newport	180
Mount Cole	337	Murphy, "Dryblower"	705	Newport, Howard	437
Mount Cook	456	Murrangowee River	347	Nhill	338
Mount Cootha	506	Murray, A. B.	836	Nicholson River	345
Mount Crawford	1004	Murray, Alick J.	844, 1004	Nickol Bay	52
Mount Dandenong	308, 313	Murray, John	1004	Nimmitabel	143, 270
Mount Diamond	600	Murray, Lieut.	292	Nine-mile Forest	328
Mount Doctor George	269	Murray, Prof. Gilbert	126	Ninety-mile Beach	345
Mount Donna Buang	313, 364	Murray, W. R.	608, 640	Ninety-mile "Desert"	634
Mount Dromedary	269	Murray Bridge	611, 632	Nocoleeche Station	244
Mount Ellery	347	Murray Cod	151	Nogoa River	44, 486
Mount Ellison	546	Murray Downs	84, 580	Noland, L. C.	718
		Murray Perch	228		

	Page		Page		Page
Noorindoo	953	Ouyen	399	Perrott's Pinch	208
Norddeutscher Lloyd Co.	110	Ovens River	357	Perth	51, 659, 682, 734
"Norfolk," The	291	Overland Stock Route	52, 298, 584	Perth Museum	19, 24
Norfolk Bay	773	Overland Telegraph Line—		Perth Public Library	21
Norman Goldfield	459	48, 53, 78, 82, 577		Pescott, E. E.	128
Normanton	452, 458	Owen, Lieut.-Col. Percy T.	68	Pests	103, 272
Norris, Bess	128	Owen Stanley Range	789	"Peter Doubt" Spruhan	705
North Goulburn	575	Oxley	361	Peter Nuyts Islands	640
North Motton	777	Oxley, Surveyor John	39	Petersburg	615
North-South Railway	74	Oyster Bay	762	Pethebridge, Brigadier-General	791
North Australian Meat Co.	538	Oyster-catchers	137	Petrel Islands	782
Northern Queensland	437	Oysters	27, 152, 179, 180, 267, 269	Petrels, Sooty	782
Northern Territory—		Pacific Ocean	30	Petroleum	790
19, 22, 28, 51, 55, 67, 74, 87		"Paddy"	674	Pheasants	583
Norton's Summit	612	Paddy Mac	705	Phillip, Governor	31, 33, 38, 291
Nowra	219, 222, 263, 273	Pakenham	310	Phillip Island	308
Nowranie	903	Pakenham, Vice-Admiral	800	Phillipson	342
Nubeena	773	Paleozoic Plateau	596	Phosphates	621
Nuggets	701	Palmerston	953	Phylloxera	376
Nullarbor Plain	72, 642	Palmer Goldfields	47, 452	Physical Education	806, 813
Nungatta Station	269, 271, 273	Palmer, J. E.	555	Piangil	401
Numurkah	387	Palmer River	452	Piccadilly, S.A.	612, 614
Nut of Stanley	744, 768	Palmer, Vance	126	Pickering	863
Nutmegs	437, 527, 790	Palmer's Island	206	Pickering, John	752
Nuyts, Peter	19	Palm Islands	434	Picton	76
Nuyts Archipelago	640	Palms	208, 419, 421, 439	"Pigeon"	729
Nymboidi	208	Panbula	270, 273	Pigeons	137, 424, 569, 583
Nyngan	245	Pandanus Tree	573	Pigs	168, 378, 476, 554
Nyora	304, 309	Papaws	412, 428, 527, 540, 554, 662	Piguenit, Mr.	128
Oakden, Philip	831	Papua	18, 23, 55, 67, 105	Pilbara	596, 701
Oakover River	50, 732	Para Rubber	458, 788, 792	Pilchards	152
Oaks, The	136	Parkes, Sir Henry	66	Pilmer, Sergeant	729
Oaks Goldfield	459	Parks, Public	186	Pilot, The	347
Oasis	644	Parliaments, Australian	56	Pimento	527
"Occupation Licences"	231	Paroo River	233	Pine Apples—	
"Ocean," The	294	Parrakeet, Shell	242	412, 431, 438, 441, 505, 507	
O'Donnell, W. J.	53	Parramatta	41, 43, 170, 178, 225	527, 540	
O'Dowd, Bernard	126	"Parramatta," H.M.A.S.	800	Pine Creek—	
Officer, Edward	128	Parramatta River	178	74, 516, 521, 546, 577, 594, 598	
O'Hara, J. B.	126	Parrots	138, 208, 242, 280, 583	Pine-trees	71, 209, 249, 425, 489, 621
Oil	790	Paspalum—		Pinjarra	690, 713
Old Age Pensions	116, 815	201, 202, 388, 415, 441, 527, 690		Pinnacles, The	262
Oliver, Mr.	598	Passion-fruit	161, 412	Pinnaroo	399, 472, 632, 647
Olive-growing in South Aus- tralia	1083	Pastoral Lands—		"Pioneer," H.M.A.S.	800
Olives	414, 623, 678, 1083	44, 48, 52, 75, 79, 84, 208, 269, 331		Pioneer River	428
O'Malley, Hon. King	69	380, 420, 468, 589, 592, 638		Pioneering	57
O'Meara	667	644, 779		Piper, Capt.	868
Omeo	339, 349, 353	Pastoral Permit	60, 558, 565	Pipon Island	455
Onkaparinga River	652	Pastures—		"Pirie, John," The	830
Onions	313, 325, 340, 648	202, 228, 231, 269, 339, 342		Pitt, William	31
Onslow	663	368, 458		Pittman, E. F.	154, 257
Oodnadatta—		Patchouli	527	Pittosporum	202
74, 77, 81, 482, 522, 528, 616		Patey, Vice-Admiral	800	Pittsworth	490
Ooldea Soak	72	Paterson, A. B.	126, 482	Pittwater	179
Oorabarra	76	Paterson River	211	Plantains	662
Ooraminna Range	81	Paynesville	343	Platinum	156
Ooratippra	76, 84	Peaches—		Platypus	35, 140, 208
Opals	157, 1084	161, 236, 349, 388, 412, 579, 623		Playford, Senator Thos.	529
Ora Banda	703	Peak Hill Goldfield	701	Plenty	756
Orabarra Reef	589	Peake Telegraph Station	51	Plenty Ranges	316
Oranges—		Pea-nuts	678	Plenty River	76, 316
34, 88, 161, 179, 236, 239, 246		Pearce, Senator	797	Pleuro-pneumonia	377
388, 414, 506, 618, 649, 660		Pearce, T. H.	592	Plovers	136, 137, 202, 280
662, 678, 718		Pearls and Pearlshells—		Plums	161
Orara	206	425, 517, 661, 726		Poinciana	441
Orbost	87, 343, 354	Pears	161, 699	Point Charles	540, 567
Orca <i>Gladiator</i>	271	Peas	92	Point Danger	486
Orchard Supervisors	374	Pecan Nut	437	Point Hicks	27
Orchards—		Pelicans	136, 280	Point Nepean	306
161, 218, 236, 348, 498, 501, 638		Pellew Islands	528, 572, 586	Point Stuart	836
648, 749, 761, 765, 771		Pelsart, Commodore Francis—		Polygonum	588
Orchids	49, 333	19, 660, 754		Pomelos	437, 662
Ord River	53	Penguin, Tas.	766	Pomonal	331
Ord River Station	590	Pennant Hills	179	Ponies	843
Ord Valley	729	Penrith	94, 225	Ponton	644
O'Reilly, Dowell	126	Pensions	116	Poole, J.	42
Orford	761	People's Party, The	60	Pooncaire	234, 238
Orient	443	Pepper	437	Population	159, 295, 297, 680
Orient Steam Navigation Co.	109	Pepper Trees	281	Porepunkah	357
Oroya Goldmine	710	"Pera," The	19	Porpoises	152
Osborne, Professor W. A.	126	Pera Bore	97, 245	Port Adelaide	638
O'Sullivan, Hon. E. W.	224	Perch	228	Port Albany	46
Olford	188	Pericoe	271, 273	Port Albert	339, 345
Otway Forest	327	Perkins, Prof.	651	Port Alma	424, 475
Ouse River	749	Perkins Island	782	Port Arthur	755, 773
		Permissive Occupancy	231	Port Augusta—	
		Perpetual Lease	652	46, 521, 616, 642, 652, 766, 842	
				Port Bradshaw	576

	Page		Page
Port Campbell	328	Rainbow	337
Port Curtis 18, 424,	485	Rainfall—	
Port Cygnet	758	77, 84, 99, 145, 250, 330, 337, 339	536
Port Darlington	784	346, 354, 452, 458, 467, 490,	638, 647
Port Douglas 429,	457	545, 579, 583, 588, 593,	638, 647
Port Essington 44, 518,	561	654, 660, 664, 676, 680, 690,	735
Port Fairy 325,	327	Raisins 92, 161, 623,	649
Port Germein	652	Raleigh Tobacco Plantation	498
Port Hacking	186	Ramco	90
Port Hacking River	188	Ramee	437
Port Hedland	664	Ramornie	967
Port Jackson 18, 31, 143, 153,	291	Rankin Springs	230
Port Lincoln 44,	640	Rasp, Chas.	255
Port Macquarie 41,	212	Ravenshoe	445
Port Moresby	786	Ravenswood	732
Port Phillip—		"Rebecca," The 294, 305,	322
43, 291, 294, 302, 306,	308	Red River 28,	346
Port Phillip District, The	295	Red Rock	206
Port Pirie Smelting Works 261,	621	Red Soil 44, 92, 472,	662
Port Stephens	143	Redland Bay 413,	506
Port Victor	626	Reed, J. M.	302, 399
Port Wakefield	622	Referendum	67
Portarlington	322	Reformatories	815
Portland 294, 323,	327	Renmark 35, 88, 238,	649
Portland Bay 43,	328	Renner's Springs	583
Portsea	308	Republican Mine	599
Portugese	17	"Resolution," The	26
Possession Island 30,	452	Responsible Government	61
Postage	108	Returned Soldiers' Repatriation	120
Postage Stamps	952	Revenues	115
Potato-growing, State	376	Reward Gem Field	480
Potatoes—		Rhodes Grass 202, 415, 443, 476,	478
204, 208, 231, 263, 272, 313,	328	Rhyll	308
340, 388, 444, 476, 485, 489, 498	498	Rice 437, 519, 527, 536, 673,	678
508, 625, 648, 745, 764,	776	Richardson, A. E. V.	128, 380
Poullia Poullia Creek	75	Richmond	468
Poultry Industry 164, 378, 393,	625	Richmond River—	
Powellised Kharri	697	87, 136, 143, 148, 161, 183, 202,	202,
Powell's Kharri 51,	583	265, 445	445
Powlett River	340	Ridgeley	776
Praed, Mrs. Campbell	126	Ringarooma	765
Pratt, Ambrose	126	Ringtail Gully	769
Prawns	152	Ringwood 310,	313
Premier Downs	644	Risdon	758
Preservation Islands	782	Riverina 87, 134, 158, 275, 280,	360
Preston	776	Roads Board, Victorian	303, 765
Prichard, Katherine	126	Robb's Monument	441
Prickly Pear 272, 476,	490	Robbin's Island	782
Primary Education	803	Roberts, A. C.	237
Prime Minister	65	Roberts, Tom	128
Proctor, Thea.	128	Robinson Ranges	730
Proserpine River	484	Rochester 367, 386,	388
Prospect	223	Rock Cod	425
Prospect Creek	191	Rock Lily	180
Protection	63	Rockfish	138
"Psyche," H.M.A.S.	800	Rockhampton 136, 429, 475,	766
Pye, Hugh	128	Rockingham Bay 46,	458
Pyengana	779	Rocky Hall	269
Pymble	178	Rodway, Florence	128
Pymont Bridge	224	Roe, Capt. J. S.	51
Quail 134, 202,	220	"Roebuck," The 23,	661
Quarantine	377	Roeburne	24
Quarries	221	Rogers, Dr. R. S.	128
Quartz 76, 83	83	Roly-poly Grass	249
Quassia 438,	527	Roma 44, 472,	492
Queanbeyan	69	Romney Marsh Sheep	876
Queenscliff	320	Roper River 48, 573, 587	600
Queensland 55, 94, 96, 405,	419	Rose River	574
Queensland Gems	1084	Rosella Parrots	138
"Quetta," The	455	Rosewood	209
Quingilli	447	Ross, Alex.	592
Quinn, Roderic	124	Ross, Major 34, 35	35
Quiros, Pedro Fernando de 18,	27	Roto Station 249,	251
Quorn	616	Rottnest	658
Rabaul	792	Rowan, Mrs. Ellis	128
Rabbits 138, 272, 643, 885,	1076	Rubber 437, 525, 575, 678,	787
Racecourse Sugar Mill	429	Rubicon Falls	364
Radium	35	Ruby Vale	480
Raffles Bay	518	Ruby Well	701
Rails	136	Rudall, W. P.	53
Railton	774	Ruddell River	734
Railways—		Ruse, Jas.	170
41, 56, 70, 84, 148, 178, 224, 227	227	Russell	756
264, 296, 300, 331	331	Russell Falls	756
Railways, Transcontinental—		Russell, Lord John 518,	520
46, 52, 71, 521	521	Rutherglen Experimental	
		Farm	368, 371
		Ryan, "Paddy"	546
		Rye	308
		Rye Grass	202
		Saaringen, M. Eliel	69
		Sacred Nugget	703
		Saddle Reefs 258,	598
		Saddleback Mountain	221
		"Saerdam," The	21
		Sage, Walter	234
		Sago 437, 527,	790
		Said Goolmeer	619
		St. Columba Falls	776
		St. Helena	316
		St. Helens 773,	778
		St. Kilda	306
		St. Leonard's	322
		St. Mary's, N.S.W.	94, 225
		St. Mary's, Tas.	779
		St. Peter and St. Francis Islands	22
		St. Vincent's Gulf 612,	622
		Sale 343,	372
		Saleeby, Dr.	120
		Salmon	138
		Salmon-trout	138
		Salt-bush—	
		71, 74, 77, 81, 104, 238, 244, 249	249
		282, 287,	582
		Samarai	787, 790
		San Remo	308, 365
		Sandhills 74,	81
		Sandover River	76, 579
		Sandpipers	137
		Sandringham	306
		Sandstone 80, 189,	596
		Sandy Cape	424
		Sandy Creek	606
		Sandy Head	572
		Sandwich Islands	29
		Sanger, W. B.	907
		Sapphire 425,	480
		Sardine Creek	347
		Sariba	791
		Sassafras, Tas.	764
		Sassafras, Vic.	313
		Savings Banks 128, 488,	1078
		Sawfish	153
		Scaddan, Hon. John	687
		Scamander 773,	779
		Schanck, Cape	308
		Scheelite 156,	407
		Schist 75,	82
		Schouten Island	762, 784
		Scott, Professor Ernest	126
		Scottish Commissioners	338
		Scottsdale 765, 773,	777
		Scottsdale West	777
		Scrub Palms	552, 564
		Scrivener, C. R.	68
		Scrub Pigeon	137
		Sea Elephant Bay	292
		Sea Curlews	137
		Sea Islands	575
		Seal Rocks	217
		Seaweeds	152
		Secondary Education	806
		Sedgwick, Professor	594
		Sedgwick, T.	121
		Sesamum	678
		Settlers' 60, 120, 146, 330,	391
		Sextant Rock	455
		Shackle	606
		Shale 104, 156	156
		Shannon River	747
		Shannon Vale	961
		Share-farming	416
		Sharks Bay 18, 23, 51,	669
		Sharks	138
		Shearers' Hut Accommodation	
		Act	379
		Sheep—	
		39, 48, 72, 81, 83, 88, 158, 160,	208
		226, 244, 245, 297, 345, 379,	452
		467, 482, 494, 579, 590, 622,	673, 770
		673, 770	770
		Sheep-dipping Act	379
		Sheffield	765, 774



General View of Tocal Homestead, on the Paterson River

	Page		Page		Page
Shelbourne Bay	47	Spring Vale	313	Table Cape	770, 777
Sheldrake	136	Springfield	765	Table Top	885
Shellharbor	220	Springsure	507	Tabulum	199
Shepparton	387, 394	Spruhan, "Peter Doubt"	705	<i>Tacca primatifida</i>	527
Sherwin, Amy	128	Spurwings	137	Taillem Bend	632
Sherwood	309	"Squatters" Pigeon	137	Tailor-fish	138
Shipping, Australian	113, 173	"Squatters"	60	"Taiyuan," The	577
Shirlow, John	128	Stack Island	782	Talc Head	594
Shoal Bay	526	Stanley	744, 768	Tallaberga Islet	291
Shoalhaven	143, 219, 263	Stannary Hills	443	Tallangatta	352, 355
Shoalhaven River	221, 223, 273	Stanthorpe	199, 410, 412, 417, 500	Tallarook	318, 362
Shoosmith, Geo.	729	Stanwell Park	188	Tallyawalka Creek	250, 252
Shorthorn Cattle	770, 839, 936	Star Grass	249	Tally Ho	313
Shoveller	136	Starcke	452	Tamar Estuary	774
Silky Oaks	417	State Trawlers	153	Tamar River	748, 771
Silos	90, 93	Staverton	765, 774	Tamar Valley	745
Silurian Rocks	80	Stawell	297, 331, 334	Tamarinds	437, 527, 572, 673
Silver	156, 255, 407, 503	Stead, David A.	151	Tambo	244
Silver Grass	249	Steel	154	Tambo River	339, 345, 348, 470
Silver Lead—		Steep Island	782	Tamboon River	346
42, 254, 459, 597, 621, 749		Steep Point	19	Tamil Coolies	530
Simpson, G. F.	899	Stephens, Saml.	830	Tamworth	232
Sims, Mr.	645	Stevenson Creek	78	Tanami	540, 546, 580, 592, 598, 602
Singleton	154	Stewart, Graham	82, 656	Tanja	269
"Sirius," The	32	Stilts	136, 137	Tank Stream, Sydney	859
Sisal Hemp—		Stingray Harbor	28	Tankerton	308
415, 482, 485, 525, 575, 678, 787		Stingrays	138	Tannymorel	406
Sisters, The	768	Stirling	84	Tantallon	923
Skate	153	Stock Routes	52, 82	Tapioca	787
Skating	360	Stockdale, Hy.	53	Tarawatta Station	832
Skertchley, Mr.	443	Stone, Louis	126	Tarcoola	71
Ski-running	192, 195, 198, 360	Stony Creek Falls	460	Taree	214
Slates	594	Stony Point	308	Tarella Station	244
"Sloepye," The	24	Stoodley	776	Tariff Commission	63, 101
Sloyd Woodwork Classes	810	Stradbroke Island	423	Tariff, Customs	111
Small Arms Factory	796, 798	Straits Settlements	159	Tarong	507
Smith, Prof. Grafton Elliot	126	Strangways River	584	Tasman, Abel Janszoon—	
Smith, Hon. Staniforth	790	Stratford	345	21, 24, 516, 758, 762, 770	
Snadden Creek	594, 597	Strathgowie Range	357	Tasmania	21, 29, 55, 59, 87, 115, 743
Snake Beans	437	Strathdownie	330	Tasman's Arch	773
Snapper	138, 153, 206, 223, 425	Strawberries	342, 412, 505, 623, 662	Tasman's Peninsula	773, 779
Snipe	136	Streaky Bay	45, 640	Tatchera	399
Snow	192	Streeton, Arthur	128	Tate, Professor	589
Snowy River—		Strikes	116	Tate River	443
69, 87, 193, 343, 347, 352		Stringybark Trees	348	Tathra	269
Solander, Dr.	29	Strong, Archibald T.	126	Taylor	47
Solanums	674	Stroud	215	Tea	437, 527, 787
Soldiers	120	Strezlecki, Count	339	Tea-tree	302, 306, 452
Solomon, Hon. A. E.	746, 761	Stuart	82	Teal	134, 136
Somerset	47, 453	Stuart, Chas. McDouall—		Technical Education	805, 812
Sorell	761	42, 47, 520, 564, 584		<i>Tecoma australis</i>	186
Sorghum	237, 399, 415	Stuart, Dr. T. P. Anderson	144	Telegraph, Overland	48, 53, 78, 82
Sorrento	293, 295, 308	Sturt, Capt. Chas.	39, 41, 47, 630	Telegraphy	110
Soursop	438	Sturt Plains	584	Telegraphy, Wireless	110
South Australia—		Sturt's Billabong	238	Temora	231, 718
19, 47, 55, 59, 60, 63, 74, 87, 94		Sturt's Creek	52, 728, 734	Temperature	469, 760
520, 611		Styx River	407	Tennant's Creek	582, 596
South Australian Company	830, 839	Sugar—		Tennis	192
South Berry Mine	332	87, 102, 202, 345, 407, 426, 448, 458		Tenterfield	143, 198
South Bruni Island	773, 784	485, 518, 524, 790		Termeil Mountain	273
South Clifton	216	Sugar Palm	438	Termites	560
South Creek	94, 280	Sugar-beet	345	Terowie	254
South Goulburn	575	Sugar Bonus Act	107, 409	<i>Terra Australis</i>	22
South Gate	206	Sugar Refining Co., Colonial	408	<i>Terre Napoleon</i>	661
Southern Cross Goldfield—		Sugar Works Guarantee Act	429	"Territoria"	589
470, 596, 701, 711		Sunter, N.	563	Tesselated Pavement	773
"Southern Cross" Pearl	668	Sulphides	258, 459	Texas	498
Southport	111, 505, 596	Sultanas	95, 161, 237, 718	Thackeringa	255
Spain	17	Sunday Island	668	Thargomindah	419
Spear-grass	249, 558	Sullivan Cove	758	Theebine	507
Speculation Lake	250, 252	Surf-bathing	128, 131, 175	Thermal Springs	555, 578
Spence, Percy	128	Sutherland, Forby	28	"Thew" Wheat	206
Spence Creek	582	Swamp Lands	75, 92	Thierry, Baron de	831
Spencer, Prof. Sir Baldwin—		Swan Hill	43, 387, 399	Thistle Cove	45
128, 530, 590		Swan River	23, 45, 51	Thompson River	343
Spencer's Gulf	45	Swanport, Great	763	Thomson, Jas.	729
Spicer, Mr.	679	Swans, Black	136, 140, 280	Thorndon Park	652
Spinifex—		Swansea	762	Thornton, Constable	620
71, 75, 76, 82, 287, 473, 586, 592		Sweers Island	452	Thredbo River	194
Sponges	152	Swimming	131	Three-Hummock Island	782
Spoonbills	136	Swine-fever	377	Thring Creek	585
Sports	131	Sydney—		Throssell Ranges	732
Spotted Dog Mine	347	63, 107, 113, 142, 173, 178, 280		Thulimbah	500
Spotted Gum	267, 269, 273	"Sydney," H.M.A.S.	799	Thursday Island	137, 346, 451
Spreyton	774	Sydney, Lord	32, 34	Tibboburra	238
Spring Bay	762	Sydney Cove	31, 34, 291, 859	<i>Tierra Austral</i>	18
Spring Hill	220, 607			Tietkins, W. H.	53, 589

	Page		Page		Page
Tilba-Tilba	269	Tyringham	208	Warren, The	652, 696
Tilpa	244	Tyson, James	578	Warrnambool	325, 327
Timber—				Wartook	337
35, 81, 105, 150, 209, 249, 265, 267		Uardry	893	Warwick	474, 496
269, 310, 354, 438, 444, 445, 458		Ulladulla	223, 265	Washington Navel Oranges	246
472, 489, 498, 508, 582, 664		Ulmarra	136, 206	Water Conservation—	
680, 779, 790		Ulverstone	766	70, 73, 147, 275, 385, 400, 740	
Timor	21, 24, 517, 539	Umbrawarra	598	Waterfall	186, 188
Tin—		“Una,” H.M.A.S.	800	Waterhens	136
102, 156, 407, 453, 503, 596, 598		Union Bank of Australia	831	Waterhouse, Capt.	866
680, 701, 749		Universities	620, 806	Waterhouse, G. A.	128
Tinaroo Tinfield	443	Upper Burnett River	507	Waterhouse River	585
Tindal Family	967	Upper Flowerdale	778	Waterpark Creek	407
Tintaldra	347, 353	Upper Hunter River	94, 279	Water-trees	219, 273
Titheradge, Madge	128	Upper Murray River	90, 96	Watkins, J. S.	128
Tobacco—		Urapunga	601	Watson, J. C.	120
102, 170, 269, 437, 485, 493, 527, 787				Watsonville	443
Tobogganing	192, 360	Vailala River	790	Wattle-bark	102
Total	933	Valder, G.	227	Wattle-birds	138
Todd River	75, 84	Valencia Oranges	246	Wattlegrove	780
Todmorden Station	78	Vanderlin Island	572	Watt's Creek	606
Tolarno	243	Van Diemen's Gulf	520	Wave Hill Station	590
Tolga	445	Van Diemen's Land—		“Wealth of Nations” Goldmine	702
Tolga Spring Falls	447	22, 27, 60, 291, 294, 298, 758		Weeah	399
Tolmie Tableland	362	Van Diemen's Land Company—		Weipa Mission Station	452
Tomatoes	388, 485, 648, 662, 674	744, 768, 770, 782		Welch, E. J.	50
Tomkinson Ranges	730	Vanilla	437, 787, 790	Weld Springs	52, 730
Tongala	379, 386, 389	Vegetables	37, 305, 648, 662	Wellesley Islands	452
Tongio	349	Venture Syndicates	608	Wellington	232, 650
Tonkin Bean	437	“Venus,” The	291	Wellington Point	505
Toolangi	364	“Verglude Draeck, De,”	22	Wells, L. A.	53, 590, 602, 628, 728
Tooradin	309	Vernon, Col. W. L.	69	Wentworth	90, 92, 161, 233
Toowoomba	417, 489	Victoria	55, 60, 87, 291	Wentworth, W. C.	39, 58, 60
Topknot Pigeon	137	Victoria Downs Station	583, 590	Werribee	305, 371, 386
Toronto Farm Home	820	Victoria River—		Werribee Gorge	320
Torquay	322	52, 53, 577, 590, 592, 602		Werribee State Farm	370
Torrans, Col. R. R.	830	Victorian State Education	811	Wessels Islands	575
Torrans Creek	466, 468	Vidler, E. A.	14	West, J. and H.	334
Torrans River	652	Vineyards—		West Arm	597
Torres, Luis Vaz de	18	162, 218, 236, 396, 414, 623, 645, 685		Westbrook	415, 496, 499
Torres Island	109	Viticultural Stations	163, 376	Westbury	763
Torres Straits Pigeon	137, 456, 569	Vlaming, Capt. Willem de	18, 23	Western Australia—	
Tortoise-shell	517	Volcanic Soils	271, 625, 734	21, 23, 26, 45, 51, 59, 67, 87	
Tourmaline	596			94, 115, 659	
Towamba	143, 271, 273	Wade, L. A. B.	234	Western District of New South	
Townsville	430, 432, 434, 470, 530	Wages	262	Wales	281
Towong	347, 353	Wagga	226	Western District of Victoria—	
Trade	159	Wagonga	273	322, 325, 378	
Tramways	85, 758	Waikerie	90	Western Lands Board, N.S.W.—	
Transcontinental Railways—		Wakefield, E. G.	830	232, 249, 283	
46, 52, 71, 521, 697		Waldron, J. J.	74, 76	Westernport	291, 308
Transport	247	Walhalla	346, 362	Western Tiers	763
Transportation	31, 59, 60	Walgett	92	Wethered, “Bluebush”	705
Traralgon	343	Walker, Thos.	821	Weymouth Bay	46
Trawlers, N.S.W. State	152	Walker Island	782	Whales	152, 154, 271
Trawool	364	Walker River	574	Wheat—	
Tree-ferns	219, 310	Wallabies	138, 564, 583	46, 84, 99, 106, 146, 161, 170, 206	
Trefoil Grass	249	Wallagurah	347	225, 228, 230, 247, 249, 251, 280	
Trefoil Islands	782	Wallan	318	328, 334, 339, 368, 380, 382, 399	
Trepang	106, 517	Wallangarra	199, 417	472, 489, 494, 622, 633, 640, 645	
Trevallyn	750	Wallaroo	621, 642	717, 736, 842	
Triabunna	773, 784	Walpeup	400	Whim Well Copper Mine	726
Tropical Diseases	532	Walsh Tinfield	443	Whimbrels	137
Tropical Medicine, Institute of	532	Wanaaring	246	Whistle Duck Creek	582
Trout	138, 352	Wandandian	223	Whistling Duck	136
Truganini	754	Wandi	606	White Apple Tree	273
Truman, Mr.	722	Wandoo	692	“White Australia”—	
Tuart-tree	690	Wangamong	907	56, 64, 302, 426, 530, 534	
Tucka Tucka Station	230	Wangaratta	357, 362	560, 666, 670	
Tully Falls	446, 456	Wangrabelle	347	White Cliffs	244
Tully River	457	Waranga Basin	387	White, Constable	620
Tumbling Waters	606	Waratah, Tas.	766, 769	White, Edward	961
Tumby Bay	640	Waratahs	186	“White Falcon,” The	22
Tumut	225, 288	Warburton	310, 313, 362	White, Francis	941
Tunny	138, 152	Warburton, Major P. E.	47, 50	White, James	941
Tupia	29	Warburton Ranges	730	White, J. W.	645
Turkeys, Brush—		Wardell	202	White, Major F. J.	961
72, 73, 137, 280, 467, 583		Warena Station	482	White Range Goldfield	83, 596
Turmeric	527	Warnecke, C.	530	Whitewood	75
Turner, Ethel	126	Warra	490	Whitfield	362
Turner, Henry Gyles	298	Warracknabeal	334	Whitley Falls	698
Tuross River	268	Warragamba River	94, 279	Whitsunday Passage	434, 459
Turpentine-trees	211, 265, 489	Warragul	339	Whiting	138, 153, 425
Tweed River—		Warrandyte	314, 338	Whittlesea	316
41, 87, 143, 265, 413, 505		Warraweena	247	Whitton	280
Twofold Bay	28, 143, 153, 270, 273	“Warrego,” H.M.A.S.	800	Wickham River	572, 590
Tyenna	780	Warrego River	44, 46, 233, 244		

	Page		Page		Page
Wide Bay	415, 416, 444	Wollongbar	201	Yamba	136, 206
Widgeon	136	Wollongong	136, 154, 188, 219	Yambulla	271, 347
Widstoe, Dr.	287	Woman Suffrage	63	Yampi Sound	21
Wilcannia	238, 242, 245	Wombat Ranges	362	Yanco	228, 276, 877
Wildfowl	39, 73, 243, 281, 782	Wondai	508	Yandina	507
Wilga Scrub	227, 244	Wonga Pigeon	137	Yan Yean Reservoir	316
Willandra Billabong	249	Wonthaggi	309, 340	"Yaralla," Parramatta	821
Willandra Station	249	Woodburn	202	Yarangobilly Caves	353
Willeroo Station	592, 602	Wood Duck	134, 280	"Yarra," H.M.A.S.	800
William Creek	74	Wood-pulp	102	Yarra Glen	310
William, Mount	331	Woodhead, Constable	618	Yarra River	292, 300, 305, 314, 365
Williams, Robt.	552	Woodrift, Capt.	294	Yarraman Creek	508
Williamstown	301	Wood's Point	313, 362	Yarran Trees	249
Willoughby	1000	Woods, Rev. Tenison	548, 576, 600	Yarrowonga	387
Willourie Pastoral Association	578	Wool—		Yarrie	97, 676
Willow Fig	434	48, 81, 90, 97, 102, 103, 146, 149		Yayouble Rock Hole	644
Wills, Mount	349	160, 251, 296, 328, 334		Yea	318, 364
Wills, W. J.	48	339, 467, 470		Yellow-tail	138
Wills' Tobacco Plantation	498	Woolgar Goldfield	459	Yeppoon	414, 481
Wilson, Geo.	909	Woolloomooloo Bay	174	Yilgarn Goldfield	701
Wilson, Hon. Frank	687	Woolngie	606	Yindi	644
Wilson, Sir Saml.	878	Woolnorth	782	Yolla	768
Wilson's Promontory	291	Woolnough, Dr.	573, 600	Yonge, Mr.	644
Wilton River	573	Woombye	430, 507	York	737
Wiluna	727	Woonona	219	York Gums	660
Wimmera	328, 337, 380, 382	Worgan, Mr.	593, 602	York Peninsula—	
Wimmera River	43, 337	Woy Woy	186	18, 46, 87, 443, 451, 621	
Windellama Marble Mines	104	Wright, David McKee	126	Young, Sir George	32
Wines	163, 396, 623	Wyalong	228, 231, 288	"Young William," The	859
Wingen	853	Wyandra	408	Yugilbar Station	206
Wingen River	27, 137, 346	Wyangala	279	Yungaburra	446
Wingham	214	Wyndham	273, 673, 729		
Winnecke's Depot	83	Wyonga River	574	Zamia Palms	82
Winton	470	Wyuna State Farm	370	Zebu Cattle	561
Wise, Hon. B. R.	66			Zeehan	766
Withers, R. J.	876	Yachting	140, 176	"Zeehan," The	21
Wodonga	349, 353	Yackandandah	355	Zeeuw, Jan Janszoon	22
Wolfram—		Yah Yah	600	"Zee-wolf," The	19
76, 156, 407, 443, 503, 597, 601		Yallingup	690	"Zeewyck," The	24
Wolfram Camp	601	Yam Creek	548, 606	Zinc	102, 261, 459, 598



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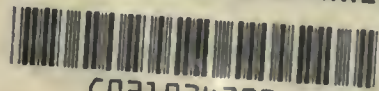
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