

PREHISTORIC MACEDONIA

*An archaeological reconnaissance of
Greek Macedonia (West of the Struma) in the
Neolithic, Bronze, and Early Iron Ages*

BY

W. A. HEURTLEY, O.B.E., M.A., F.S.A.

*Librarian and Keeper of Archaeological Records in the
Department of Antiquities, Government of Palestine; formerly
Assistant-Director of the British School at Athens;
Fellow of the German Archaeological Institute*



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Late Neolithic Vase from Sérvia

(Scale: $\frac{2}{3}$)

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τοῖς πάλαι ἐν Μακεδονίᾳ συνεργάταις μετ' εὐγνωμοσύνης

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PREFACE

When I began excavating in Macedonia in 1924, it was my intention to examine at least three sites in each of the principal areas into which Greek Macedonia, west of the Struma, is naturally divided, and so to get a comprehensive survey of its prehistoric civilization—something, in fact, in the nature of a reconnaissance, which would prepare the way for more intensive exploration. For various reasons this programme has been only partially fulfilled, but something has been done, and it is the purpose of this book to collect and arrange chronologically the material thus obtained and also co-ordinate with it that obtained by other excavators.

The system of soundings was necessarily adopted in the case of *toumbas* of great depth because, in view of the programme I had set before me and of the time and money likely to be available, no other system was possible. I am of course aware of its drawbacks, but, under the circumstances, there was no help for it; in the case of sites with comparatively shallow deposits, such as Kritsaná, Boubouísti and Sérvia fairly large continuous areas were opened.

For certain obvious defects in this book I do however claim indulgence. I had intended to spend the years 1930–1932 in working up the Macedonian material, but the Ithaca excavations, which I was asked by the Committee of the British School to conduct on behalf of Lord Rennell, took up most of the time which I should have devoted to Macedonia, and it was only when my appointment as Assistant-Director of the School was terminated that I was free to turn my attention to it. But after only two months work on it in Salonica, I was appointed to my present post in Palestine with the result that the rest of the work has had to be done away from the material. It was not possible for me to supervise the final stages of many of the drawings before I left Greece, and since then a large number have had to be prepared from photographs. For this reason I hope that a certain want of uniformity in the drawings, plans, scales, etc., and the rather summary treatment of the miscellaneous objects will be excused.

A criticism which is likely to be made is that in the drawings the forms of pots have been reconstructed on insufficient data. This is true, but I think that a better idea of what a pot looked like can be got from a reconstruction than from a single sherd, and provided that the reconstructed parts can easily be distinguished, I do not think much harm is done. In dealing with primitive *hand-made* pottery, nuances of form are seldom important.

A word about the arrangement of the book. It would, of course, have been possible to arrange the material according to sites, as is done in *Prehistoric Thessaly*. After a

good deal of hesitation I decided to synthesize it according to periods. Stratified evidence has been obtained at enough points in Central Macedonia and Chalcidice to show that, apart from the Middle Bronze Age, there was almost complete uniformity in the pottery sequence, and even in Western Macedonia, where the sequence is not quite continuous, the same framework holds good. Within each period, the pottery is, in the Catalogue (Part III), grouped by areas, and within each area by individual sites. By consulting the index it should be possible to discover easily the ceramic history of any site.

The stratigraphic descriptions of sites already published are summarized, except in the case of Hágios Mámas, Molyvópyrgo and Saratsé.¹ In the case of Sérvia, of which only a provisional report has appeared, and of Kritsaná and Armenochóri, of which no reports at all have hitherto been published, detailed descriptions are given for the first time².

Pots are assigned to periods on the evidence of stratification except in a few cases such as Sérvia, where some Early Neolithic painted pots and sherds are grouped with the rest of the Early Neolithic material even though they were found in higher levels, or Kritsaná, where Late Neolithic and Early Bronze are grouped in successive periods, though Late Neolithic sherds lay side by side with Early Bronze in the lowest settlements.³ Again in the case of the pots from the French excavations I have assigned many of them to the Early Bronze Age on grounds of form, fabric, etc., though in Rey's classification no distinction is made between Late Neolithic, Early Bronze, Middle Bronze and early Late Bronze, all being grouped together as pre-Mycenaean. So too with pots of unknown provenance or surface finds.

For the transliteration of modern Greek names (many of which are Grecized Turkish or Slav names) I have followed the system recommended by the British School at Athens. Since the refugees arrived in Greece many places have been re-named, but I have not attempted to keep pace with these changes, and have written the names as they were in use in each locality at the time I was excavating there, e.g., I have kept Várdina and Vardaróphtsa, names which are now probably obsolete. I have however always written Axiós instead of Vardar, for obvious reasons.

By Macedonia is meant what is now Greek Macedonia west of the Struma. Everything so far known about it⁴ goes to show that archaeologically, in spite of some

¹ It seemed worth while to reproduce Mr C. A. R. Radford's admirable descriptions.

² They are the work of Mr G. A. D. Tait, Mr C. A. R. Radford and Mr. R. J. H. Jenkins respectively.

³ The principle on which unstratified objects of the Iron Age have been admitted is explained below (p. 103, note 1; p. 107, note 7; p. 108, note 2).

⁴ Which is not much. Apart from Renaudin's excavations at Dikili-Tash and Pelekides' at Komotini, neither of which have been published, and surface finds of pottery at Drama and other places, this region has been little explored.

contacts,¹ the country east of the Struma is differently orientated and goes rather with Bulgaria.²

It is in fact, I believe, the rather barbaric looking pottery of this region that has given rise to the slogan that 'Macedonia goes with the North', and to the tacit omission of Macedonia from books dealing with the prehistory of the Aegaeon. If this book succeeds in removing that impression by showing that Macedonia west of the Struma goes primarily with the Aegaeon it will have achieved its purpose.

600 B.C. has been chosen as a suitable limit for this study, because it is about the date of the first Corinthian sherd at Vardaróphitsa,³ which marks the end of a period of isolation, and the moment from which Southern imports of vases steadily increase.

So many persons have given their services in one way or another that I can hardly hope to enumerate them all. I trust my fellow-workers will accept this comprehensive expression of gratitude and the dedication to them of this book, a dedication which I have ventured to make in affectionate memory of our campaigns on the Macedonian Front. Plans, drawings and descriptions which they have kindly contributed are acknowledged individually in the text. To my wife for her unselfish labours in each campaign I express here our common gratitude.

Without Professor J. L. Myres' consistent support at home the work could never have been done. To Professor A. J. B. Wace's active interest I also owe much.

Apart from the obligations under which every student of prehistoric Macedonia must be for his work there, I am further indebted to M. Léon Rey for permission to use his plans, etc., and for courteously placing his special knowledge at my disposal.

To Mr S. Casson I owe my first practical introduction to Macedonian archaeology, and I am grateful to him for much help in other ways.

I also have to thank those friends who, in my absence from England, have read papers for me at meetings of the British Association or of other Societies, viz., Professor J. L. Myres, Professor V. G. Childe, Mr R. W. Hutchinson, Mr S. Casson, Mr R. J. H. Jenkins and Mr C. T. Seltman; also many specialists who have undertaken analyses of metals, stone, etc., or reported on bones, viz., Sir Charles Martin of the Lister Institute, the Director of the Natural History Museum, South Kensington, Mr W. N. Edwards, Miss D. M. A. Bate, Lt.-Col. A. J. Peile, Mr W. E. Woodward, Mr L. H. Dudley Buxton, Mr H. Duckworth, Dr T. Skouphos, the late Professor K. Ktenas, Dr K. Hatzissarantos, Dr Oikonomopoulos, Dr Anagnostopoulos, and very specially Professor J. Koumares and Mr O. Davies.

¹ Cf. Mylonas, *Olynthus*, p. 94, where however the true affinities of Olynthus are not recognized. Among Pelekides' finds from Komotini I have seen in a context, otherwise Late Neolithic, lugs typical of the Early Bronze Age in Chalcidice and Central Macedonia. These should have great value for dating the East Macedonian material.

² It is precisely the Aegaeon element which is lacking.

³ The late Mr H. G. G. Payne kindly gave this as his opinion.

Acknowledgment of permission to use photographs, etc., is made in the text.

The Greek archaeological authorities have shown their customary courtesy and helpfulness. I shall always remember the friendly interest shown by Professor S. Pelekides, Ephor of Macedonia, in my work, as well as that of Professors K. Romaïos, G. Soteriades, A. Keramopoulos and G. Mylonas, all of whom have shared my enthusiasm for Macedonian prehistory. Mr. Ch. Makaronas has also been most helpful. I wish to thank especially Professor G. P. Oikonomos, Dr K. Kourouniotes, Madame Karouzou and Mr B. Theophanides for providing facilities at the National Museum at Athens for the study and arrangement of the finds.

Other foreign archaeologists who have shown special interest and kindness are Dr C. Blegen, Dr G. Karo, Dr F. Tompa, and Professor M. Vassić, at whose excavations at Vinča I was privileged to assist.

The drawings in the Catalogue are mainly the work of Mr Y. Fomin, Mr A. Lephakis, and Mr N. Avigad (of Jerusalem); most of the photographs were taken by Mr H. Wagner and Mr G. Petritzis; the vases were restored by George Kontogiorgo or his son Apóstolos. I wish to record my appreciation of their work.

I have to thank the following members of the Department of Antiquities, Palestine: Mr S. H. Stephan for typing and for much help in other ways; Mr M. Avi Yonah for the preparation of the Index; and Miss C. Dixon for typing.

This reconnaissance of Macedonia has been made possible by the liberality of many Institutions, learned societies, etc. I have to thank especially the Macedonian Committee of the British Association, which has provided grants on five separate occasions. I have also received generous grants from my college, Gonville and Caius College; from the Trustees of the Craven Fund and of the Worts Fund, Cambridge; of the Craven Fund, Oxford; and of the Percy Sladen Memorial Fund; from the Committee of the British School at Athens which placed the Macedonian Exploration Fund at my disposal; and from the Classical Society, Cambridge. Emmanuel College, Cambridge, made Mr W. Cuttle a special grant to enable him to take part in the excavations at Vardaróphtsa.

I am very grateful to Mr V. W. Yorke, Mr C. A. R. Radford, Mr O. Davies and Mr J. D. S. Pendlebury for their contributions.

Finally I wish to thank the Syndics of the Cambridge University Press for undertaking the publication of this book and the staff for their skill and courtesy.

W. A. H.

JERUSALEM

6 August, 1937

I wish also to express my thanks to Emmanuel and Downing Colleges for contributions, which, by an oversight, were not mentioned in the Preface.

W. A. H.

INTRODUCTION

Though some archaeological exploration of Macedonia had been made before the War, it had been directed principally to remains of the historic period. The prehistoric remains had hardly been noticed, and little directly concerned with them had appeared in print except an article by H. Schmidt in which surface finds of pottery, etc., made by Träger were described and discussed,¹ Wace and Thompson's article, 'Prehistoric Mounds in Macedonia'², and Wace's supplementary article 'The Mounds of Macedonia'³ which drew attention to the distribution of the mounds and the pottery associated with them. A report by Milioukov on the Russian excavations at Pátele existed, but was and is almost impossible to obtain.

During the War, sherds were collected from many mounds by members of the British Salonica Force and further observations made on their distribution. Archaeological excavation, except in a rather casual way, was not made, the find of Neolithic pottery at Aiváte being incidental to the construction of a dug-out. The French Army, however, made good use of its opportunities, and the Archaeological Service, principally under the direction of Rey, made a methodical survey of the *toumbas* in their area, collected sherds, and conducted small trial excavations at Sédes, Góna and Kapoutzédes. The material was subsequently published by Rey in a book which laid the foundations for all future work.

After the War, Casson, who had taken a prominent part in the archaeological activities of the British Army, returned to Macedonia and in 1921 excavated part of the Iron Age cemetery at Tsaoutsítza, which he finished in 1922. On the latter occasion he explored the *toumba* adjacent to the cemetery and found strata of the Middle and Late Bronze and Iron Ages. I owe to him at that time my own introduction to Macedonian excavation.

In 1924 I began, at Várdina, my own series of trial excavations which were to be continued every year for the next eight years.

At Várdina the earliest stratum was Late Neolithic, containing much black-polished ware, such as was subsequently to turn up at several sites.

In the winter of 1924 Cuttle and I visited several *toumbas* in Chalcidice with a view to selecting sites for future work.

In 1925 Casson excavated at Kilindir, and opening up a fairly large sector of the *toumba* discovered a stratified sequence of remains from the middle of the Early Bronze to the end of the Late Bronze Age. A ceramic series more precise than

¹ *Zeitschrift für Ethnologie*, 1905, pp. 91 ff. For Träger's account, cf. *Zeitschrift für Ethnologie*, 1902, pp. 62 ff.

² *A.A.A.* II, pp. 159 ff.

³ *B.S.A.* xx, pp. 123 ff.

had been recognized by Rey was established, and for the first time the Anatolian-Aegean character of the Early Bronze material was recognized.

In the same year the large tomb of Vardaróptsas which dominates the lower reaches of the Axiós was tested, and a largish area opened to a depth of 4-5 m., which was found to be the level where the transition from Late Bronze to Early Iron took place. Below this a burnt layer 1 m. thick contained Lausitz and very late Late Helladic III pottery. The excavation was resumed in 1926 and trial pits were sunk at various points in the flanks of the tomb to virgin soil. A sequence parallel to and almost identical with that of Kilindír was revealed, with the difference that in the Late Bronze stratum Mycenaean (Late Helladic III) was very common. The good sequence for the Iron Age with well-stratified imported Greek sherds which had been obtained in the preceding year on the tomb was amplified and controlled by Cuttle's work on the adjacent table. Vardaróptsas thus became a standard for all periods except the Neolithic.

In the autumn of 1925 I visited sites in the plain of Monastir.

In 1926 appeared Casson's *Macedonia, Thrace and Illyria*. The part of this book concerned with the prehistoric archaeology has great merits but appeared unfortunately at the moment when exploration had only just begun, and subsequent discoveries were to show that the theories advanced rested on insufficient data. The recognition of the true orientation of Macedonia in prehistoric times was, in fact, only just beginning.

In 1927, in a short campaign in Western Macedonia, a small shepherd encampment at Bouboústi in the foothills of Pindus overlooking the Haliákmon was cleared. It produced much hand-made painted pottery with clear affinities with the Late Bronze painted pottery of Central Macedonia and Chalcidice on the one hand and with the painted pottery from sites in Thessaly, the Spercheiós valley and Aetolia on the other.

In the spring of 1928, soundings were made at two points in Chalcidice, viz. Molyvópyrgo and Hágios Mámas, and in 1929 at Kritsaná. The latter was excavated over a fairly large area, and a succession of small settlements, covering in time the whole of the Early Bronze Age, was found. It provided a standard for dating other Early Bronze deposits and was also important because in the two lowest settlements Late Neolithic painted ware was found in almost equal proportion with Early Bronze, and further because the first evidence of direct southern contacts was obtained by the discovery of two pieces of Melian obsidian and of an Early Helladic patterned sherd in the latest settlement. The first settlement at Kritsaná proved to be the earliest Bronze Age settlement so far found and gave a clue as to the direction from which the Bronze Age civilization reached Macedonia. At Hágios Mámas the Late Neolithic deposit underlay the Early Bronze and contained much black-polished

ware of the same kind as that of Várdina. Hágios Mámas also provided a complete sequence of Bronze Age pottery, ending with Late Helladic III, both imported and of local make. It was found that the ceramic periods in Chalcidice agreed closely with those of Central Macedonia with the important difference that the Middle Bronze period, which in Central Macedonia was characterized by incised ware with Cycladic affinities, was characterized in Chalcidice by Minyan, southern in character, but adapted to local Early Bronze forms as well.

In the same year (1928) Robinson began the American excavations at Olynthus. The Late Neolithic settlements here were very carefully excavated under the direction of Mylonas; painted ware like that from Kritsaná, a good deal of incised, a quantity of celts and some interesting marble figurines were the principal finds.

A short trial excavation was made at Saratsé in the Lankadás basin in the same year (1928). A sequence similar to that of Vardaróphtsa and Kilindír, with some local difference, was found, but there were no traces of the destruction caused by the Lausitz invasion which thus seemed to have been confined to the Axiós valley.

In 1930 attention was again turned to Western Macedonia and excavations were made at Sérvia, where the road from Macedonia to the south crosses the Haliákmon. Here a fairly thick deposit of Early Neolithic painted ware of Thessalian character was separated by an extensive burnt layer from a stratum containing Late Neolithic black-polished ware. Thessalian B and F1 wares were found with it. In the uppermost level and mixed with the black-polished ware was late Early Bronze pottery (Macedonian) in fair quantity, another instance in which Late Neolithic and Early Bronze were found to overlap. Some idea of the relation of Macedonia to Thessaly in the Late Neolithic Age now began to take shape.

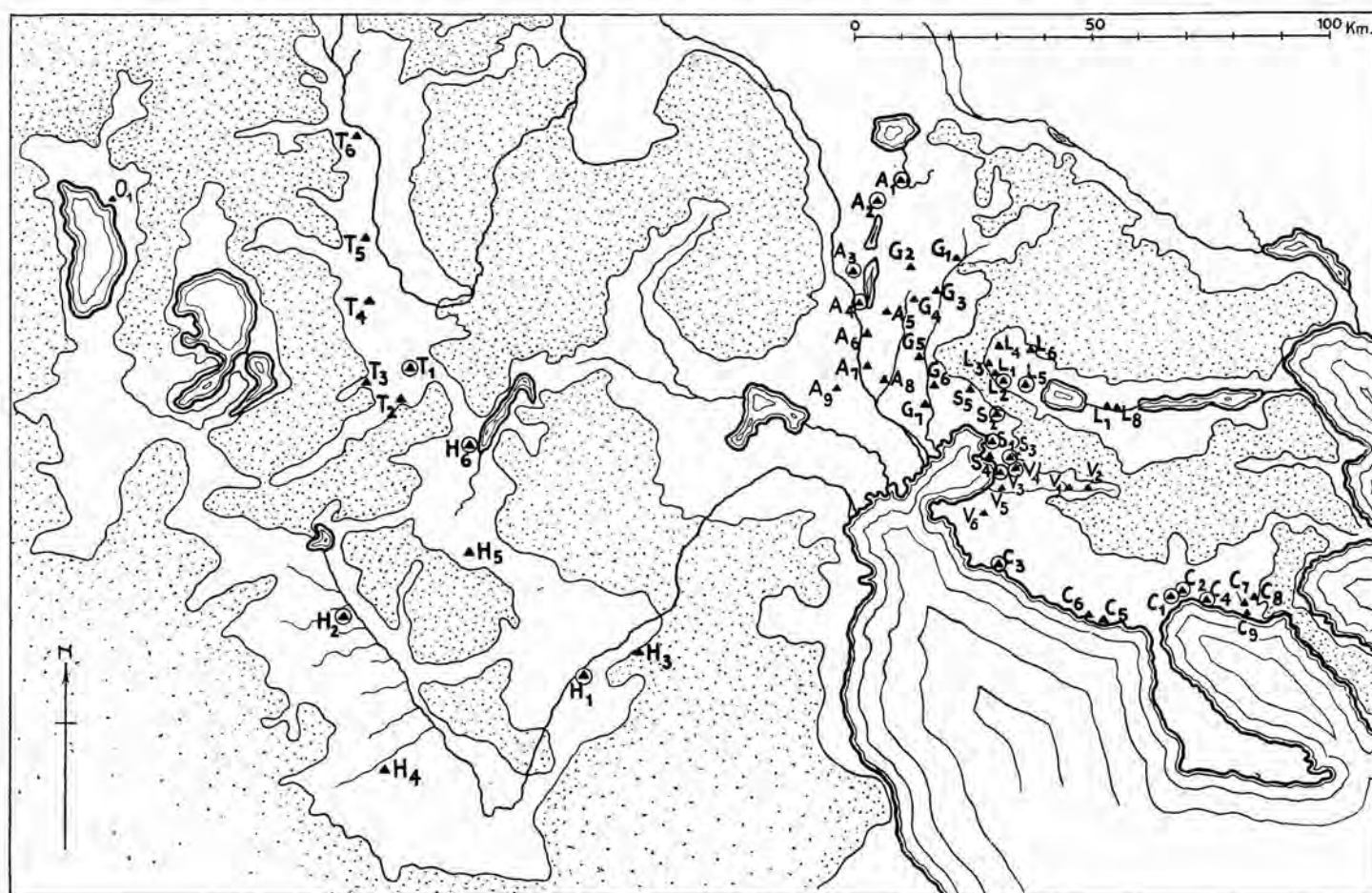
To round off the programme it remained only to test a site in the Monastir region. This was done in 1931, when a short excavation was made at Armenochóri, near Flórina. Here a stratum of the end of the Early Bronze Age with lingering Neolithic elements was not succeeded by a Middle Bronze Age stratum showing definite ceramic innovations, but pot-making developed on internal lines until at some moment the site was abandoned. The other sites in the Monastir region seem to have had a similar history.

Finally, mention must be made of Davies' researches into the history of ancient mining in Macedonia, summarized in a paper, 'Ancient Mines in Southern Macedonia', which appeared in 1932, and within recent years the explorations of Professor Keramopoulos, which have added much to the knowledge of Western Macedonia in pre-classical as well as classical times.

I add a list of sites, at which prehistoric finds which can be assigned to definite periods have been made.

MAP OF CENTRAL AND WESTERN MACEDONIA, AND CHALCIDICE

showing sites at which prehistoric finds, which can be assigned to definite periods, have been made¹



⊙ = Sites at which excavations or soundings have been made.

¹ N.B. This map is not intended to show *all* sites from which prehistoric finds have been reported. It is based on (1) reports of excavations; (2) sherds, etc., illustrated by Rey and others; (3) sherds collected from mounds and now in the collection of the British School at Athens.

LIST OF PREHISTORIC SITES²

CENTRAL MACEDONIA

	<i>Sites on Map</i>	<i>Periods represented by pottery or objects³</i>
A. Axiós Valley	A 1 Kilindir* ⁴	E.B., M.B., L.B., Myc.
	A 2 Tsaoutsítza*	L.B. (Myc.), E.(?)I.
	A 3 Várdina*	L.N., E.B., L.B., Myc., E.I.
	A 4 Vardaróphtsa*	E.B., M.B., Minyan, L.B., Myc., E.I.
	A 5 Saribazár (A)	L.B.
	A 6 Karaóglou	E.B., L.B.
	A 7 Dourmoúsli	E.B., M.B., L.B.
	A 8 Toptsín (Table)	L.N., E.I.
	A 9 Gialatzík (Table)	E.B. ? (Figurine)

² Cf. note to map above.

³ Abbreviations: E.N. = Early Neolithic.
L.N. = Late Neolithic.

E.B. = Early Bronze.

E.I. = Early Iron (i.e. until 600 B.C.).

M.B. = Middle Bronze.

L.B. = Late Bronze.

Myc. = Mycenaean (Late Helladic III).

⁴ * = sites at which excavations or soundings have been made.

	<i>Sites on Map</i>	<i>Periods represented by pottery or objects</i>
<i>G. Gallikó Valley</i>	G 1 Giáunes	E.B.
	G 2 Avrét Hissár	E.B., L.B.
	G 3 Salamanlé	E.B., M.B.(?), L.B.
	G 4 Giatzilár	E.B. or M.B., L.B., Myc.
	G 5 Náres	E.B.(?)
	G 6 Grádobor (B)	E.B. (mace-head)
	G 7 Saré Omér	E.I.
<i>L. Lankadás Basin</i>	L 1 Aiváte	E.N.(?), L.N.
	L 2 Aiváte (Toumba and Table)	M.B.(?), L.B.
	L 3 Báltza	E.B.
	L 4 Drymínklava	L.N., E.B.
	L 5 Saratsé*	L.N. (unstratified), E.B., M.B., L.B., Myc., E.I.
	L 6 Giouvésna	L.B.
	L 7 Gioumenítza A	L.N.
	L 8 Gioumenítza B	L.N., L.B.
<i>S. Salonica Plain</i>	S 1 Kalamária*	E.N.(?), E.B., M.B., L.B., E.I.
	S 2 Lémbet*	E.B., M.B., L.B., E.I.
	S 3 Kapoutzédes*	L.N., E.B., L.B.
	S 4 Mikró Karabournou (Table)	L.B., E.I.
	S 5 Akbounár	M.B., L.B.
<i>V. Vasiliká Valley¹</i>	V 1 Vasiliká A	E.B.
	V 2 Vasiliká B	E.B. or M.B.
	V 3 Góna*	E.B., M.B., L.B., Myc., E.I. (Table)
	V 4 Sédes*	L.N., E.B., M.B., Minyan, L.B., Myc.
	V 5 Tsaír	E.B., L.B., Myc.
	V 6 Ouzounáli (Toumba)	E.B.
CHALCIDICE		
<i>C. Chalcidice</i>	C 1 Hágios Mámas*	L.N., E.B., M.B., Minyan, L.B., Myc.
	C 2 Olynthus*	L.N., E.B.(?), E.I. (Table)
	C 3 Kritsaná*	L.N., E.B., (L.B., E.I. unstratified)
	C 4 Molyvópyrgo*	E.B., M.B., Minyan, L.B.
	C 5 = B 12 ²	L.N., E.B., M.B., L.B., E.I.
	C 6 = B 15 ³	L.N., E.B., M.B., L.B.
	C 7 = Ormýlia 2	L.N., E.B., M.B., L.B., E.I.
	C 8 = Ormýlia 3	E.B., M.B., L.B.
	C 9 = Ormýlia 1	E.I.
WESTERN MACEDONIA		
<i>H. Haliákmon Valley</i>	H 1 Sérvia*	E.N., L.N., E.B.
	H 2 Bouboústi*	L.B., Myc.(?), E.I.
	H 3 Palaiográtziano	L.B.(?), E.I.
	H 4 Grevená	Myc. (sword), E.I.(?)
	H 5 Kailári	E.B.
	H 6 Pátele*	E.I.
<i>T. Tsérna Valley</i>	T 1 Armenochóri*	L.N., E.B., M.B.(?)
	T 2 Pérasma	E.B.
	T 3 Flórina*	L.B. or E.I.
	T 4 Optítsare	E.B.
	T 5 Karamán	L.N., E.B.
	T 6 Tsepíkovo	E.B.
<i>O. Ochrid Basin</i>	O 1 Ochrid (Neighbourhood of)	L.B.(?), E.I.

¹ Continuous with the Salonica plain and therefore classed with Central Macedonia, rather than with Chalcidice, to which, strictly speaking, it belongs.

² *B.S.A.* xx, p. 128.

³ *Ibid.*

ADDENDA AND CORRIGENDA

ADDENDA

p. xxiii. List of sites.

Chalcidice. At Mesiméri, prehistoric finds have been reported by Kotzias. Their precise affinities have not been determined (*J.H.S.* LVII (1937), p. 34).

Western Macedonia. Some vases from Kozáni have recently been published by Makaronas ('*Αρχ. Έφημ.* 1936, '*Αρχ. Χρονικά*', p. 12). To judge from the illustrations, they are E.B.

p. 259. Appendix IV, Bibliography.

BLEGEN, C. W. 'Excavations at Troy, 1937', *A.J.A.* XLI (1937), pp. 553ff.

FUCHS, S. *Die griechischen Fundgruppen der frühen Bronzezeit und ihre auswärtige Beziehungen.*

KANDYBA, O. *Schipenitz: Kunst u. Geräte eines neolitischen Dorfes.*

LAMB, W. 'Excavations at Kusura near Afyon Karahisar', *Archaeologia*, LXXXVI, pp. 1ff.

SCHULTZE, J. H. *Neugriechenland: eine Landeskunde Ostmakedoniens u. Westthrakiens.*

CORRIGENDA

p. 225. By an oversight, Kalamária and Mikrò Karabournou have been grouped with the sites in the Vasiliká Valley. Actually they should have been included in the Salonica Plain group, on the preceding page (224).

ABBREVIATIONS

PERIODICALS, ETC.

A.A.A. = *Annals of Archaeology and Anthropology*, Liverpool.

A.J.A. = *American Journal of Archaeology*.

Ant. Journ. = *Antiquaries' Journal*.

[᾽]Αρχ. Δελτ. = [᾽]Αρχαιολογικὸν Δελτίον.

[᾽]Αρχ. ᾽Εφημ. = [᾽]Αρχαιολογικὴ ᾽Εφημερίς.

Ath. Mitt. = *Athenische Mitteilungen*.

B.A.S.P.R. = *Bulletin American School of Prehistoric Research*.

B.C.H. = *Bulletin Correspondance Hellénique*.

B.S.A. = *Annual of British School at Athens*.

J.H.S. = *Journal of Hellenic Studies*.

J.R.A.I. = *Journal of Royal Anthropological Institute*.

P.Z. = *Prähistorische Zeitschrift*.

BOOKS, ARTICLES, ETC.

B.M.C. = Forsdyke, *British Museum Catalogue of Vases*. Vol. 1, Part I, Prehistoric Aegean Pottery.

Bohemica = Rey, *Albania*, iv, pp. 40–61.

Boubousti = Heurtley, 'A Prehistoric Site in Western Macedonia and the Dorian Invasion', *B.S.A.* xxviii, pp. 158–94.

Chauchitza I, II = Casson, 'Excavations in Macedonia, I', *B.S.A.* xxiv, pp. 1–33; Casson, 'Excavations in Macedonia, II', *B.S.A.* xxvi, pp. 1–29.

Danube = Childe, *The Danube in Prehistory*.

Δ-Σ = Τσούντας, *Αἱ προϊστορικαὶ ἀκροπόλεις Διμανίου καὶ Σέσκλου*.

Eutresis = Goldman, *Excavations at Eutresis in Boeotia*.

Hagios Mamas = Heurtley and Radford, 'Two prehistoric Sites in Chalcidice, I', *B.S.A.* xxix, pp. 117–55.

Hoernes-Menghin = *Urgeschichte der bildenden Kunst in Europa* (1925).

Kilindir = Casson, 'Excavations in Macedonia', *Ant. Journ.* 1926, pp. 59–72.

Korakou = Blegen, *Korakou*.

Larisa = Grundmann, 'Aus neolithischen Siedlungen bei Larisa', *Ath. Mitt.* lvii, pp. 102–23.

Marmariane = Heurtley and Skeat, 'The Tholos tombs at Marmárianne', *B.S.A.* xxxi, pp. 1–55.

Molycopyrgo = Heurtley and Radford, 'Two prehistoric Sites in Chalcidice, II', *B.S.A.* xxix, pp. 156–86.

M.T.I. = Casson, *Macedonia, Thrace and Illyria*.

Olynthus I = Mylonas, *Excavations at Olynthus*. I, The Neolithic Settlement.

- Olynthus V* = Mylonas, *Excavations at Olynthus*. V, pp. 15–63, The pre-Persian pottery.
- Orchomenos II* = Kunze, *Orchomenos*. II, Die Neolithische Keramik.
- Orchomenos III* = Kunze, *Orchomenos*. III, Die Keramik der frühen Bronzezeit.
- P.P.P.* = *Proceedings of the First International Congress of Prehistoric and Protohistoric Sciences*, London, 1932.
- P.T.* = Wace and Thompson, *Prehistoric Thessaly*.
- Rey = 'Observations sur les premiers habitats de la Macédoine', *B.C.H.* xli–xliii.
- Rumänien* = Nestor, *Der Stand der Vorgeschichtsforschung in Rumänien*, 22 *Bericht der Röm.-Germ. Kommission*, 1933, pp. 113–50.
- S.S.S.* = Schmidt, *Schliemann's Sammlung*.
- Saratsé* = Heurtley and Radford, 'Report on Excavations at the Toumba of Saratsé, Macedonia, 1929', *B.S.A.* xxx, pp. 113–50.
- Servia* = Heurtley, 'Excavations at Sérvia in Western Macedonia (provisional report)', *Ant. Journ.* xii, pp. 227–38.
- Thermi* = Lamb, *Excavations at Thermi in Lesbos*.
- Várdino* = Heurtley, 'Report on an Excavation at the Toumba of Várdino, Macedonia', *A.A.A.* xii, pp. 15–36.
- Vardaroftsa I* = Heurtley and Hutchinson, 'Report on Excavations at the Toumba and Tables of Vardaroftsa, Macedonia, 1925, 1926, Part I', *B.S.A.* xxvii, pp. 1–66.
- Vardaroftsa II* = Cuttle, Part II of above, *B.S.A.* xxviii, pp. 201–242.
- Zygouries* = Blegen, *Zygouries*.

The abbreviations E.N., L.N., etc., to denote archaeological periods are sometimes used, as in the List of Prehistoric Sites (see p. xviii, note 3).

PART I¹
EXCAVATIONS AND SOUNDINGS

¹ All references to Figures are to Part I unless otherwise stated.
Numbers in dark type refer to Catalogue (Part III).

PART I

EXCAVATIONS AND SOUNDINGS

A. CHALCIDICE²

(1) *HÁGIOS MÁMAS* (C₁ on Map)³

The *toumba*⁴ is situated about half-way between the villages of *Hágios Mámas* and *Myrióphyto*. The *Sándanos* river flows 0·5 km. to the east, with the site of *Olynthus* on the opposite bank, about 1·5 km. up-stream. The surrounding land is fertile and the protection, on the north and east, of the mountains of Chalcidice, and on the west, of the low ridge which continues across the isthmus of *Palléne*, tends to mitigate the severity of the Macedonian winter. The cultivated plain stretches inland for about 7 km. to the further side of the village of *Marianá*, its width being about 10 km.⁵ In the prehistoric period the *toumba* must have been the centre from which the natural wealth of this region was exploited⁶, a position later held by *Olynthus*, and, like that city, it doubtless controlled the road to the interior, which runs north through *Polýgyros*.

The long oval mound measures 200 by 75 m. and rises to two peaks, of which the higher is about 19 m. above the level of the surrounding fields. The slope is steeper on the east side, where the ground level is lower. The original settlement was built on a natural gravel outcrop at least 4 m. high and, as at *Molyvópyrgo*, the slopes were terraced in order to provide level platforms for the houses.

The evidence obtained from the pits at *Vardaróphtha*⁷ showed that the strata tended to run horizontally almost to the edge of the *toumba*. This suggested that a series of pits, descending the slope, would be the simplest method of establishing the sequence of cultures represented in any mound. The possible contamination of the surface level of the pits could be discounted by excavating each to a depth of 1 m. below the top of the next, and disregarding the finds from the latter (Fig. 4).

¹ All references to Figures are to Part I unless otherwise stated. Numbers in dark type refer to Catalogue (Part III).

² For distribution of mounds in Chalcidice cf. Wace, *B.S.A.* xx, pp. 127, 128; Heurtley, *B.S.A.* xxvi, pp. 30–34; Rey, i, pp. 161–8.

³ Cf. *B.S.A.* xxix, pp. 117–55; Rey, i, Fig. 135.

⁴ The following description, plans, etc., of the *toumba* and the stratigraphic details are by Mr C. A. R. Radford; they are reproduced by kind permission of the Committee of the British School at Athens, as well as Figs. 1–7.

⁵ Cf. Wace in *B.S.A.* xxi, p. 12; and Struck, *Makedonische Fahrten*, i, p. 40.

⁶ Cf. *Hágios Mámas*, p. 181, note 2.

⁷ Cf. Fig. 37.

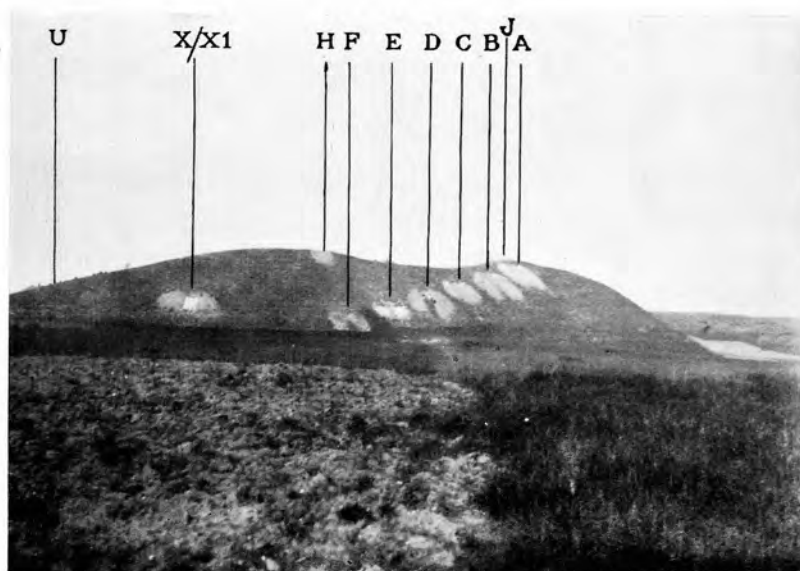


Fig. 1. Hágios Mámas. View from east.

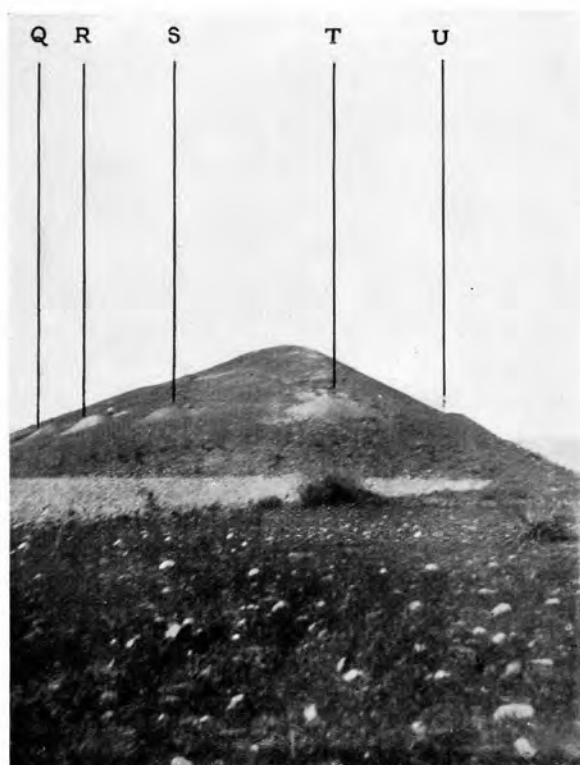


Fig. 2. Hágios Mámas. View from south.

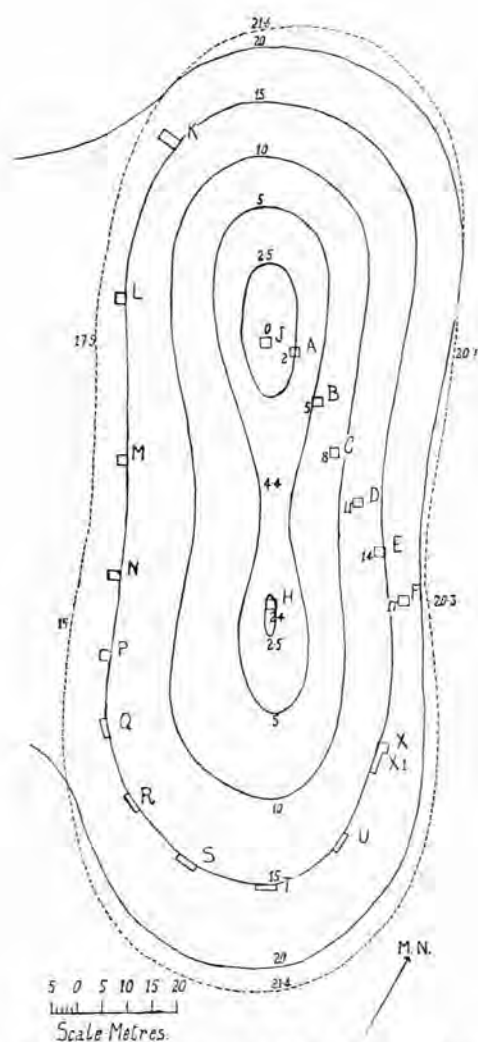


Fig. 3. Hágios Mámas. Sketch plan of tomba. Heights in metres below northern summit.

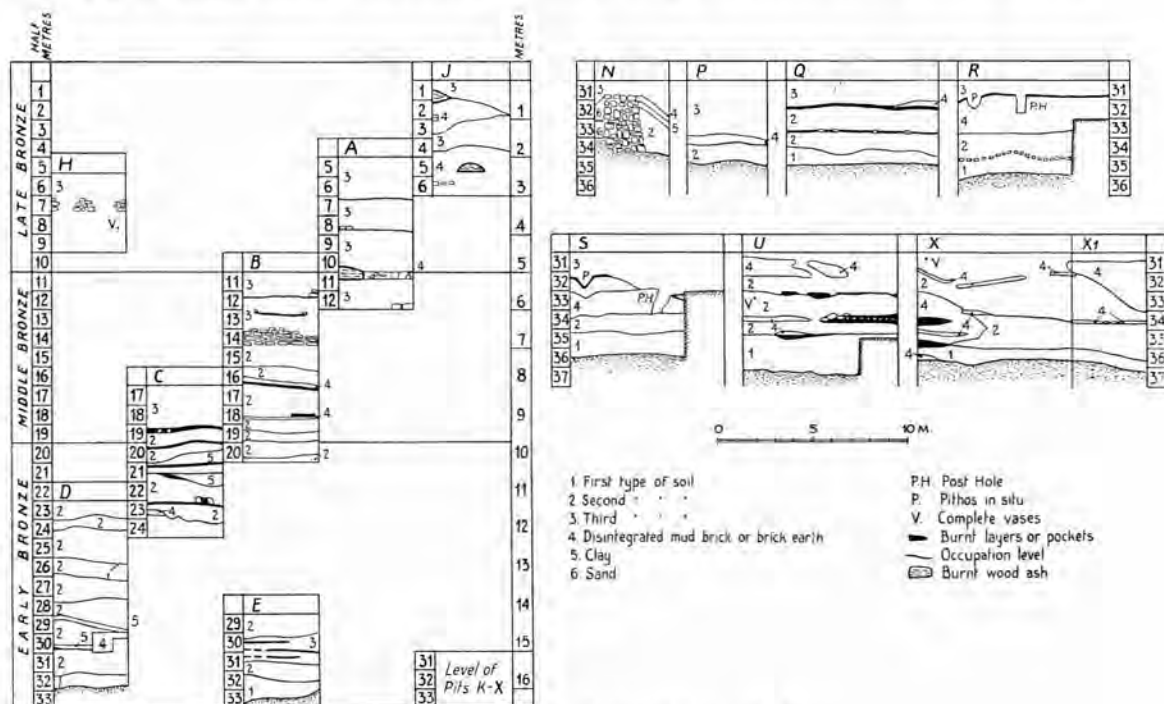


Fig. 4. Hágios Mámas. Internal faces of pits.

Group I. Pits J, A, B, C, D, E and F, each 2 m. square, were laid out on the eastern slope, so that, the surface levels being ignored, each should test 3 m. of the prehistoric deposit. The soil was then removed, the finds from each half-metre (measured from the northern summit)¹ being kept separate. In Pits E and F the natural gravel was discovered at a depth of less than 3 m. Pit D was therefore excavated to a depth of 5 m., at which level the same undisturbed soil was reached. In Pit C the twentieth half-metre produced an entirely sterile deposit, so that Pit B was continued for an additional metre in order to check this result. Fig. 4 (left) gives a general view of the internal faces of these pits with the addition of Pit H, which was dug on the southern summit. Pit F is omitted as the stratification was disturbed. The trial excavation showed that the deposit consisted of a thin Neolithic stratum (in Pit E) underlying a series of Bronze Age settlements.

Group II. In order to obtain further information about the earliest culture, Pits K (measuring 3×2 m.), L, M, N, P (each 2×2 m.), Q, R, S, T, U, X (each 4×1 m.) and X1 (2×2 m.) were dug, each starting at 15 m. and continuing until virgin soil had been reached. Fig. 4 (right) gives a general view of their internal faces, with the exception of Pit L, in which undisturbed gravel was found immediately under 20 cm. of loose surface soil, and Pits K, M and T, where the stratification was disturbed. Pit P, which was also disturbed, is included on account of the structural remains uncovered.

In all the pits frequent lines of debris and stones and small pockets of mud brick and clay were observed. They were very irregular, and many could not be traced across the whole face of the shaft. In these restricted areas it was impossible to distinguish between those belonging to the general surface level of one of the superimposed settlements and those representing small chance accumulations of rubbish. Under these conditions any attempt to estimate the number of the successive villages would be misleading, and only the more clearly defined of these lines or those connected with structural remains have been marked on the sections. The three types of soil noticed have also been indicated, but they do not coincide with the cultural periods.

(1) Very dark, greasy soil, stained with many small black marks². This is distinguishable from the next by its darker colour and by the greater frequency of these marks. It reached from 15.95 to 15.70 m. in Pits D and E, and occurred immediately above the natural gravel in many of the pits of Group II.

(2) Dark, rather greasy soil, with fewer black marks, extending from 15.70 to 7 m.

(3) Lighter brown, friable soil, extending from 7 m. to the summit. This change is probably due to the greater proportion of disintegrated mud brick in the debris.

¹ The north-east angle of Pit J.

² The 'points charbonneux' of the Góna report (Rey, i, Pl. XVIII). Many are fragments of charcoal or ash, but some are due to decayed vegetable matter.

REMAINS OF HOUSES, ETC.

Neolithic. Small pockets of disintegrated mud brick and a few areas of rough stone paving were the only traces of buildings found.

Early Bronze Age. Stone walls or foundations, about 60 cm. wide, with a superstructure of either mud brick or wattle and daub, occurred through the whole of this Period. The floors were either cobbled or of stamped clay. The use of artificial terraces as a base for the houses began in this Period (e.g. R 32/3–S 33/4). The material of which they were composed is indistinguishable from the disintegrated mud brick, but as no individual bricks could be isolated it cannot be affirmed that there were built terraces like those of the Mycenaean period at Vardaróphtsa¹ and Góna². The occurrence of beam-holes passing through these strata suggests that the terraces may have been composed of brick earth with a wooden revetment.

In Pit N (at 17 m., Figs. 5*a* and 7*a*) were two stone foundations at right angles to each other. The larger was 90 cm. wide, and on it stood a stone wall 60 cm. high. The other served as the base for a mud-brick wall 70 cm. wide. In the angle formed by the two walls was a post-hole 40 cm. square, and on either side of the second wall was a hard sand floor. These remains were covered by a thick layer of burnt rubbish, which included charred fragments of beams of a considerable size.

In Pit P (at 17.75 m., Fig. 5*c*) a stone wall, 65 cm. wide and 25 cm. high, was uncovered. The inner end abutted against the scarped face of the natural gravel, which had been cut away to form a terrace. To the north of the wall was a floor, formed partly of the natural gravel and partly of gravel laid over the rubbish of earlier settlements. Along the inside of the wall ran a strip of stone paving 80 cm. wide, and in the corner of the pit was a semicircular stone hearth set against the wall³.

In Pit D (at 15 m., Fig. 5*b*) was a mud-brick wall, 60 cm. thick and 50 cm. high, built without any stone foundation. It was greatly disintegrated, but some of the individual bricks could be seen. At the east side of the pit was a doorway. The threshold was formed by a layer of flat stones, set in clay, and on either side were the holes, 25 cm. square and 1.25 m. apart, in which the jambs stood. To the south of the wall was a stamped clay floor 20 cm. below the level of the threshold.

In the north-west corner of Pit D (at 13.1 m., Figs. 6 and 7*b*) the remains of a potter's kiln were found. As part of the kiln lay outside the area of the pit, the sides were undercut sufficiently to enable the whole of the oven to be uncovered. The kiln had collapsed during the firing and part of the debris had been left *in situ* and levelled over, but the eastern side had been greatly disturbed. The kiln had a

¹ Cf. p. 38.

² Cf. Rey, I, p. 146.

³ Cf. Zygouries, Fig. 14; p. 20; *Eutresis*, Figs. 13, 17.

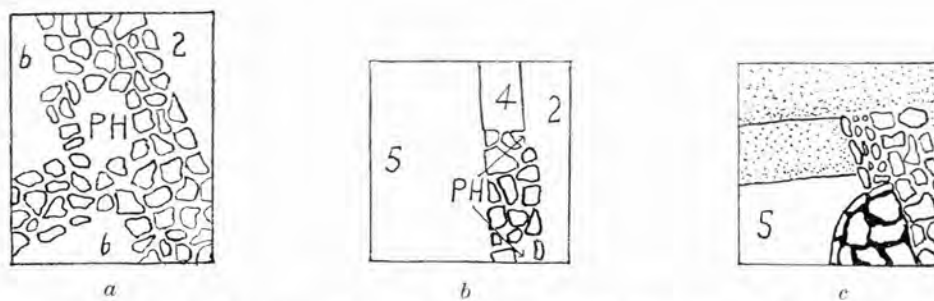
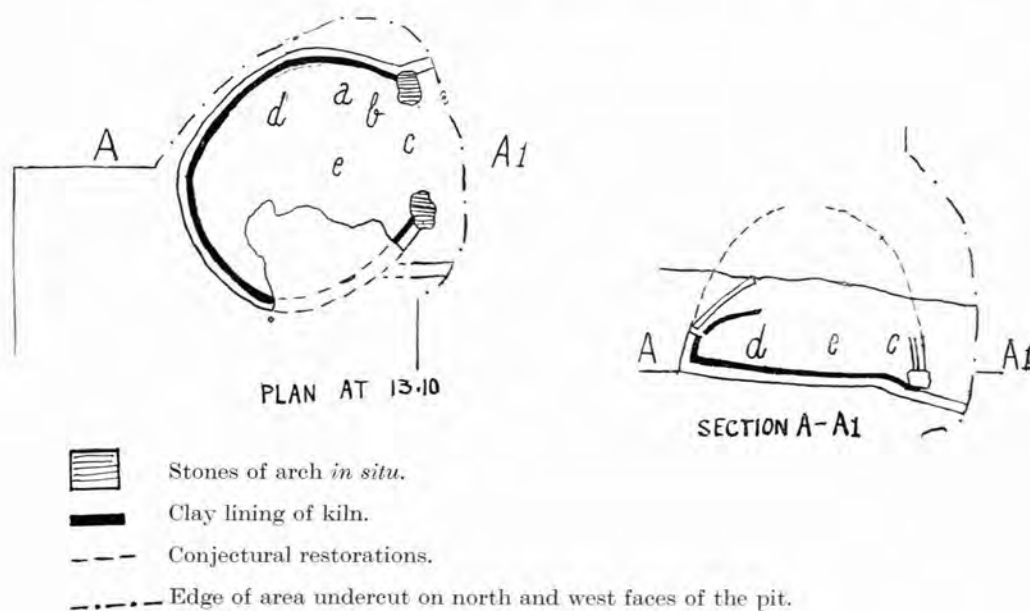


Fig. 5. Hágios Mámas. E.B.; plans of house walls, etc. (a) Pit N at 17 m., (b) Pit D at 15 m., (c) Pit P at 17.75 m. (Scale ca. 1:75.) For key see Fig. 4.



Small letters show the position of the better preserved pots.

Fig. 6. Hágios Mámas. E.B.; kiln in Pit D; plan and section.

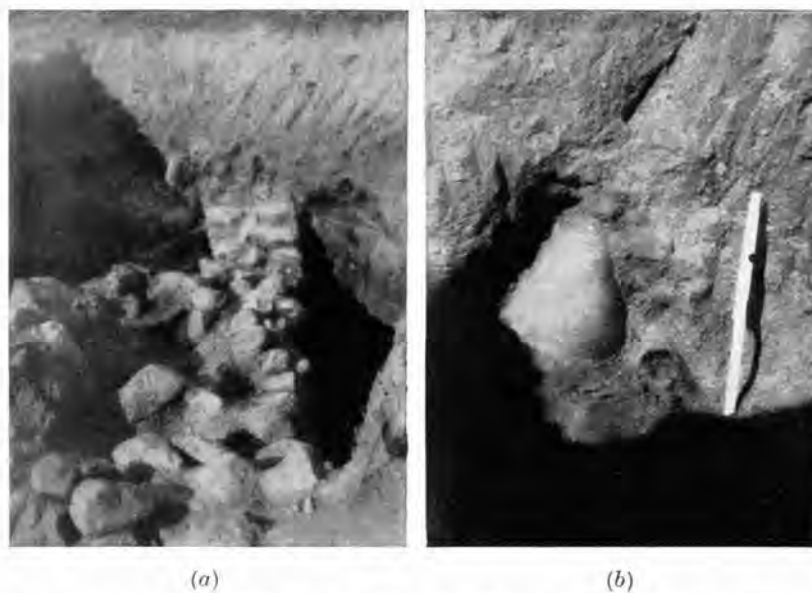


Fig. 7. Hágios Mámas. E.B. (a) house in Pit N, (b) Pit D, kiln; vase (203) in situ.

circular floor 1.2 m. in diameter, the centre being slightly lower than the sides. The walls stood about 20 cm. above the base, and the portions still preserved showed that the domed roof must have been about 90 cm. high. To the north-west lay the combustion chamber, the opening leading to which was 42 cm. wide, its sides being marked by two stones set in the clay wall. This chamber lay outside the area of the pit and could not be completely explored, but part of the two side walls, 90 cm. apart, and the clay floor continuous with and sloping down from that of the oven, were visible. Indistinct remains which may have belonged to a flue leading to a chimney were visible to the south of the oven. The walls and floor were formed of a coarse red clay, lined on the inside with a thin coat of fine white material, probably prepared clay. The kiln collapsed before the firing was completed, and several of the pots remained *in situ*. Three were nearly perfect and two more could be reconstructed. Fragments of several others were also found, and in one of the crushed pots lay the stone battle-axe (Pt. III, Fig. 64*i*).

Middle Bronze Age. The remains of walls and floors in this Period were very fragmentary. The stone wall in Pit B (at 7 m.) was roughly laid in courses and better built than any of those found for the previous Period.

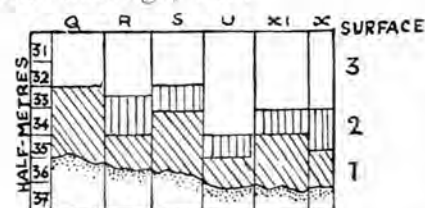
Late Bronze Age. The occupation levels in this Period tend to be separated from each other by a greater depth of deposit. A stone wall crossing Pit A obliquely (at 5.3 m.) was the only well-defined structure found.

The classification of the finds depends, as in the case of Vardaróphitsa, on changes in the pottery. Four periods are thus obtained, one Neolithic and three Bronze Age.

The Neolithic material comes from pure Neolithic deposits found in pits in Group II (Q, R, S, U, X and X₁), supplemented by finds, unquestionably Neolithic, from contaminated deposits in the other pits of the same Group (K–P). The depth of the Neolithic deposit, which varies from pit to pit, is, on an average, 1 m.

The following diagram shows in the pits of Group II:

- (1) Pure Neolithic deposits.
- (2) Mixed Neolithic and E.B. deposits.
- (3) Pure E.B. deposits.



The material for determining the Bronze Age Periods comes solely from the successive pits, J, A–D of Group I, which may be regarded as one continuous pit extending from the highest point to virgin soil. The three Periods were delimited thus:

- | | | |
|------|---------------------------|---|
| E.B. | Virgin soil to ca. 9.5 m. | Bowls with incurved rims, askoid jugs, etc. |
| M.B. | 9.5–5 m. | Minyan. |
| L.B. | 5 m. to surface. | Matt-painted. |

The character of the pottery of the respective Bronze Age Periods having been thus determined, it was possible to supplement the Early Bronze material¹ from:

A pure deposit in Pit E (of Group I);

Certain pits of Group II (Q, R, S, U, X and X₁), in which pure Early Bronze Age deposits overlay the Neolithic deposit²;

Mixed layers lying between the two deposits in certain of the same pits³;

Unstratified and impure deposits in the remaining pits of Group II⁴, and in Pit F of Group I.

The latter also supplied supplementary Middle Bronze and Late Bronze material.

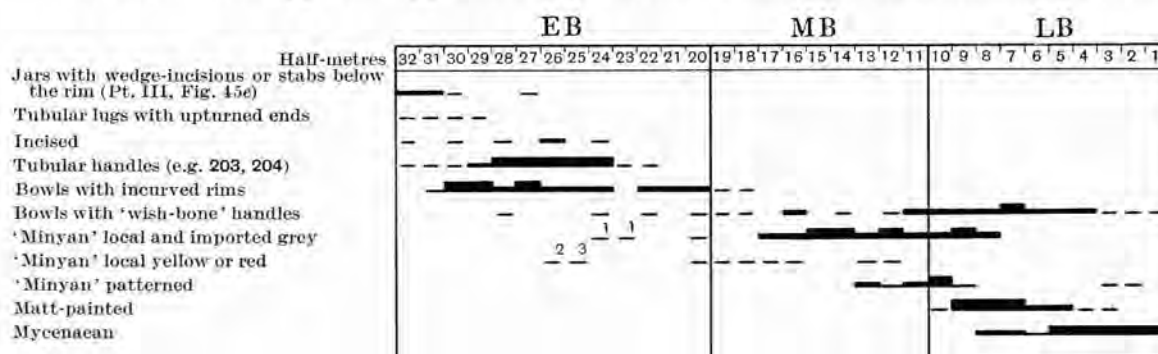


Fig. 8. Hágios Mámas. Diagram to illustrate the incidence of the principal wares.

— = 1 or 2; — = 3 or more; — = 10 or more.

Askoi (?): 3 in 29, 1 in 26.

Jugs with cut-away necks: 2 in U 33, 1 in 17, 1 in 13.

Ledge-lugs with two perforations (Pt. III, Fig. 45i): 1 in 29, 1 in 27.

Dishes with perforated rims (Pt. III, Fig. 45h): 1 in 32, 2 in 31, 2 in 29.

1. Grooved horizontal handles (cf. 402).

2. Bowl with incurved rim (cf. *Hagios Mamas*, Fig. 19, 1).

3. Bowl with everted rim (cf. *Hagios Mamas*, Fig. 19, 6).

(2) OLYNTHUS (C₂ on Map)⁵

At Olynthus the Neolithic site lay on a small hill at the southern end of the large flat hill on which was to rise the classical Olynthus. A Byzantine tower and houses with foundations reaching down to virgin soil had in places destroyed the prehistoric strata, which, however, in the south-western side of the hill were found to be undisturbed. When some trial pits and trenches had been dug a continuous area was cleared down to virgin soil. The deposit, in all about 2 m. thick, consisted of three Neolithic strata, separated by burnt layers, and a Byzantine stratum of 0.50 m. above.

¹ The diagram (Fig. 8), however, is based solely on the pits of Group I.

² Cf. diagram, p. 7.

³ Cf. diagram, p. 7.

⁴ The pottery associated with the house remains in Pit N was all E.B.

⁵ Cf. *Olynthus I*, and *Olynthus V*.

In the lowest stratum the foundations, *ca.* 0.80 m. wide, of a hut of trapezoidal shape, its longest wall being 4.35 m., the side-walls 2.90 m., and the fourth wall 3.10 m. with a central opening, was uncovered. The nature of the walling above the foundations is uncertain.

In the second stratum foundations are laid on the debris of the first or sunk through to virgin soil. Of the houses, called C and B, C is a single room and B, adjoining it, has for its south wall the north wall of C from which three parallel walls, two exterior and one interior, run northwards. The two eastern walls (2.40 m. in length) are complete and end in flat stones, which are perhaps foundations for mud pilasters. Unfortunately the northern and part of the western wall are missing. The walls were preserved in places to a height of two courses, and were built of river stones 'of good dimensions', but the foundations were made of very small stones, pebbles, pieces of pottery and pieces of quartz.

In the third or uppermost prehistoric stratum nothing coherent in the way of a building was revealed.

At the extreme south-eastern end of the hill, below a Byzantine wall, an elaborate kiln was discovered. The floor was an oval area of burnt clay measuring 1×0.70 m. with one straight side, and

from 0.05 to 0.08 m. thick. In the centre was a depression 0.75 m. in diameter; below it were traces of a quadrangular pit about 0.70×0.55 m. in dimensions and about 0.50 m. deep. This was the fire-place and the burnt clay area the floor of the kiln. This floor was made by placing a cradle made of beams and twigs plastered with clay above the fire-place, the beams resting on its edges. A fire was lighted in the fire-place which consumed the cradle and baked the clay hard, so that it formed a solid floor. The depression

in the floor allowed the heat and flames to enter the kiln. There does not seem to have been a permanent dome, as there were no indications of walls rising from the edge of

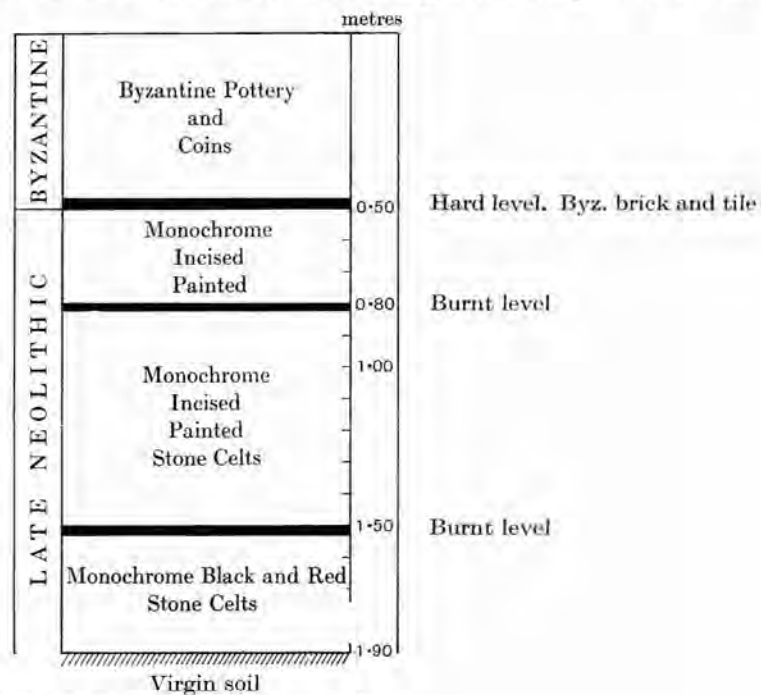


Fig. 9. Olynthus. Diagram to illustrate the stratification.

(Reproduced from *Olynthus I*, Fig. 4.)

the floor. From the fire-place radiated channels to the surface outside the area of the kiln, their exits being found covered with the inverted bases of cooking pots. By means of opening and closing these channels the draught in the kiln could be regulated. All this is extremely interesting and in view of the excellence of the Neolithic pottery an elaborate kiln at this time is quite intelligible. It is unfortunate that the excavator does not tell us what sort of sherds were found lying on the baked floor or what sort were found at the exits of the channels, as this information would remove all doubt as to the date of the kiln.

The pottery from prehistoric Olynthus is almost exclusively Late Neolithic¹. The typical black-polished pottery occurs from the earliest stratum²; the thumb-handles are characteristic in the second and third, where there is also painted ware resembling that from Kritsaná, and incised ware, the counterpart of the painted. The site produced a good many table vases, a few clay and stone figurines, and a large number of celts.

(3) *MOLYVÓPYRGO* (C₁ on Map)³

The hamlet of Molyvópyrgo is situated on the Gulf of Toróne, about 6 km. from Myrióphyto. Beside the scattered houses rise three mounds, which mark the position of the ancient settlements. The largest, a flat-topped table, is the site of Mekýverna, the port of Olynthus⁴. Pottery and other remains of the classical period have been found on the surface, and on the shore below are the ruins of a mole, stretching out into the sea⁵. Immediately to the west are two smaller mounds, of which the northern appears to be entirely natural⁶. The other, which is about 100 m. from the shore and 50 m. from the foot of the Greek city, lies in a grove of mulberries (Fig. 10), but is not cultivated except for a few almond trees on the north-west slope. Before excavation it rose to a height of 8 m. above sea-level and 4.5 m. above the surrounding land, but the owner stated that it had formerly been higher. The excavations proved that the site had originally been a small outcrop of natural gravel, about 3 m. high. Many such are found in the eastern part of the plain of Olynthus, and even to-day the larger stand out among the crops, covered with low thorny scrub. To early settlers the advantages of a slight rise and a drier

¹ At the time of excavation Dr Mylonas showed me a few E.B. sherds, which, if I remember rightly, he said were found at the top of the Neolithic deposit. The Early Iron Age pottery (*Olynthus V*) comes from the large hill.

² Cf. *Olynthus I*, pp. 34-8. Also a few fragments each of rippled, grooved and white-painted; also a 'red-slipped ware' said on p. 34 'to be quite different from the red-slipped Thessalian ware (A1)'; but on p. 50 to be 'similar to Thessalian A1'.

³ Cf. *B.S.A.* xxix, pp. 156-75. The description, plans, etc., of the tomba that follow are by Mr C. A. R. Radford. I am indebted to the Committee of the British School at Athens for permission to reproduce them and also Figs. 10, 12.

⁴ Cf. *A.J.A.* xxxix, pp. 229-31.

⁵ Cf. Wace in *B.S.A.* xxi, pp. 12-15.

⁶ After the excavation we began a series of trial pits on its northern slope. Owing to bad weather the pits were not carried down to virgin soil; but to a depth of .80 m. no indication of occupation was found.



(a)



(b)

Fig. 10. Molyvópyrgo. (a) View from the east; (b) view from the north.

soil would have been obvious in a region where heavy rains are liable to turn the whole countryside into a sea of mud. Olynthus itself, and the *tombea* of Hágios Mámas, its prehistoric predecessor, occupy similar natural outcrops near the centre of the plain, and the site of Molyvópyrgo was probably chosen as the nearest point on the coast suitable for a settlement¹. From the isthmus, as far east as Gerakiní, where the hills, separating the Olynthiac plain from that of Sermýle, reach the coast, the whole shore is low, sandy and in many places marshy, but at Molyvópyrgo a convenient site is combined with a projecting spit of sand which would have afforded a slight shelter in bad weather.

Fig. 11. Four sectors (A, C, D and B) were first opened on each side of the mound, the earth being removed by half-metre levels, measured in each case from the summit (marked *B.M.* on plans, Fig. 11 *a, d*). In Sector A the lowest levels were unproductive and the whole area was not excavated, but the other three were carried down to virgin soil except at the north end of Sector D, where this would have involved the destruction of one or more almond trees. The evidence thus obtained showed that a 'Minyan' settlement had been built on the debris of earlier occupations, the greater part of which had been destroyed. It was therefore decided to uncover the whole of the former, and to explore those portions of the latter which had been least disturbed.

The south side of the mound was almost entirely composed of the natural ground, and yielded no traces of an occupation earlier than the 'Minyan', so that all stratification had necessarily to be based on the deposits from the north side, and even there the levels at the west end had been so disturbed by the roots of the almond trees that they produced little evidence of any value. The following sequence is therefore based on the remains found in Trenches A, A₁, C, C₁ and D, north of the 'Minyan' wall.

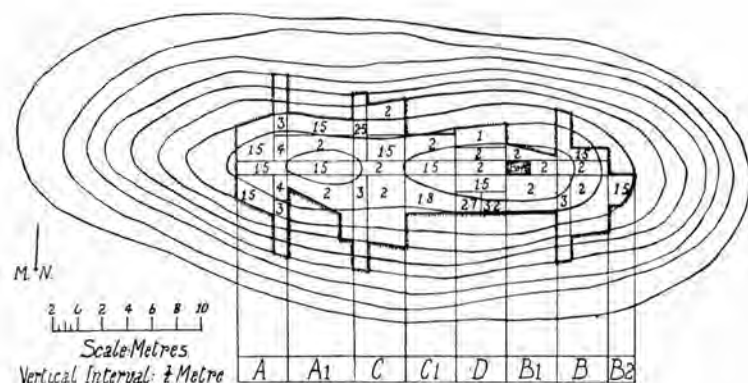
Early Bronze Age. *Settlement 1* extended from virgin soil (3 m. below the summit, or 3½ m. to the bottom of the bothroi) into the fourth half-metre. Structural remains could be traced from Sector A to Sector D.

Settlement 2 covered the rest of the fourth and part of the third half-metres. The only structures traceable were the pavements in Sectors A₁ and C, which showed that there was one reconstruction within the period of the settlement.

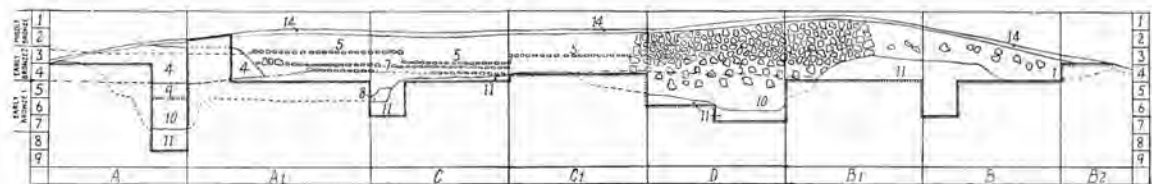
Middle Bronze Age. The 'Minyan' occupation covered the whole area of the mound. Its floor level lay in the third half-metre, and except in one place it reached the modern surface level.

Late Bronze Age. The evidence for this is very slight, but the presence of a rough stone terrace wall with a gravel backing on the north side of the mound (Section

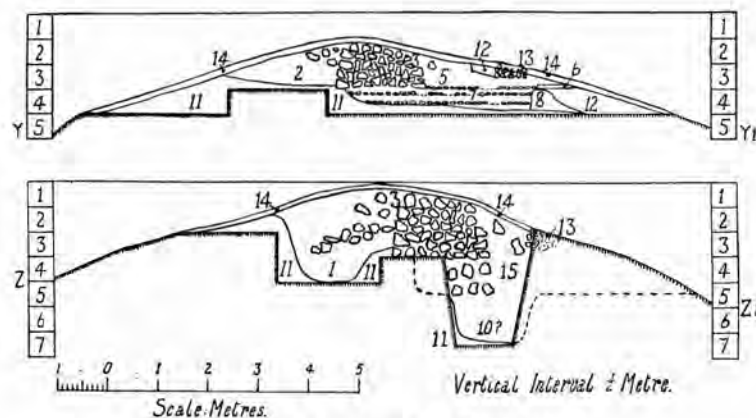
¹ The remains at the old mouth of the Sándanos river cannot be earlier than the Hellenic Period (cf. Struck, *Makedonische Fahrten*, p. 40).



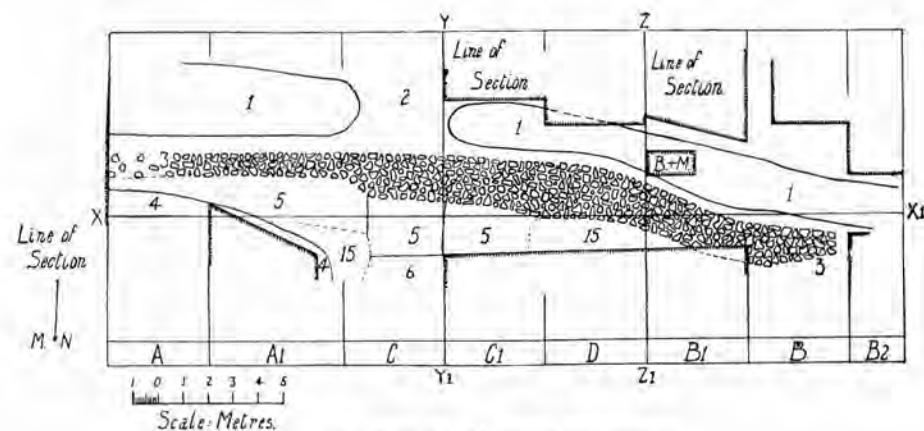
(a) General plan, showing levels reached.



(b) Section along line X-X₁.



(c) Sections along lines Y-Y₁ and Z-Z₁.



(d) Plan of 'Minyan' settlement.

Fig. 11. Molyvópyrgo. Plans and sections.

- | | | | |
|-------------------------|---|---|--|
| 1. Ditch, M.B. | 6. Gravel pavement, E.B., 2nd settlement. | 9. Cobble pavement, E.B., 1st settlement. | 12. Gravel, L.B. (?) |
| 2. Causeways, M.B. | 7. Cobble pavement, E.B., 2nd settlement. | 10. Bothroi, E.B., 1st settlement. | 13. Rough terrace wall, L.B. (?) |
| 3. Wall, M.B. | 8. Mud-brick wall, E.B., 1st settlement. | 11. Natural gravel of mound. | 14. Surface soil. |
| 4. Gravel rampart, M.B. | | | 15. Areas where the soil has been disturbed. |

Y-Y₁, 12-13) suggests a levelling up for another settlement, all evidence of which would have been destroyed when the mound was lowered.

The incomplete exploration of the lower levels and their disturbance at the west end prevent a certain reconstruction of the history of the site, but the following sequence of events seems to be established. The earliest occupation consisted of at least two houses, built on the north slopes of the mound, parts of which had been cut away and levelled for this purpose. The next settlement, of which only a single house could be found, was built on a layer of gravel which had been spread over the earlier debris. It lasted long enough to allow one reconstruction of this building, and it is probable that it extended along the whole northern slope of the mound. The 'Minyan' settlement, consisting of a broad wall with a ditch on the seaward side and pavements behind, was built immediately above its predecessor without any general levelling up, and the absence of any stratum of debris immediately below suggests that there was no break in the continuity of the occupation. The definite layer of stones lying across the ditch (see Section Z-Z₁, which is typical) in the third half-metre shows that the destruction of this wall was deliberate, after which the site appears to have lain derelict. The finds did not enable the date of the last occupation to be established, but the amount of debris lying over the 'Minyan' ruins suggests that a considerable period must have elapsed.

REMAINS OF HOUSES, ETC.

Early Bronze Age. Settlement 1. The remains of two houses, with a floor level at 2.5 m., were found. The much-disintegrated walls of mud brick were about 60 cm. wide with no trace of either stone foundations or wooden beams. The internal width of the eastern house was 5.2 m. and its length about 7 m. Only the southern and eastern walls of the western house could be traced. The natural gravel had been cut away to form level platforms for these buildings, but outside the south walls it had been left, forming a wide bank, of which the surface was at least 1 m. higher than their interior floor level, and a similar bank separated them. A bothros was found near the eastern end of each house, but sufficient evidence was not available to establish the purpose for which they were intended.

Settlement 2. Two successive levels of cobbled pavement, uncovered at 1.8 and 1.6 m., and the remains of a mud-brick wall running across Sector C, parallel to the excavated face of the natural gravel, belonged to a rectangular house about 3.3 m. wide. The only trace of a cross-wall consisted of a few larger stones 2.5 m. from the eastern side of Sector A₁ (see Section X-X₁). Under the lower pavement, in Sector C, was an oval bowl-shaped bothros measuring 2 by 1 m. internally, 40 cm. deep, and lined with stones set in clay. The interior was filled with a greasy deposit of black ash

and charcoal, mixed with broken pottery and a few animal bones, and there can be little doubt that it served as an oven¹.

In view of the incompleteness of these plans, it is useless to explore their relationship to other examples. In the Aegean area rectangular houses occur in the Neolithic and all later periods, and bothroi are found on Early Helladic sites on the mainland. Equally early examples of both these features could be quoted from the regions to the north of Macedonia.

Middle Bronze Age. The principal structure of this settlement was a long wall of undressed stones, 1 m. wide (Figs. 11 *b*, *c*, *d* and 12). It was followed for 27 m., and there were slight traces of a return at the western end, but the eastern part, which was only 50 cm. wide, appeared to have extended beyond the present edge of the mound. The foundations, at 1.5 m., stood partly on the natural gravel rampart, which had been left when the northern slope was terraced for the earlier houses, and partly over the ruins of the previous settlement. Where these did not offer a secure base the foundations were carried down another 70 cm. (see Section Z-Z₁). It is now impossible to determine the original height of this structure, but it stood more than 1 m. above the pavements, and the amount of debris shows that it must have been considerably higher. On the seaward side this wall was defended by a ditch, 1.2 m. deep and 1.5 m. wide, dug into the natural gravel. Sixteen metres from the western end (in Sector C), this was interrupted by a causeway 3.5 m. wide. To the north an area of rough cobbled pavement was uncovered at 1.2 m. Opposite the southern causeway this pavement lay 30 cm. lower and was continued by a gravel layer stretching back to the edge of the mound. The north-eastern boundary of the cobbles was marked by a slight gravel rampart, 20 cm. high, running obliquely from the end of the wall to the edge of the causeway, but its limits to the north-west could not be defined. The occurrence of the two causeways and the lesser height of the wall at that point suggest that it was there pierced by an entrance.

The plan of this settlement is incomplete, and the strength of the wall and ditch facing the sea contrasts strangely with their entire absence on the other sides. The



Fig. 12. Molyvópyrgo. M.B.; wall of 'Minyan' settlement from south-east.

¹ Cf. Mylonas, *Ἡ Νεολιθικὴ Ἐποχὴ ἐν Ἑλλάδι*, pp. 161-4, who shows that in Chalcidice 'bothroi' are still used for this purpose by the refugees from Asia Minor. It seems possible that some, where there are no traces of fire, may have served as storage pits. Cf. Blegen, *Korakou*, p. 75.

intrusive type of pottery, which appears in this stratum, renders it almost certain that the purpose of the wall was defensive, and it may be conjectured that the plan was completed by palisades on top of the low gravel rampart noted on the north-east, or even by a return wall, of which a suggestion was found at the west end, where the presence of the almond trees prevented further investigation.

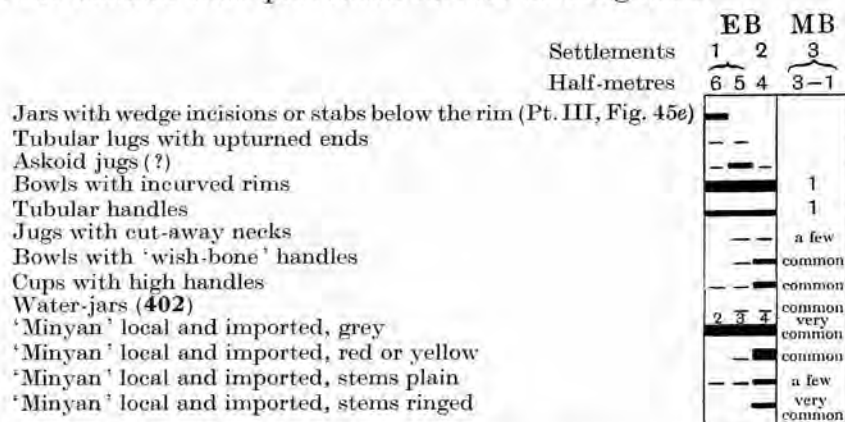


Fig. 13. Molyvópyrgo. Diagram to illustrate the incidence of the principal wares.

— = 1 or 2; — = 3 or more; ■ = 10 or more.

1. Includes half-metre 3 in Sector A₁.
2. One wheel-made.
3. Two wheel-made.
4. Out of ca. 100, 10 seem to be wheel-made.

Late Bronze Age. Except the terrace wall no structure could be attributed to this Period.

As far as non-structural remains are concerned, only the two periods, Early Bronze and Middle Bronze, are represented, the remains of periods Late Bronze and Early Iron consisting of only four or five sherds respectively. The ceramic change between the Early Bronze and Middle Bronze Age agrees with the stratigraphic change represented by the building of the wall and the laying down of the third cobble pavement.

The Early Bronze Age has two distinct levels; the lower is that which lies underneath the lowest of the three pavements in Sectors A₁ and C, and, by inference, the corresponding level in Sectors D and B where no such pavements have been preserved. The upper level is the pavement area, i.e. what lies between the highest and the lowest pavement in Sectors A₁ and C (where it includes an intermediate pavement); the corresponding level in Sector C₁ (where only the topmost pavement exists and where virgin soil occurs at 1.80 m.); and the corresponding level in Sector D¹.

An analysis of the pottery shows that while that of the Middle Bronze level is almost exclusively Minyan, that of the Early Bronze levels contains a Minyan

¹ Sectors A, B₁, B₂, being disturbed, are disregarded; also B above 2 m.

element, mostly 'Proto-Minyan' (i.e. Early Bronze pottery which anticipates Minyan); but with a small quantity of the developed Minyan characteristic of the Middle Bronze level, which in the Early Bronze level must be intrusive. The relation of the 'Proto-Minyan' to the developed Minyan is discussed below, p. 89, p. 123.

(4) *KRITSANÁ* (C_3 on Map)¹

The *toumba*² of Kritsaná lies on the south-western coast of Chalcidice, about 6.5 km. south-east of the village of Epanomé, and a similar distance to the east of the cape of that name. The *metóchi*, after which the *toumba* is named, lies about 2 km. inland, beside the road leading from Salonika and Epanomé to Myrióphyto and the interior of the peninsula. The small stream, which enters the sea at the foot of the mound, is dry during the greater part of the year, but fresh water can be obtained in many places at a slight depth³. The south-western coast of Chalcidice is fringed by a narrow undulating plain, which gradually rises to the barren stony foothills. The fertile lower parts of this plain are well cultivated. Till recently the greater part belonged to the monasteries of Mount Athos, and their *metóchia*, now falling into decay, form the nuclei around which refugee villages have sprung up.

The *toumba* is a pear-shaped mound, with its longer axis 41° west of north (Figs. 14, 15). The greatest measurement is 82 by 53 m. The summit, near the southern end, rises to a height of 18 m. above sea-level and 12 m. above the surface of the surrounding fields. The *toumba* has suffered little from later disturbances. At the foot of the north end and of the two sides the base has been cut into by the plough. On the summit is a small levelled area, probably a modern gun-platform, while the two scooped out hollows on the southern slopes may represent the contemporary shelters erected for the gun crew. On the east of the *toumba* is a river bed, dry for the greater part of the year. This has formed a slight delta at its mouth so that a stretch of sand, 150 m. wide, now separates the *toumba* from the sea.

Figs. 16–18. The main series of Pits (A–F) was set out along the northern side at a distance of 50 cm. from the major axis in order to test the stratification of the higher part of the *toumba*. They showed that six successive settlements had occupied the top of a natural mound, rising 14 m. above the level of the surrounding plain. The surface of the undisturbed soil in all these trenches suggested that the top of the mound had been levelled by the first settlers. Trenches H and I (Fig. 20), dug farther down the same side and at a distance of 2.50 m. from the axis, showed that the earlier settlements extended as far as these trenches. A sharp dip in the level of the natural soil suggested that the side of the mound had been terraced. This was

¹ = Rey, 'Aponomi, Toumba 3', I, p. 163, and Fig. 129.

² The following description, plans, etc., of the site are by Mr C. A. R. Radford.

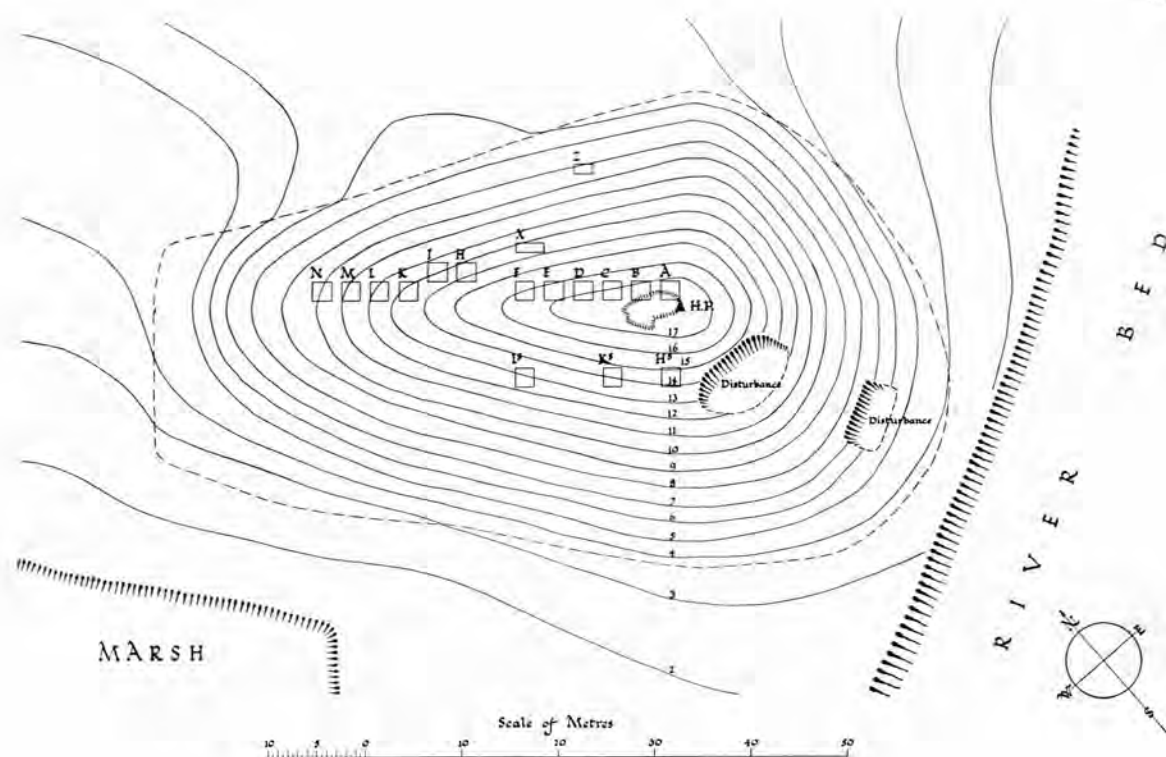
³ The nearest modern well is distant 200 m., and there are several others along the coast about 100 m. from the shore.



Fig. 14. Kritsaná. View from the south.

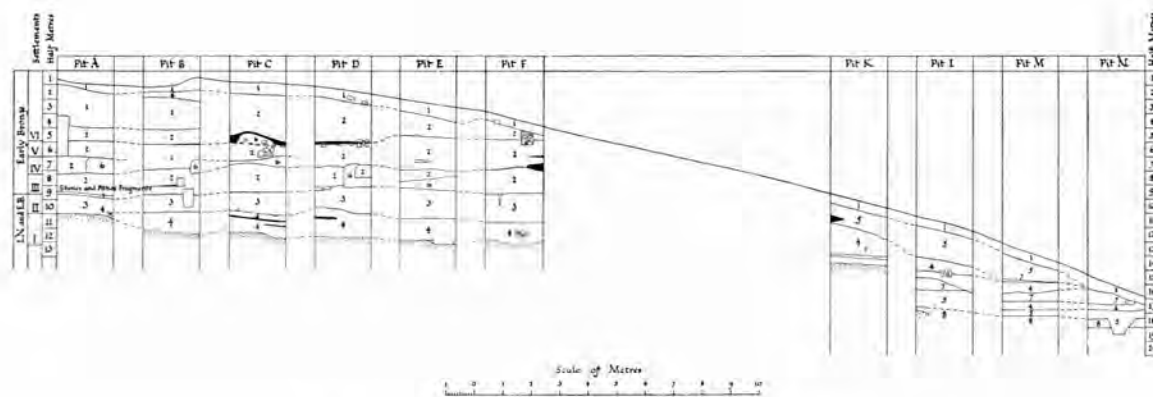


Fig. 15. Kritsaná. View from the west.



KRITSANA

Fig. 16. Kritisana. Plan.



KRITSANA

Fig. 17. Kritisana. Internal faces of Pits A-F, K-N.

confirmed by Trench K, which was dug farther down the same side at a distance of 0.50 m. from the axis. Here the same stratification was observed, the natural soil showing a flat surface at approximately the same level as in the lower part of I. Only the first two settlements were represented in these trenches. Above them was a stratum of looser soil of a darker colour, with no traces of structural remains *in situ*. At this level there was no marked stratification, but irregular bands of discoloration inclined at various angles were noted. These bands, coupled with the absence of any horizontal surface, must mean that this stratum represents an accumulation of rubbish dating from a period subsequent to the main occupation of the tomba, an indication which is confirmed by the appearance of later artifacts.

In the three trenches on the south side of the tomba (H^s , K^s and L^s) natural soil was reached under a few cm. of humus. Occupation levels extending to a depth of 4.50 m. below bench mark, and similar to those on the other side, were found only on the extreme inner margin of K^s . It is clear that when the top of the natural mound was levelled, the seaward side was left as a rampart¹, standing to a height of some 1.50 m. above the level of the earliest settlement (Fig. 19). In Trenches X and Z,

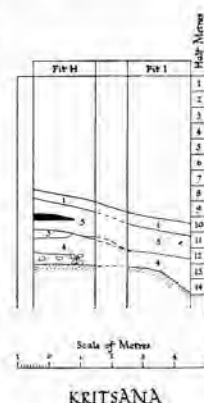


Fig. 18. Kritisana. Internal faces of Pits H, I.

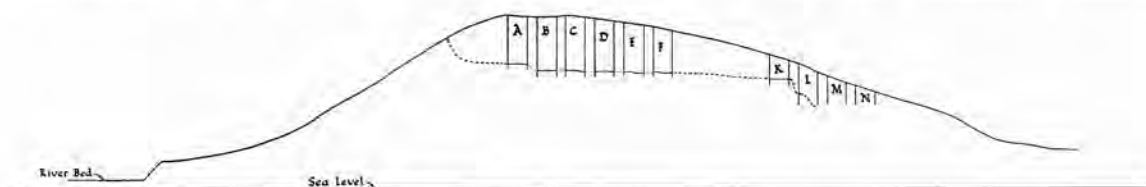


Fig. 19. Kritisana. Section along east-west line.

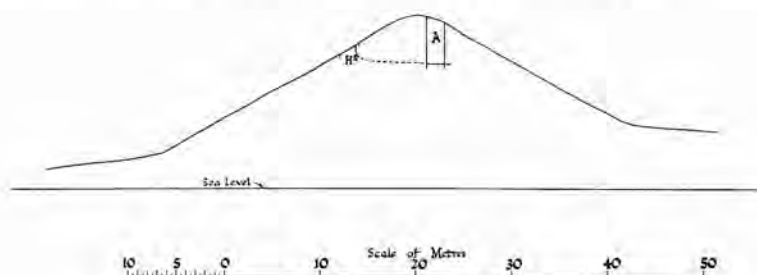


Fig. 20. Kritisana. Section along north-south line.

which were dug in order to test the lower slopes of the tomba, no remains of houses were found *in situ*. The upper layers consisted of loose debris similar to that at the

¹ The sections at Molyvópyrgo suggest that a similar rampart was left on the seaward side of the first settlement on that site (Fig. 11c).

top of H-K. Below this was a thin deposit which may represent the undisturbed remains of the settlements.

Beyond K the series of trenches, north of the major axis, was continued down the slope (L-N). Between K and L, separated by only 1 m., a drop of 2 m. in the level of the natural soil was noted. The strata in these trenches differed considerably from those in the upper part of the *toumba*. At the bottom was a layer of water-worn pebbles, sand, etc., representing a river bed with a surface 8.70 m. below bench mark. On the side of L, nearest to the mound, this was 0.10 m. in depth. In M and N it exceeded 1 m., and the bottom was not reached. No artifacts were recovered from this stratum except where the remains of the overlying occupation had penetrated into the pits and hollows with which the surface was scored. This occupation level was about 60 cm. thick with slight remains of houses *in situ*. It was sealed by a layer of clay, stones and gravel about 60 cm. thick and apparently water-borne. This was, in turn, overlaid by a stratum of rubbish similar to that at the top of Trenches H-K. The contours show that the present river once reached the sea on the western side of the mound, and the sudden floods, of which there is evidence in other parts of the valley, would easily account for the destruction of the village found at the bottom of these pits. The sudden drop in the level of the natural soil, noted between Trenches K and L, would be explained as a slight cliff, similar to those fringing the modern river bed. The finds from these trenches show that the settlement at the foot of the *toumba* belongs to the Late Bronze and Iron Ages.

The history of the settlement may be provisionally reconstructed. The site was first occupied during the Late Neolithic period, the settlers choosing a natural mound. The summit was levelled leaving a rampart, 1.50 m. high, on the seaward edge. Behind this rampart the slope of the mound appears to have been terraced. The village, even allowing for the subsequent erosion of the *toumba*, can never have been large and probably consisted of less than a dozen houses. Five further settlements succeeded the first, each being built on the ruins of its predecessor. The causes of this successive rebuilding could not be ascertained except in the case of the third and fourth villages which were destroyed by fire. This does not necessarily indicate a hostile attack, as the crowded arrangement of the site would have made it an easy prey to a chance spark during the dry season. The last village ended within the Early Bronze Age after which the *toumba* remained deserted. During the sub-Mycenaean or the Early Iron Age there was a slight occupation at the base of the northern slopes of the mound.

The traces of houses at Kritsaná were very fragmentary. Large masses of burnt clay were found in many places in the Neolithic settlement, and could often be traced through several trenches at approximately the same level. They represent the burnt daub from wattle and daub houses, but in no case were the remains sufficient

B. CENTRAL MACEDONIA

THE VASILIKÁ VALLEY¹(1) *GÓNA* (*V₃* on Map)²

Between Galátista and Vasiliká the Vasiliká river flows through a narrow valley, but west of Vasiliká, as the hills recede, through an alluvial plain, 5 km. wide, until it reaches the sea. In the foothills that surround the plain and in the plain itself are nine *toumbas* and seven tables, two of which lie alongside the *toumbas*.

Góna lies towards the north end of the plain, about 1 km. south of the point where the roads to Epanomé and to Galátista divide, and close to the present course of the Vasiliká river. The site is now $1\frac{1}{2}$ km. from the sea, but in all probability at the time of its first occupation was much nearer, if not actually at the mouth of the river. Excavations were made here at various dates in 1916 and 1917 by the Archaeological Service of the French Army. The method of excavation was by means of (1) a gallery 34 m. long at present ground-level running from the north side of the mound to the centre; (2) by a subsidiary gallery running at right angles to (1); (3) by two soundings made in the principal gallery, one of which was carried down to water-level; (4) by a trench about 7 m. long running westwards from the highest point of the mound. This trench was carried down to a depth of 6.45 m. along its whole length and then reduced to a sounding measuring 3.60×2.50 m. at the top and gradually narrowing to 1 m. square at the bottom, which was 16.05 m. below the summit; (5) cuttings on the slopes.

Two main strata were distinguished with numerous occupation levels; (A) from water-level, where piles were found associated with the lowest settlement, to a point 9.15 m. below the summit; (B) the remainder of the deposit.

These piles are the most interesting of the structural remains. They were deeply buried in the moist soil, and, according to Rey, the manner in which they supported the stone wall seems to indicate that the lowest level belongs to a lake settlement.

To the upper stratum (B) belong terraces of sun-dried brick.

On the adjacent table, below a stratum (D) 2 m. thick containing Byzantine and Roman remains, was a second stratum (C), likewise 2 m. thick.

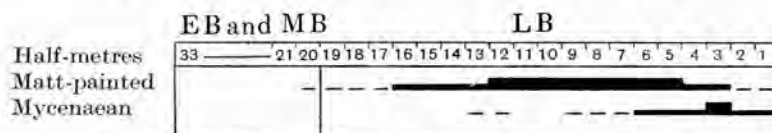


Fig. 22. *Góna*. Diagram to illustrate the incidence of matt-painted and Mycenaean wares (adapted from Rey, I, p. 229).

— = rare: — = common: — = very common.

¹ Cf. Rey, I, pp. 127–61.

² Cf. Rey, I, pp. 141–50; Figs. 117–20 and Pls. XVII–XX.

The finds are classified according to their strata, Stratum A containing 'céramique primitive', Stratum B containing 'géométrique prémycénienne'¹ and 'céramique mycénienne', Stratum C (on the Table) 'géométrique postmycénienne'; from the diagram² it is to be inferred that Stratum A (16.50–9.15 m.) represents the Early and Middle, Stratum B (9.15 m. to surface) the Late Bronze, and Stratum C (Table) the Early Iron Age. Some sherds from the *toumba* suggest that it too continued to be occupied after the beginning of the Iron Age.

(2) *SÉDES* (*V*₄ on Map)³

This *toumba* lies in the extreme north corner of the plain, 1 km. north-east of the village of Sédes and on the west bank of a torrent bed. Four soundings were made here by the Archaeological Service of the French Army:

(1) From the summit to a depth of *ca.* 16.50 m. (virgin soil). This pit measured 5.40 × 2.80 m. at the top, narrowing to 1 m. square at the bottom.

(2) (3) (4) Soundings on the north, east and west slopes, the two latter being carried down to virgin soil.

In the main pit (1) four strata were revealed, the lowest (A) 12 m. thick, the next (B) 2 m., the next (C) 1.45 m., and the topmost (D) 0.90 m.

There were the usual occupation levels, actually estimated at twenty, and in Stratum B terraces of sun-dried bricks as at Góna. Individual bricks were 0.07–0.08 m. thick, 0.28 m. wide and perhaps 0.35 m. long, the joints between them being *ca.* 0.02 m. thick.

From the diagram⁴ it is evident that Stratum A contained Early and Middle Bronze Age remains: a certain quantity of Neolithic sherds were also found, but whether mixed with the Bronze Age or in a separate stratum is not stated. Stratum B belongs to the Late Bronze, Stratum C to the Iron Age. D is Hellenistic.

On the table, which had a total deposit of 2 m., a stratum of the Iron Age was found at a depth between 0.50 and 1 m. from the surface, below Hellenistic. Had the trench been carried down to virgin soil, the remaining metre would presumably have been found to contain remains of an early phase of the Iron Age, as at the tables of Góna and Vardaróphsa.

THE PLAIN OF SALONICA⁵

Five *toumbas* are recorded in the plain of Salonica, i.e. in the area bounded by the Gallikó basin on the west, by Karabournou on the south, and by the low encircling hills on the north and east; of these *toumbas* three are in the plain and two in the foothills.

¹ Matt-painted.

³ Rey, I, pp. 154–61, Figs. 121–6 and Pl. XXI.

⁵ Cf. Rey, I, pp. 91–112.

² Cf. Rey, I, p. 299.

⁴ Cf. Rey, I p. 158.

(1) *KALAMÁRIA* (*S₁* on Map)¹

Like Vardaróphtha, the site of Kalamária consists of a toumba with adjacent tables. It lies $1\frac{1}{2}$ km. from the sea, about 2 km. south of the Arch of Galerius, in the suburb of Salonica now called Toumba, at a point where the foothills of Hortiáte reach the plain.

The toumba was explored by Makridy Bey before the war, by means of a gallery on the south slope, 2.50 m. wide and 32.50 m. long. His finds have not, as far as I know, been published, but from sherds collected at various times on the surface it may be inferred that the toumba contains strata of all three periods of the Bronze Age. There are many good pieces of Middle Bronze and Late Bronze matt-painted and incised from here in the collection of the British School at Athens.

(2) *LÉMBET* (*S₂* on Map)²

On the Sérres road, 4 km. from Salonica.

A trench was dug here by Makridy Bey from a point about half-way down the west slope to the centre, at which point a pit was sunk, to at least 9.50 m. below the highest point of the mound. The incidental finds have not been published, but sherds published by Rey, and others in the British School collection at Athens, show that all three periods of the Bronze Age are represented, more especially the Middle Bronze by some good specimens of incised, and the Late Bronze by matt-painted ware.

(3) *KAPOUTZÉDES* (*S₃* on Map)³

About 3 km. east of the village of Kapoutzédes, and 700 m. north of the Salonica-Hortiáte road, between two ravines.

The depth of the deposit is about 4.40 m. A pit dug from near the centre was carried down to virgin soil.

Two strata were distinguished: the lower (B) 1.90 m., the upper (A) 2.50 m. thick. In the latter, bricks similar to those from Góna and Sédes were found.

Both strata are assigned by Rey to the pre-Mycenaean Period, and, going a step farther, we may assign A to the Early and Middle Bronze and B, on the analogy of the other sites where similar bricks have been found, to that phase of the Late Bronze Age which preceded the Mycenaean⁴. But since a good deal of the deposit has been washed away it is quite possible that the upper stratum covered the whole of the Late Bronze Age, and the absence of Mycenaean is merely due to chance⁵.

Neolithic polychrome sherds were also found here, but as in the case of Sédes it is not known whether there was a thin Neolithic stratum or the Neolithic and Early Bronze were associated in one and the same stratum.

¹ Cf. Rey, I, pp. 100-4, Figs. 82-4 and Pl. XV.

² Cf. Rey, I, pp. 105-8, and Figs. 85-7.

³ Cf. Rey, I, pp. 91-6, Figs. 73-8 and Pl. XIV.

⁴ There is one matt-painted sherd from here in the collection of the British School.

⁵ There is one Mycenaean sherd from here in the collection of the British School.

THE LANKADÁS BASIN¹

The Lankadás plain forms the western end of the Beshik Valley. It is enclosed by hills on all sides except the east. The natural drainage is imperfect, and in winter large parts of the plain are waterlogged. Yet the Early Bronze Age people placed some of their settlements in the plain and if, as seems likely, the lakes have shrunk, some of these settlements must have stood in the water. Actually all the mounds have the appearance of being prehistoric, as the only one so far explored—Saratsé—was found to be.

(1) *AIVÁTE* (*L₁* on Map)²

Lies about 2 km. west of the exit of the Dervéni Pass at the foot of the hills.

Aiváte, though not explored archaeologically, may be mentioned here, because of an interesting find of Neolithic pottery made here during the War: in the walls of a dug-out on the slope north of the village two pockets, one containing black-polished and the other red-on-white sherds were found. The black-polished certainly, and the red-on-white probably, belong to the Late Neolithic Period, and a few painted sherds of the same period were found at Saratsé³.

(2) *SARATSÉ* (*L₅* on Map)⁴

The tomba of Saratsé stands about 5½ km. west of Lake Lankadás, and 1 km. south of the village of Saratsé, which, now occupied by refugees, was formerly one of a group of 'tchiftliks', centring round Lankadás.

The principal attraction to the first settlers must have been the agricultural wealth, but the discovery of gold in the earliest stratum suggests a connection with the workers of the gold-bearing deposits of the Gallikó, even if the nearer rivers did not then contain alluvial gold.

The tomba lies near the point where several routes radiate from the northern exit of the Dervéni Pass⁵. These are: (1) the road from Salonica to Sérres and the Struma valley; (2) the road from Salonica to Stavrós and the east (the line of the Via Egnatia); (3) one or more routes leading north-west by easy crossings into the Gallikó and Axiós valleys.

Saratsé is a large, circular, flat-topped mound, 20 m. high (Figs. 23, 24). The

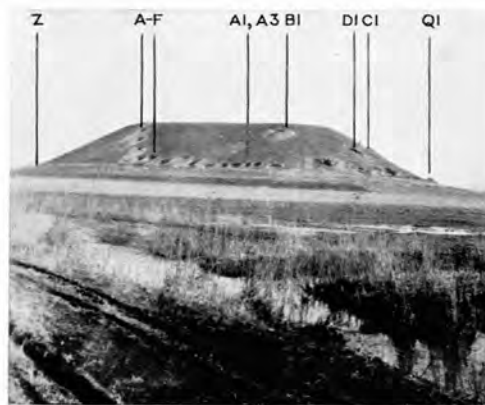
¹ Cf. Rey, I, pp. 112–27.

² Cf. *B.S.A.* xxiii, pp. 13–15; this site must be distinguished from the tomba and table of Aiváte (*L₂* on map), which lie south-west of the village: the tomba was tunnelled during the War but not excavated (cf. Rey, I, pp. 117–19 and Fig. 94).

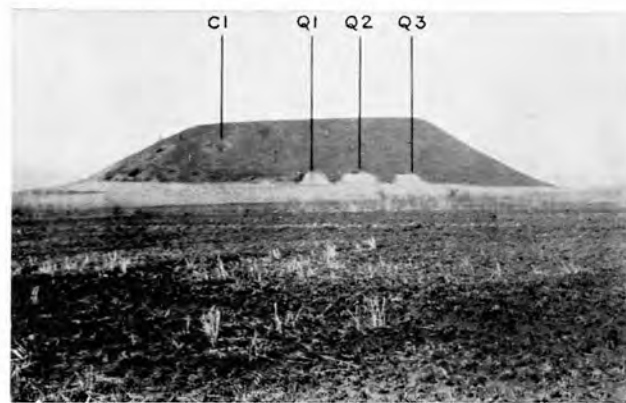
³ Pt. III, Fig. 20.

⁴ Cf. Rey, I, pp. 120–1 and Fig. 96; *B.S.A.* xxx, pp. 113–50.

⁵ Cf. *B.S.A.* xxx, p. 115, Fig. 1. The description of the mound is by Mr C. A. R. Radford, and is reproduced, practically word for word, from *B.S.A.* xxx, by permission of the Committee of the British School, which has also given permission for the use of Figs. 23–25.



(a)



(b)



(c)

Fig. 23. Saratsé. Views from (a) south; (b) east; (c) north.

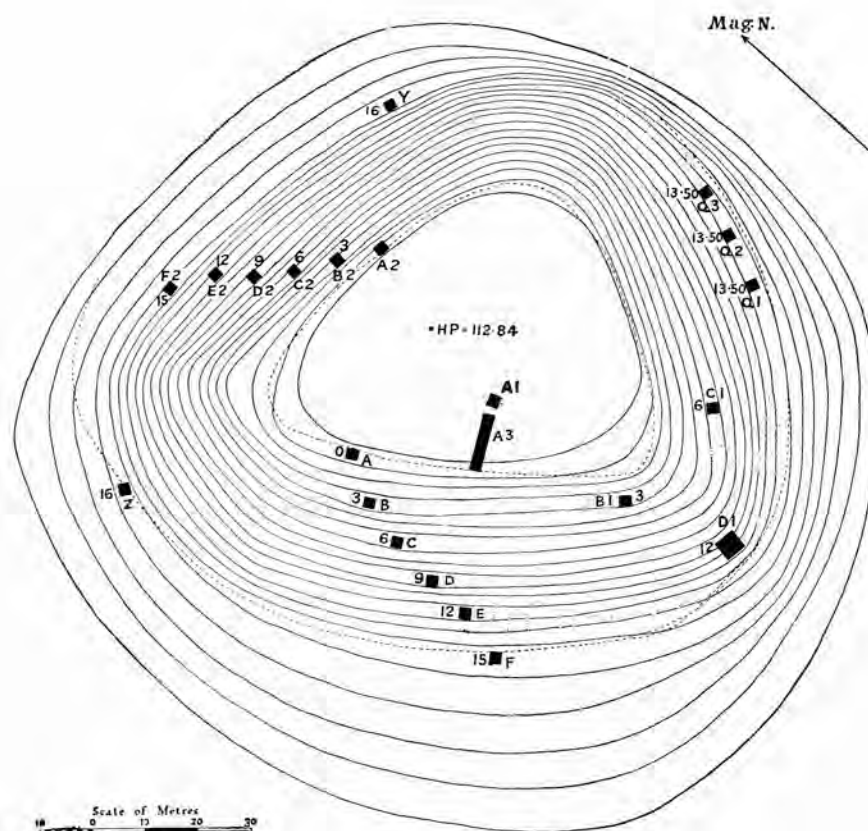


Fig. 24. Saratsé. Plan¹. Vertical interval one metre. Heights marked in metres below top of Pit A (= 68 cm. below highest point). Top of Pits A₁ and A₃ is 48 cm. below highest point.

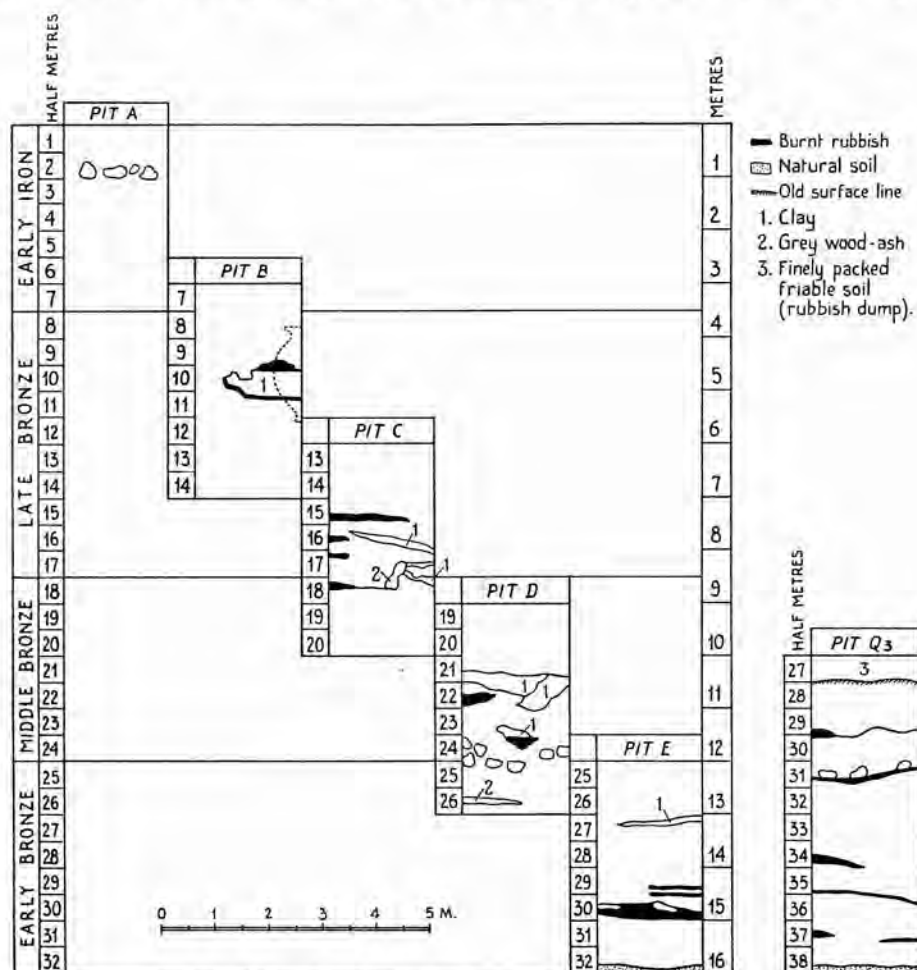


Fig. 25. Saratsé. Internal faces of pits.

¹ Made by Miss W. Lamb.

bottom is about 150 m. in diameter, and the top, which is roughly triangular, measures 60 by 48 m.

The sequence of cultures represented in the *toumba* was investigated by means of two series of pits (each 2 m. square), one (A–F) on the west (Fig. 23*a*), and the other (A₂–F₂) on the north slope of the mound (Fig. 23*c*). Each series consisted of six pits, starting at vertical intervals of 3 m., and carried down to a depth of 4 m. so that the finds from the surface levels might be disregarded. The *toumba* was also tested at other points (Pits A₁–D₁) (Fig. 23*a*) in order to test the results, and by Pits Q₁, Q₂, Q₃ (Fig. 23*b*), Z (Fig. 23*a*) and Y (Fig. 23*c*), in order to ascertain whether a Neolithic occupation preceded the earliest Bronze Age settlements. An extensive trial pit (A₃) (Fig. 23*a*) was opened on the summit in a search for evidence which might have established more clearly the date at which the site was finally abandoned. In the western series of pits (Fig. 25) the stratification was satisfactory. Virgin soil was found in Pit E, near the bottom of the thirty-second half-metre. The sixth pit (F), which was dug at the foot of the mound, lay outside the area of the settlement, and the deposit in this area consisted of rubbish and detritus from the slopes, without any clear stratification. The pits contained soil mixed with pottery and other artifacts, and marked at intervals by badly defined occupation levels, with few traces of structural remains. The soil in the upper strata was light, brown and very friable, containing a large proportion of disintegrated mud brick, but below the eighteenth half-metre it became denser and darker, with black stains representing decayed vegetable matter. Virgin soil was a stiff brown clay, very similar in appearance to the lowest occupation levels, since its top half-metre was also heavily stained with decayed vegetation, but below this point the clay was undisturbed. The sequence of finds from these pits was confirmed by that from Pits A₁–C₁, but D₁ proved valueless, as it had been disturbed by later buildings.

In the northern pits (A₂–F₂) the soil was fine, and was very loosely packed. There was no trace of any structures, but pottery and other finds were numerous. The strata ran downwards, following the slope of the *toumba*, not horizontally as in the other pits, and many of them were marked by a hard surface line which must, at some time, have formed the side of the mound. Mycenaean and sub-Mycenaean pottery were found in the lowest levels of these pits. It is certain that this area did not form part of the original settlement, and it seems most likely that it forms the rubbish dump of the Mycenaean inhabitants. No Neolithic occupation was discovered in any of the pits Q₁–Q₃ (Fig. 25), the earliest Bronze Age settlements lying in every case immediately above the virgin soil. The different levels at which the undisturbed clay was found in these pits prove that the site was originally a low mound rising at least 3 m. above the surrounding surface.

The summit of the mound (112.84 m. above sea-level) is 68 cm. higher than the

top of Pit A, from which the other pits and the half-metres are measured. In order to facilitate reference, all pits starting at the same level have been labelled with the same letter.

In default of marked stratigraphic levels, the system of classification of the finds is based as elsewhere on ceramic changes. The analogy of other sites shows that the course of events at Saratsé is, with certain local variations, the same as in the Axiós valley, and to a less degree in Chalcidice, and the periods are determinable by the same, if somewhat less clearly marked, changes. Thus Period B is ushered in by the cessation of the bowls with incurved rim and their almost complete replacement by the bowls with wish-bone handle (a form which occurs, however, in the upper part of the preceding stratum), and by a development of the first incised style. Period C is less easily determined, but the elements which distinguish it elsewhere, viz., the appearance of Mattmalerei and the transition to a more carelessly executed incised decoration, are just sufficient to permit a line of demarcation. The beginning of the Iron Age is placed at that point where the characteristic jugs with cut-away necks and with twisted handles begin to appear.

Four periods are thus obtained: an Early (A), Middle (B) and Late (C) Bronze Age, and an Iron Age (D)¹.

The standard sequence is based on the Pits A-E, supplemented by Pits A₁-C₁. Material for the Early Bronze Age was greatly amplified by the deposits in Q₁, Q₂, Q₃, of which Q₃ was found to be quite, and Q₁ and Q₂ almost uncontaminated, and by Pit Z: similarly, material for the Iron Age was enlarged by the finds from A₃, though this was only carried down to the bottom of the third half-metre. The Mycenaean material comes almost entirely from the unstratified Pits A₂-E₂.

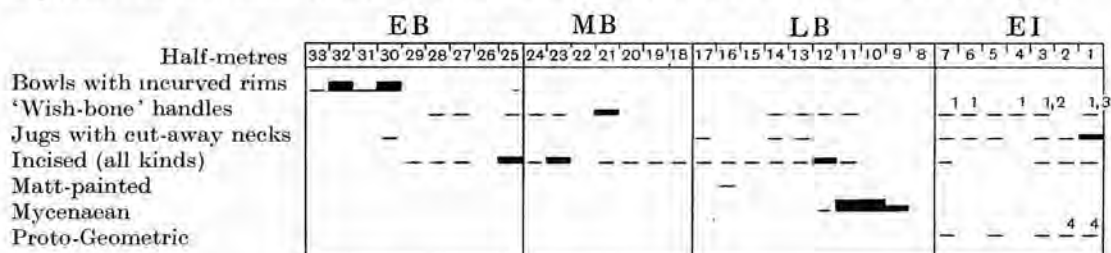


Fig. 26. Saratsé. Diagram to illustrate the incidence of principal wares, etc. (based on Pits A₁, B-E).

— = 1 or 2: — = 3 or more: — = 10 or more.

1. Iron Age form.
2. Painted.
3. Incised.
4. Concentric circles or semicircles.

The following wares served to distinguish the Periods²:

- E.B. Virgin soil to *ca.* 12 m. Bowls with incurving rims.
 M.B. 12 to 8.50 m. Incised (curvilinear).

¹ A few L.N. painted sherds were found on the surface or in an unstratified context. (Part III, Fig. 20.)

² Based on Pits A-E, A₁-C₁.

L.B.	8.50 to 3.50 m.	Incised (curvilinear, careless style).
E.I.	3.50 to surface	Jugs with cut-away necks and with twisted handles, Proto-Geometric, etc.

THE GALLIKÓ VALLEY¹

There are many *toumbas* along the course of this river. Eight are recorded by Rey, of which seven lie south of Salamanlé. Farther north a prehistoric site has been identified at Giánnes². None of the sites have been excavated.

THE AXIÓS VALLEY³

In this valley Rey records nine *toumbas*, five of which lie close to the banks of the river, the rest at varying distances, the farthest being Saribazár (*Toumba A*), *ca.* 7 km. to the east. Since, however, the former basin of Lake Ardzani is continuous with the Axiós valley, Tsaoutsítza and Kilindír, which belong geographically to that basin, may also be included here.

I take the sites in order from north to south, beginning with Kilindír.

(1) *KILINDÍR* (*A₁* on Map)⁴

About 9 km. due south of Lake Doiran, situated on the north edge of a low escarpment overlooking the Gyol Ayak, a small stream which flows from Lake Doiran into Lake Ardzani.

The mound is about 80 m. in length by 30 m. in width, with an artificial deposit of 6.50 m.

Two strata were revealed. The lowest lay between virgin soil at 6.50 m. and a thin burnt layer at 5.80 m. below the summit. The upper consists of the rest of the deposit, which the excavator separated into three subdivisions on the grounds not of stratigraphic but rather of ceramic changes. No coherent architectural remains were found. Relying on the excavator's description and in the light of our increased knowledge of Macedonian pottery we can say that the ceramic history conforms to that of other sites and can re-divide the deposit as follows:

E.B.	Virgin soil to <i>ca.</i> 5.80 m.	Bowls with incurving rim, askoi.
M.B.	5.80 to 2.50 or 1.25 m.	M.B. incised and transitional to L.B. incised.
L.B.	1.25 to surface	L.B. incised ⁵ , matt-painted and some Mycenaean ⁶ .

It should be noted that Early Bronze pottery appeared in the lowest levels of the Middle Bronze deposit also, and the change from Early Bronze to Middle Bronze seems to have been gradual.

¹ Cf. Rey, I, pp. 55-90.

² Cf. *B.S.A.* xxiii, p. 60, 5.

³ Cf. Rey, I, pp. 21-53.

⁴ Cf. *Ant. Journ.* vi, pp. 59-72.

⁵ 'Advanced Incised style proper' of the excavator's report.

⁶ Including fragments of a stirrup-vase (not published).

Similarly the transition from Middle Bronze incised to Late Bronze incised seems to have been taking place before the end of the Middle Bronze Age. All this conforms with the evidence from Saratsé, where the passage from one age to the next was effected by gradation, and, to all appearance, less abruptly than at Vardaróphtsa.

The Late Bronze deposit was particularly rich in examples of matt-painted ware.

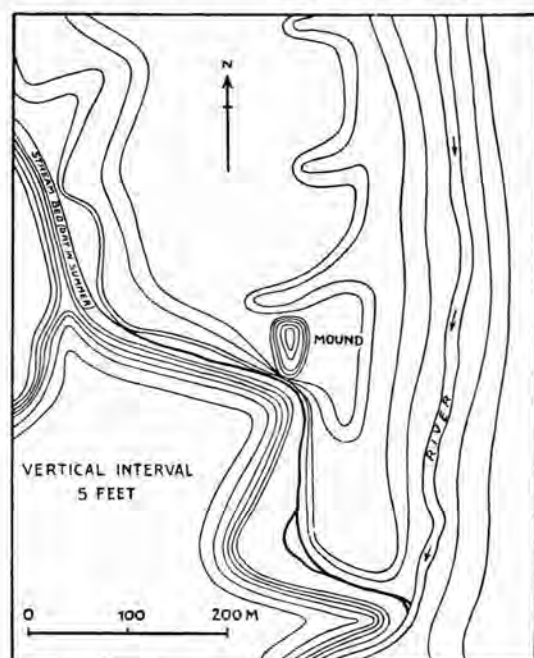


Fig. 27. Kilindir. Sketch plan showing position of site¹.

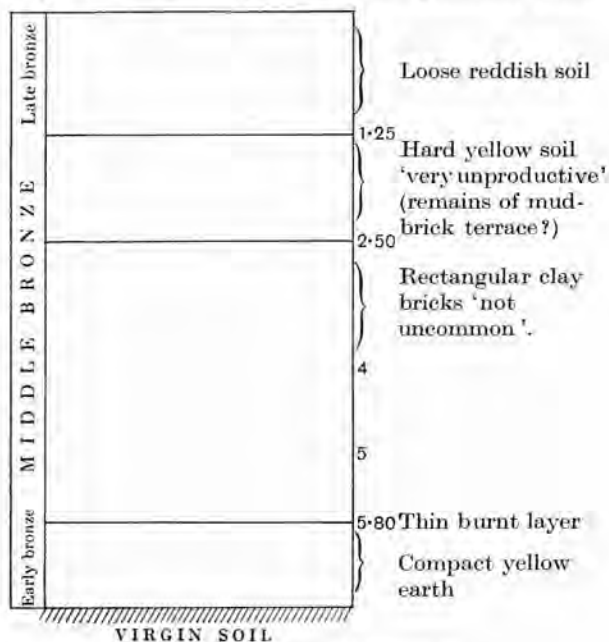


Fig. 28. Kilindir. Diagram to illustrate stratification.
Adapted from *Kilindir*, Fig. 3.

(2) TSAOUTSITZA (A₂ on Map)²

Between Karasoúli and Lake Doiran there is a range of low hills running north-east and south-west parallel to the north shore of Lake Ardzani from which they are separated by a narrow strip of low-lying ground. About mid-way in this range is a gap, and in the gap stands the toumba of Tsaoutsitza, flanked by ravines. The Iron Age cemetery lies between it and the lake.

The toumba was excavated over an area of 5 × 12 m. and found to consist of a deposit 3.80 m. deep, with two principal strata; the lower, *ca.* 1.50 m. thick, showed traces of perhaps three occupation levels, the last of which was marked by a thin burnt layer: the upper stratum extended from this layer to the surface.

No structural remains are recorded.

From the pottery, which included some fine specimens of incised, some matt-

¹ From *Kilindir*, Fig. 2, by permission of the Society of Antiquaries.

² For the toumba, which has not been fully published, cf. *Archaeologia*, LXXIV, pp. 77–81. For the cemetery, cf. *B.S.A.* XXIV, pp. 1–33; XXVI, pp. 1–29.

painted ware and one Mycenaean sherd¹, it is clear that we have to do with an occupation dating from the beginning of the Late Bronze Age and lasting, perhaps continuously, to the fourth century B.C.

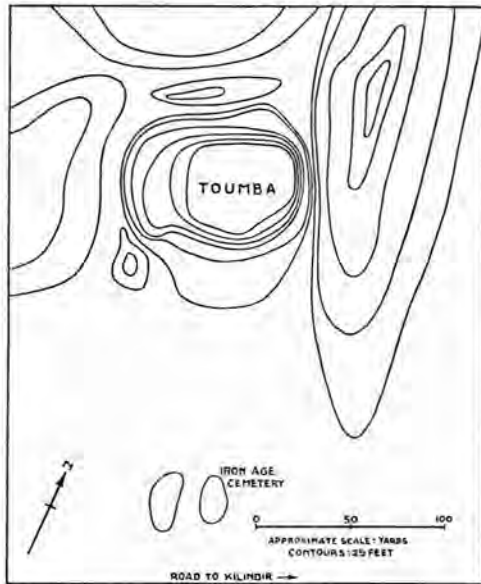


Fig. 29. Tsaoutsitza. Sketch plan, showing position of tumba and cemetery².

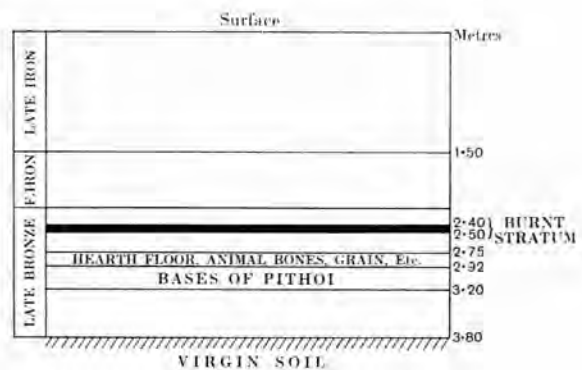


Fig. 30. Tsaoutsitza. Diagram to illustrate stratification³.

(3) VÁRDINA (A₃ on Map)⁴

Várdina lies near the north end of the escarpment which runs from the Ardzani basin southwards and parallel to the Axiós on its eastern bank as far as the neighbourhood of Karaoglou, where it falls gently to the plain (Fig. 31).

In the three shafts sunk at different points (Fig. 32), virgin soil was reached between 8.50 and 9 m. below the highest point. Three main strata were observed (Fig. 33 = internal face of Pit B); the lowest, on an average 1.50 m. thick, consisted of dark earth, and seems to represent the debris of a single settlement; the next, about 3.50 m. thick, contained three successive settlements, the last of which was destroyed by fire, since a thick layer of ashes ran over all the mound at this level: the remainder of the deposit constituted the third stratum.

In the lowest stratum were no structural remains; in the middle stratum part of a house with apsidal end and a cross-passage belongs to the lowest level in Pit D⁵. A gigantic pithos (420) was found sunk in the floor of the western room and a smaller one in a recess just outside (?) the house, by the north exit of the passage.

¹ Cf. *Archaeologia*, LXXIV, Pl. XXVII, Fig. 1, 1.

² From *Chauchitza I*, Fig. 2, by permission of the British School at Athens.

³ Adapted from *M.T.I.* Fig. 37.

⁴ Cf. Rey, I, pp. 21-3 ('Kolibi') and Figs. 9, 10; *L.A.A.A.* XII, pp. 15-36.

⁵ Cf. *Vardino*, Fig. 7.



Fig. 31. Várdina. View from the north.

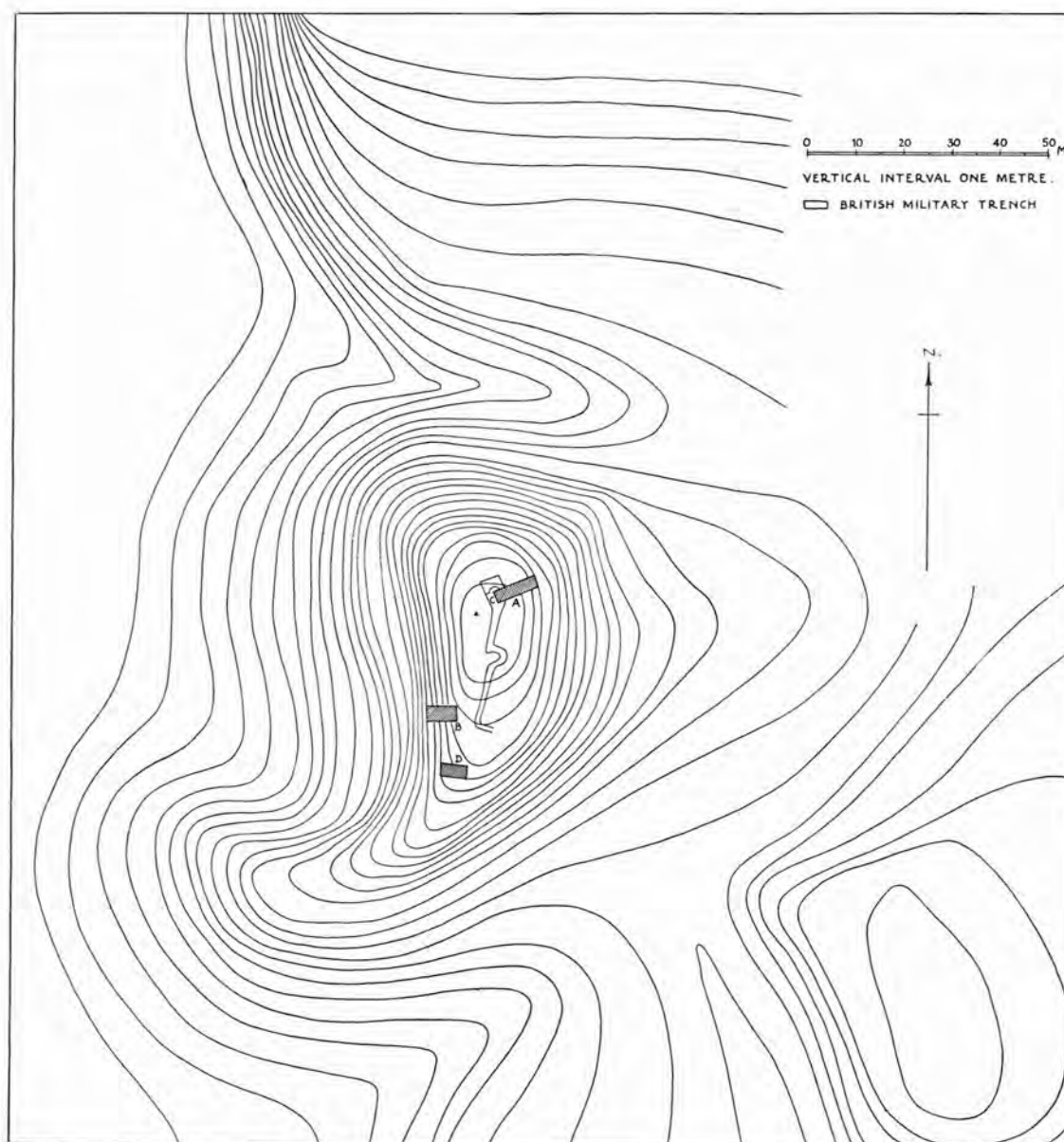


Fig. 32. Várdina. Sketch plan¹.

¹ From *Vardino*, Fig. 3. Made by Rev. W. G. C. Buchanan.

Lumps of clay with reed impressions lying close to the stones was probably part of the roof; the walls, to judge by the solidity of the foundations, were of sun-dried brick, remains of which actually constitute most of the stratum.

A hearth of blackened stones was found in the second settlement of this stratum in Pit A.

Now that more is known about Macedonian pottery than at the time of the excavation, the strata can be confidently assigned as follows:

The lowest stratum, which contained a great quantity of white-on-black-polished ware, belongs to a settlement of the Late Neolithic Age, which here, as elsewhere, seems to have overlapped with the Early Bronze Age, a certain amount of Early Bronze pottery having been found with it.

The Middle Bronze Age and the pre-Mycenaean phase of the Late Bronze Age are not represented.

The three settlements of the intermediate stratum all belong to the Mycenaean phase of the Late Bronze Age, the last being that of the Lausitz invaders, as is the case in the similar burnt layer at Vardaróphitsa. This stratum produced much Mycenaean. Stratum III, which was disturbed and which could not be adequately explored, produced the same kind of remains as the corresponding stratum at Vardaróphitsa and may be assigned to the same period, i.e. Early Iron to Hellenistic Age inclusive.

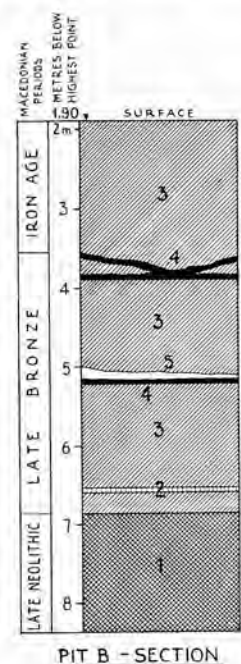


Fig. 33. Várdina.
Inner face of Pit B.

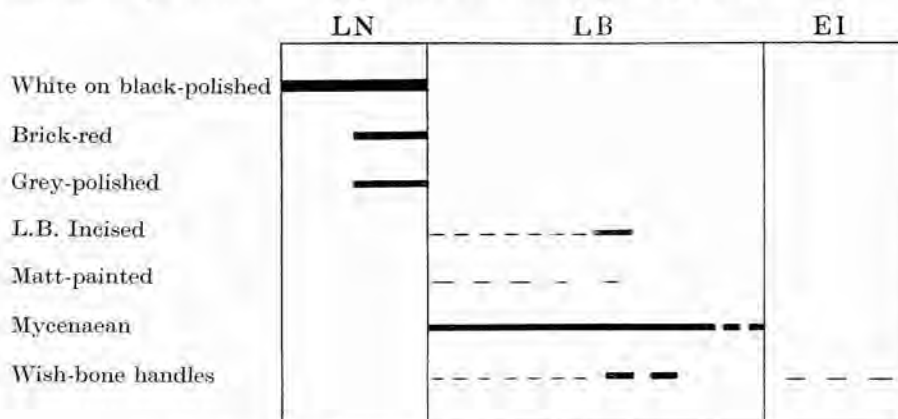


Fig. 34. Várdina. Diagram to illustrate the incidence of the principal wares.

— = very common: — = common: - - - = fairly common: — = rare.

(4) *VARDARÓPHTSA* (A_4 on Map)¹

The *toumba* and tables of *Vardaróph TSA* lie on the same escarpment as *Várdina*, but towards the southern end. Between the *toumba* and the river, where stands the present refugee village, rises the fine spring which may have also attracted the original settlers to the site and assured its continuous occupation. A further reason for the selection of the site was perhaps the fact that the river was easily fordable at this point (as it is to-day) and travellers passing from the Struma Valley into Western Macedonia would make the crossing here. In Homeric times, when the *Axiós* formed the western frontier of Priam's kingdom, the place would have strategic importance, and in later times when the successive settlements had raised the artificial mass high above the surrounding level, it must have offered a valuable strong-point from which the whole neighbouring countryside could be commanded.

In the course of two campaigns here the following soundings were made (Fig. 35):

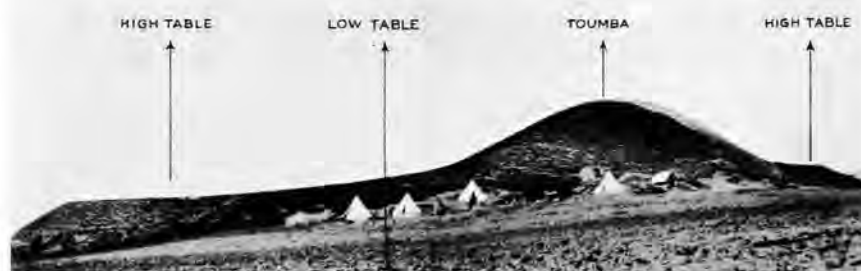


Fig. 35. *Vardaróph TSA*. View of *toumba* and tables from the south².

On the *toumba* a continuous trench 3 m. wide was dug, starting 4 m. west of the highest point and carried out to the surface on the east, to a depth of 4 m. This was subsequently dug down to a depth of 11 and 7 m. in Sectors V and VI respectively, and of 9 and 14 m. in Sectors VIII and IX. The south pit was started at 11 m. and carried down to virgin soil which was reached at 17.50 m. below the summit; the south-eastern pit, beginning at 15.50 m., reached virgin soil at the same depth. Finally the north-eastern side was tested by a small pit which was carried from 14 to 16 m. without reaching virgin soil. Thus each level was controlled, and it was found that in general the changes in one pit corresponded closely to those in the other. The lie of the strata was everywhere horizontal except close to the surface, and there were few traces of disturbance.

The main stratigraphic features and structural remains were as follows (Fig. 36):

From virgin soil to about 15.75 m. the deposit consisted of closely alternating layers of ashes, carbonized clay, brown clay with carbonized reeds, yellow clay and clay burnt a brick-red colour—the debris of successive wattle-and-daub huts.

¹ Cf. Rey, I, pp. 27–32, Figs. 15–17 and Pls. IV, V; *B.S.A.* xxvii, pp. 5–66.

² Reproduced by permission of the British School at Athens; also Fig. 36.

SCALE: METRES
0 10 20 30 40 50
VERTICAL INTERVAL
2 METRES.

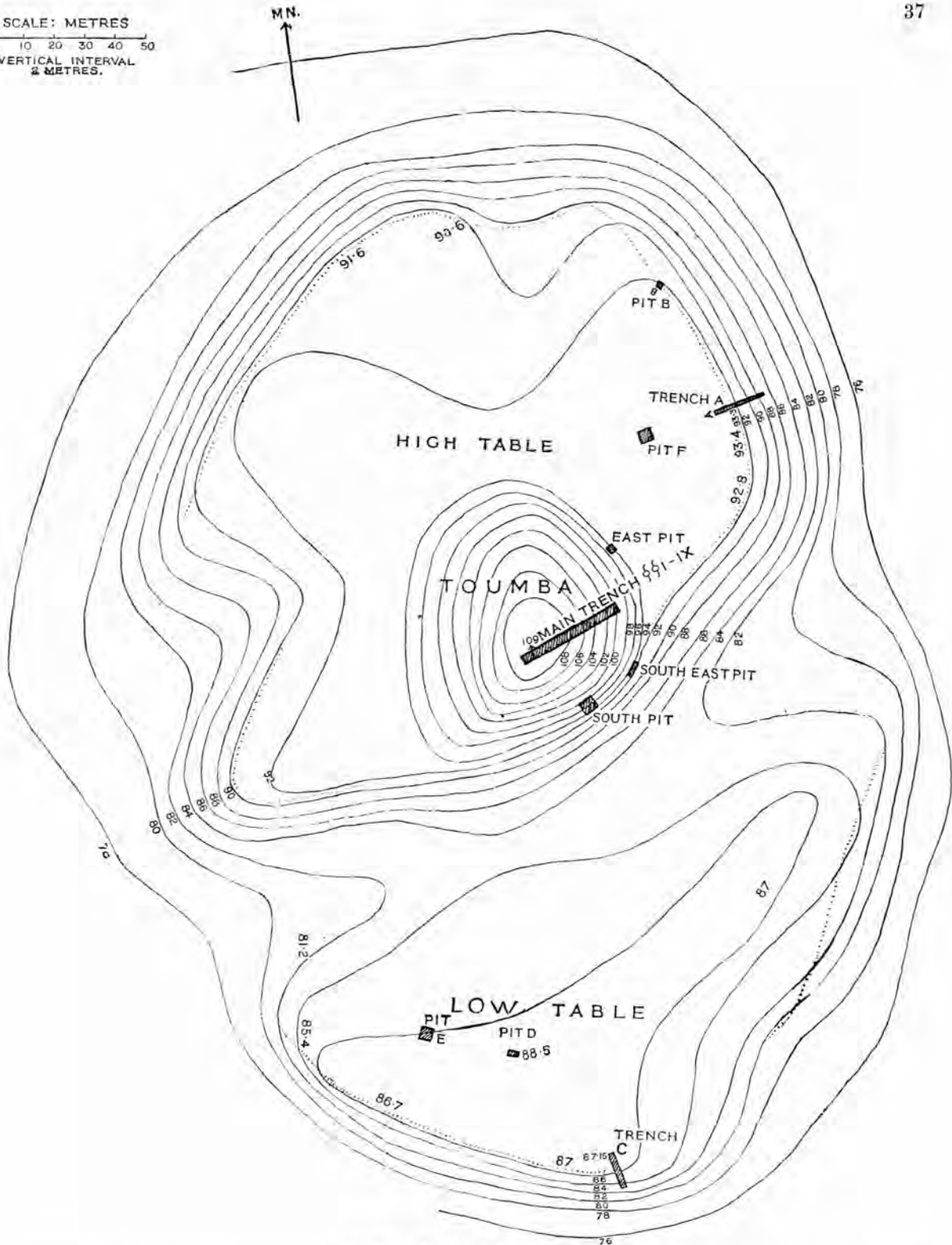


Fig. 36. Vardaróphtsa. Plan¹.

¹ The trenches and pits were plotted by Miss W. Lamb on the plan published by M. Rey, who kindly allowed us to use it.

At 16 m. in the south pit appeared a single course of stones (the first use of stone noted), a flat blackened stone, and a cache of miniature vases.

From this point to 5.50 m. the occupation levels follow one another at fairly regular intervals of about 1 m. each. An indeterminate mass of stones appeared at 15.25 m. Above that point the levels are indicated by groups of stones, evidently hearths, with which pithoi, charred grain, carbonized beams, grindstones and flat stones (beam supports) were usually associated.

At 10.50 m. in Sector IX and at 8.50 m. in Sector VIII, the remains of brick terraces were uncovered. The vertical beams and beam sockets which were found in these constructions show that they were platforms on which houses were erected.

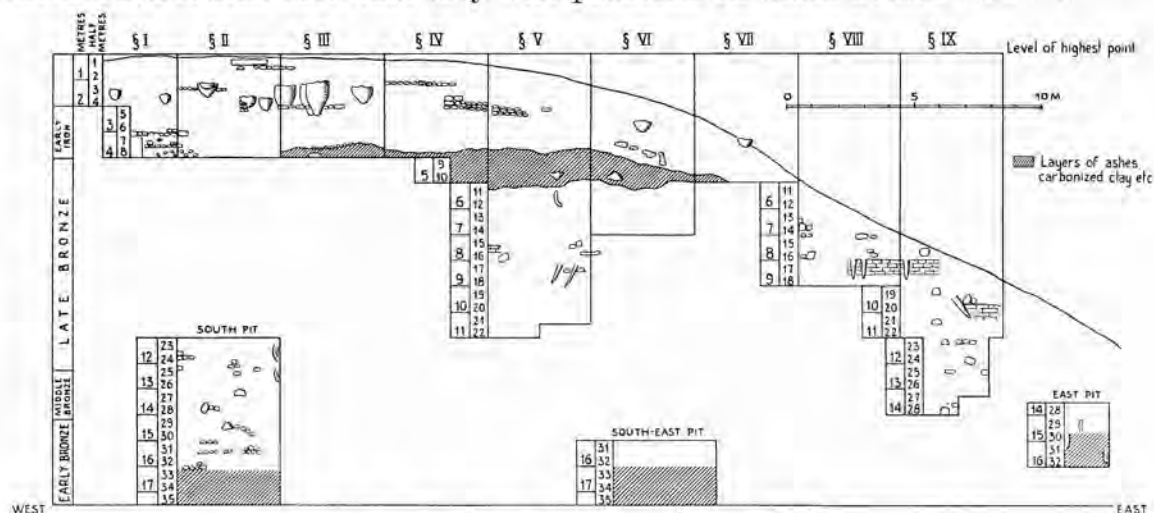


Fig. 37. Vardaróphitsa. Internal faces of pits.

At 5.50 m. the regular succession of settlement levels gives place to a layer about 1 m. thick and apparently running over a large part of the mound, composed entirely of the debris of burnt reed huts. Among the debris were numerous fragments of cooking-pots and store-jars, charred grain, etc.

Above this layer of debris a single course of stones in Sector I was evidently part of the foundations of a building, and in Sector III a large isolated flat stone, probably to support a beam, stood in proximity to a floor of cobbles.

At 3.25 m. another stone foundation was found in Sector I, immediately above the earlier. At 2.25 m. a stone foundation-wall appeared in Sector III and a wall of six courses in Sector II; in Sector IV a house-wall of four courses, and another wall, of three courses, in Sector V at a slightly lower level.

In the remaining deposit two more occupation-levels were indicated by foundation-walls, store-jars, etc.

The ceramic changes correspond to the stratigraphic changes in the case of (1) the brick terraces at 10.50 m. which coincide with the appearance of Mycenaean

pottery; (2) the burnt layer lying between 5.50 and 4 m. which contains intrusive Lausitz pottery; (3) the stratum immediately above this, where the characteristic pottery of the Early Iron Age begins; (4) the house-foundations at 2.25 m. where the first imported Greek sherds (Corinthian) occur.

The site affords a continuous record of the ceramic history of the Axiós Valley in the Early, Middle and Late Bronze Ages, in the transition period to the Early Iron Age, in the Early Iron Age itself, as well as in its succeeding phase down to some date in the third century B.C.

Only the Neolithic Age is unrepresented.

Particularly valuable is the clear record of an invasion, though not necessarily a hostile one, of makers of Lausitz pottery at the end of the Mycenaean Age.

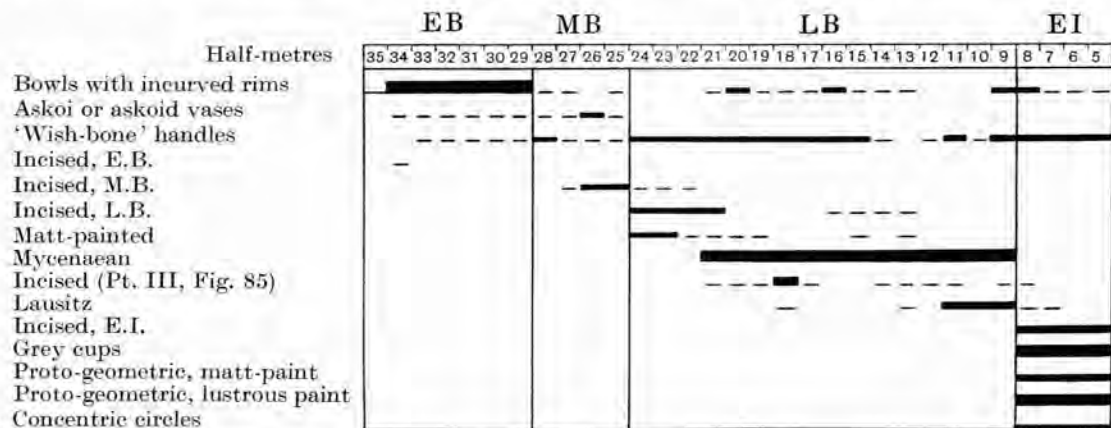


Fig. 38. Vardaróphitsa. Diagram to illustrate the incidence of the principal wares to *ca.* 600 B.C.

— = 1 or 2; — = 3 or more; — = very common.

C. WESTERN MACEDONIA

THE HALIÁKMON VALLEY¹

(1) BOUBOÚSTI (H₂ on Map)²

From the village of Chroúpista to the point near Sérvia where it bends sharply to the north-west, the south bank of the Haliákmon is formed by a steep escarpment, intersected by innumerable ravines, by which winter torrents find their way into the main stream. Almost on the edge of the escarpment, between two such ravines³, about 2 hours south-west of Chroúpista lies the site of Boubouústi. The site is very small (Fig. 39), roughly oval in shape, about 20 × 8 m., and can only have consisted of a few huts⁴. The ground on which it lies has a slope on an average of about 1 in 3. The depth of the deposit varies, according to the irregularities of the ground, from about 1 to 1.50 m. At the north end it was terraced up by fourth(?)-century walls and a house-wall of the same period cut into it in the north-west corner. In the north-east corner the stone foundation of a cistern with a corbelled roof of bricks was associated with these terrace-walls. North of these the pottery was almost exclusively black-glazed (fifth-fourth century?), sherds of which were also scattered thinly over the whole site.

The prehistoric deposit was composed of the debris of mud-brick and reed huts, one of which had a stone foundation-wall. Two stages of occupation could be inferred from the position of fixed remains (hearths, etc.), but no clear strata or ceramic changes were detected.

REMAINS OF HUTS, HEARTHES, ETC.

To the first stage of occupation belong: (1)⁵ the debris of a house below the terrace-wall in the north-east corner marked by layers of ashes; (2) a circular area of clay and ashes 1 m. in diameter, 0.4 m. thick (probably a hearth); (3) a circular hearth (Fig. 41) 1.05 m. in diameter, resting on virgin soil, which here has a slope of 1 in 3. The whole of the southern half was formed of a section from the body of a great pithos, originally in one piece. Almost the whole of the northern half had fallen away and fragments of it were found below and outside the curve. The circle was paved with sherds mostly from the same, but also from a second pithos, all much blackened by fire. Beneath the sherd paving was, in part of the area, a layer of plaster blackened on the upper side; elsewhere calcined earth interspersed with patches of carbonized matter. Beneath this again a rough bedding of pebbles, also much blackened by fire.

¹ For topography of the district cf. *B.S.A.* xviii, pp. 166, 167; xxviii, pp. 158-60; *Ἀρχ. Ἐφημ.* 1933, pp. 25 ff.

² Cf. *B.S.A.* xxviii, pp. 158-94.

³ Cf. Fig. 39 (a), (b).

⁴ For the existence of scattered farms in prehistoric times in Western Macedonia cf. Keramopoulos' observations, *Ἀρχ. Ἐφημ.* 1932, pp. 104-6.

⁵ Cf. Fig. 40.



(a)



(b)

Fig. 39. Bouboústi¹. (a) View of escarpment from north. (b) View from site looking north.

¹ Reproduced from *Boubousti*, Figs. 2, 3, by permission of the British School at Athens; also Figs. 40, 42a.

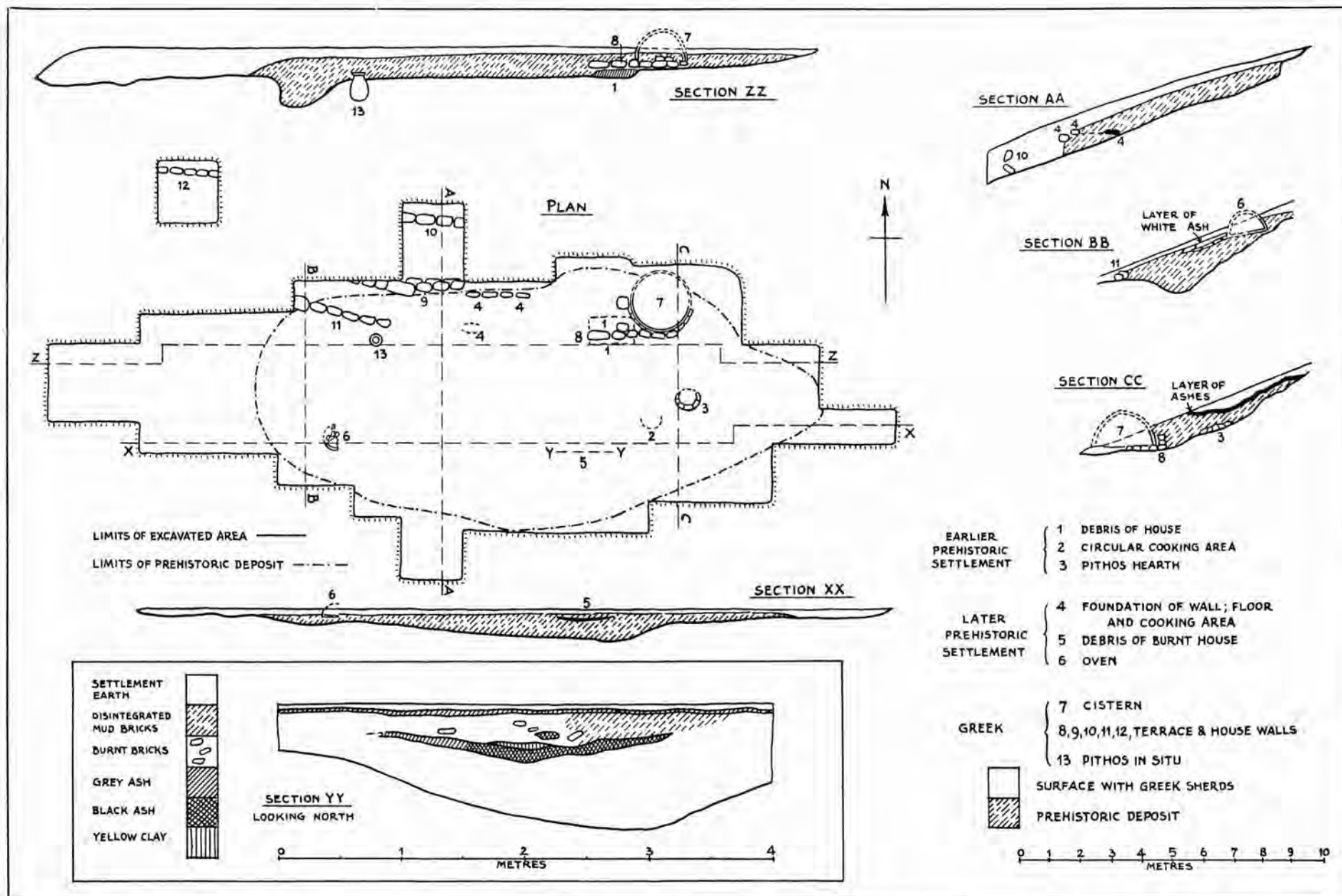


Fig. 40. Bouboústi. Plan and sections.

The pithos border rested on the unblackened edge of the pebble floor. Underneath the hearth the earth was calcined and mixed with carbonized patches.

The average thickness from the top of the pithos border to virgin soil was 0.7 m.

On the potsherd floor were bones and fragments of 'griddles'.

To the second stage of occupation belong (4) the line of stones already mentioned with traces of a floor of hard red earth to the south and with an area of ashes, in which lay fragments of a plain cooking pot; (5) the debris of a burnt house made of sun-dried bricks with a roof of reeds; (6) part of an oven (Fig. 42*a, b*), circular (?) in shape with a domed plaster roof. The floor consisted of two layers (each *ca.* 0.025 m. thick) of small pebbles, a layer (0.05 m. thick) of flat stones interspersed with potsherds, a layer (0.05 m. thick) of plaster which was carried up from the edge to form the lining of the roof. This lining was preserved to a height of 0.2 m. at the south-east corner, whence it could be traced as a broken edge for 0.7 m. westwards. Three flat stones lay against the outside of the lining. The diameter of the oven is estimated at 1.2 m. The door was probably on the north, where a layer of white ashes 0.15 m. thick extended down the slope for 2 m. The form of the complete oven is conjectural: but 'a domed circle enclosed in a rectangle of sun-dried bricks'¹, as in modern Greece, seems likely. The deposit produced a large amount of local painted pottery, which may be assigned to the very end of the Late Bronze Age and the beginning of the Early Iron Age. This pottery is quite homogeneous; the only imported pieces are one Mycenaean (?), one Proto-Geometric, and one Geometric (?)².

(2) *SÉRVIA* (H₁ on Map)³

Two big pits were opened up on top of the mound (Fig. 44), D in the west centre, 1.70 m. below bench mark at the highest point, and F 40 m. north-east of D, where the surface slopes to 2.10 m. below bench mark. Between them a smaller pit, E, was carried down to the conflagration level of Period II⁴. Occupation was intensive in the Early and Late Neolithic Ages, and Early Bronze Age people were also present on the mound before its abandonment, which but for a scanty disturbance by Byzantines was final. Its place, of which the importance is obvious, since it commands the river and the pass into Thessaly (Fig. 43), was taken in later times by two

¹ Cf. *Eutresis*, p. 62 (M.H.).

² Cf. *Boubousti*, Fig. 29, 3, 5, 8.

³ Cf. *Ant. Journ.* xii, pp. 227-38. Most of the description here given is by Mr G. A. D. Tait.

⁴ In Pit A (3.66 m. below B.M.) the deposit in the eastern half was 1.30 m. to 1 m. thick. Part of a hearth (Fig. 51) at 4.26 m. resting on a patch of cobbled floor was found, but, in general, the remains were too near the surface to have escaped disturbance; in the western half virgin soil had been cut away sheer on the east side from 4.92 to 5.70 m. and then fell in a steep natural gradation to 6.70 m., at which level it continued to the west face of the mound overlooking the road, where it could be picked up. The deposit in this half was hopelessly injured.

Pits X and Z were opened to find the limits of the site to the South; virgin soil was reached in each case at less than 1 m. below the surface. Both pits appear to lie outside the settlement area.

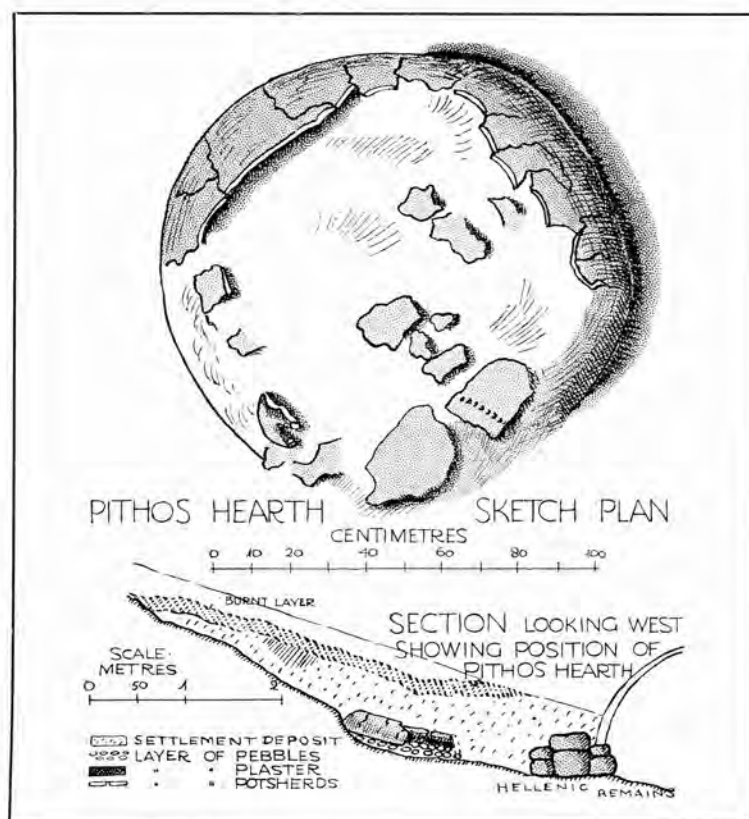


Fig. 41. Bouboústi. Pithos-hearth; plan and section.



Fig. 42 (a). Bouboústi. View of oven (x) from north-west.

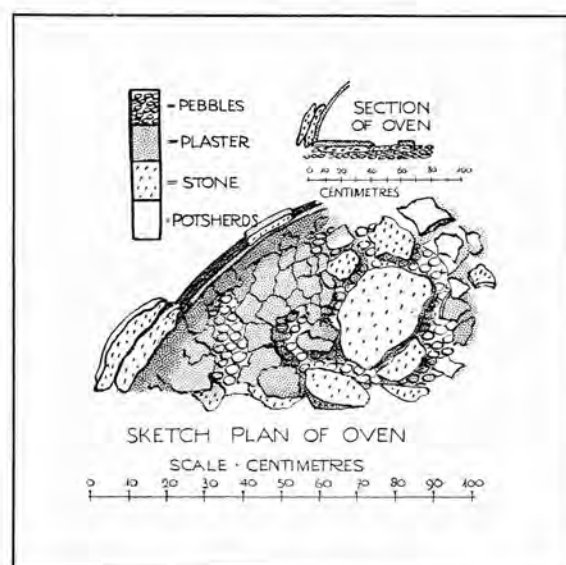


Fig. 42 (b). Bouboústi. Oven; plan and section.

castles, one (Byzantine) above Sérvia, and one (of unknown date) on the hill just north of the Haliákmon bridge.

The F pit was dug in sections 4 m. square, but may be treated as one large pit (Figs. 45, 46). The stratigraphic equation between the two series of pits (F, D) was close, and they give a uniform history of the mound. There are two main periods: Late Neolithic, 1.30 m. thick on an average, of which the upper part contained also Early Bronze pottery. Early Neolithic, *ca.* 2 m. of continuous occupation in five settlements, all belonging to the Early Neolithic Age, the upper 0.50 m. consisting of debris left by the wholesale conflagration of the last of these settlements.



Fig. 43. Sérvia. View from north.

Early Neolithic. The first settlement was built almost immediately on virgin soil. In F the hill sloped gently from 5.00 m. at the north to 5.35 m. at the south face of the pit. A shallow depression (A) (Fig. 45)¹, seen in the north and east sections, swung southwards from the north round to the east; this was sunk artificially to a depth of 2.35 m., its western face being cut sheer to the bottom and its circling eastern face being cut sharply for 0.40 m. at the bottom and rising on a steep slope to the settlement-level, where a slight vertical cut seems to mark the end of the original slope. That this ditch was made by the earliest inhabitants was shown by lines of debris that sloped into it from the first level, and by the position of the big wall of settlement 2. Its purpose was most probably defensive, for it was too big for drainage; and it is difficult to believe that the western face could have stood in heavy rain without a timber shoring, though no such remains were found. But if its original

¹ For key to lettering see Fig. 45. The letters refer either to Fig. 45 or Fig. 46 or both, but the reference is omitted in the case of those that do not appear in Fig. 45.

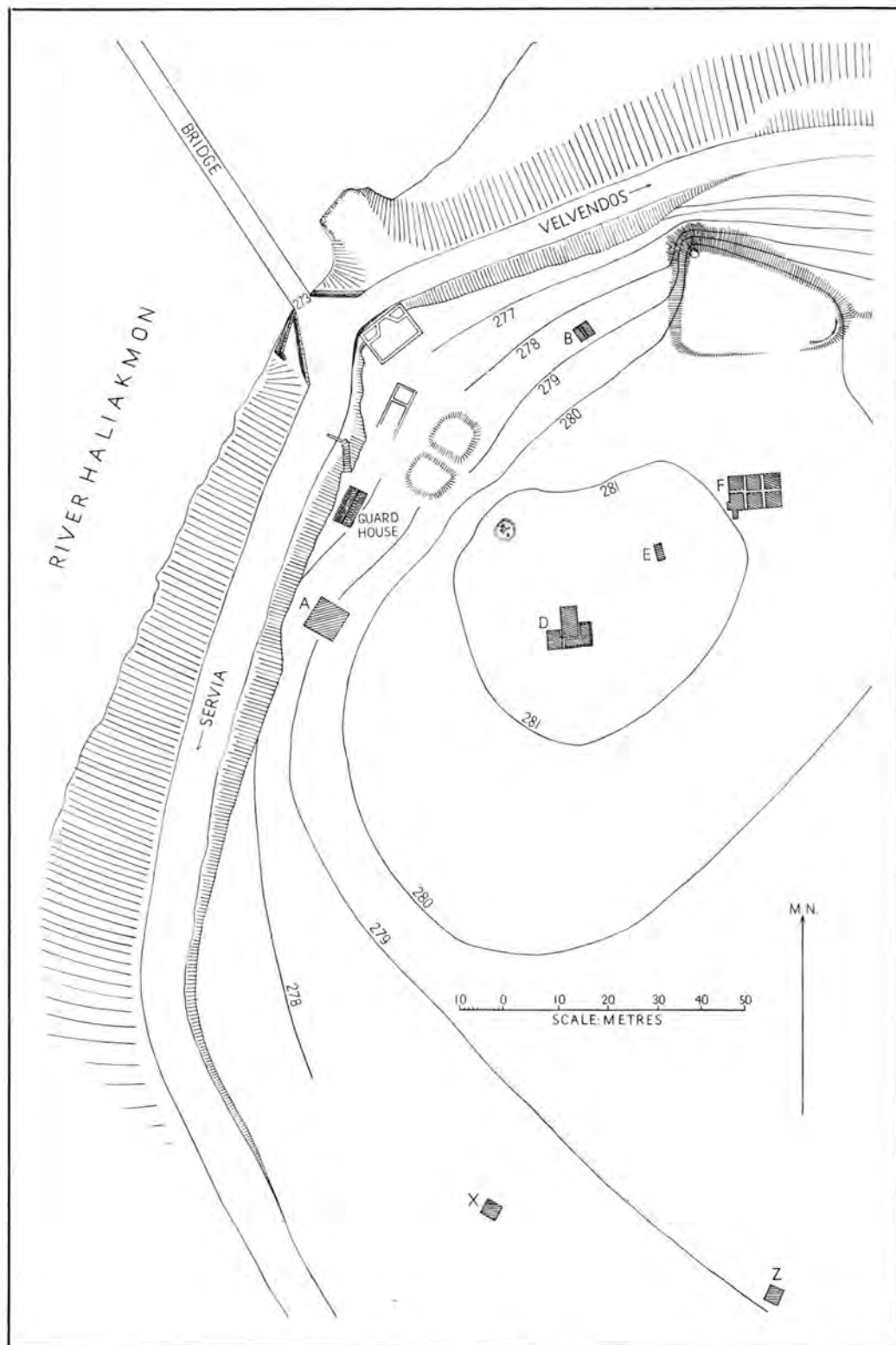
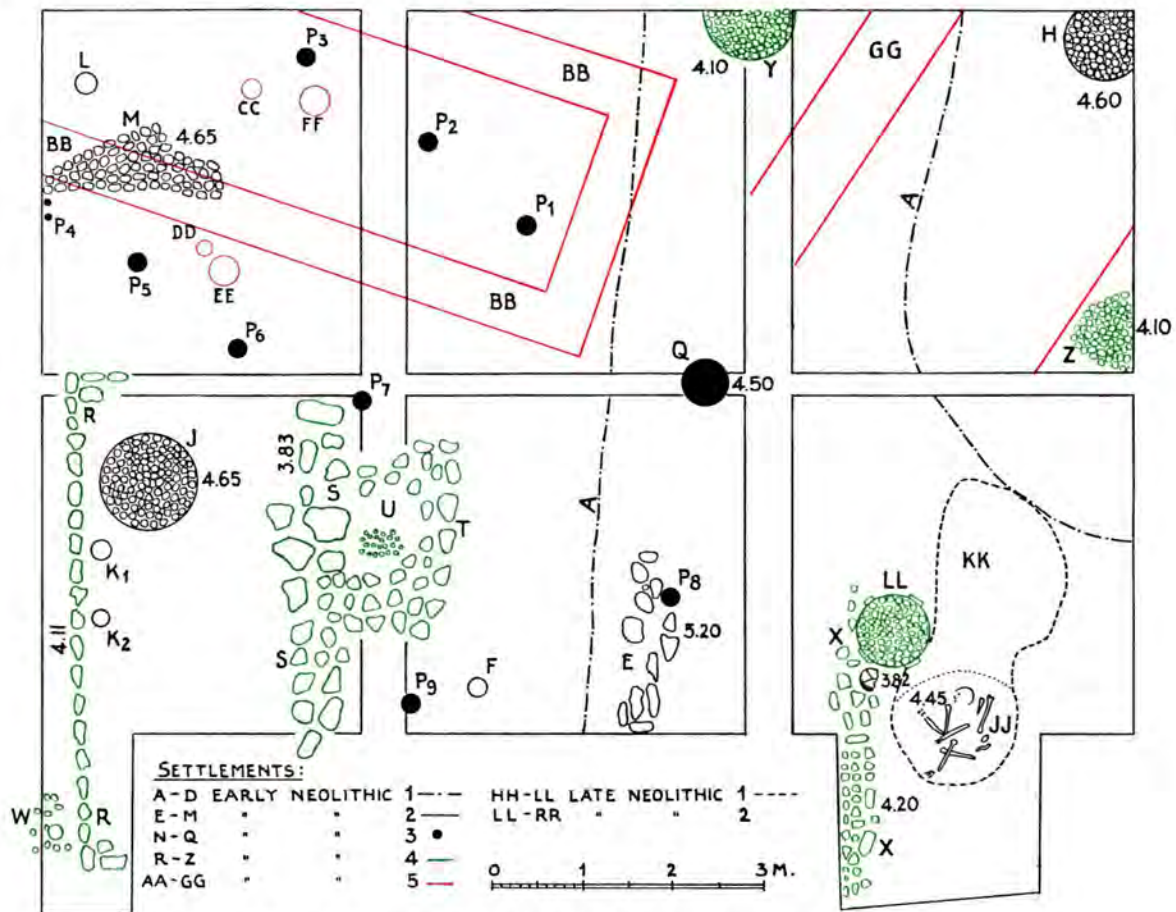


Fig. 44. Sérvia. Plan¹.

¹ Reproduced from *Servia*, Fig. 2, by permission of the Society of Antiquaries. It, as well as Figs 46 and 49, is by Mr T. C. Skeat.

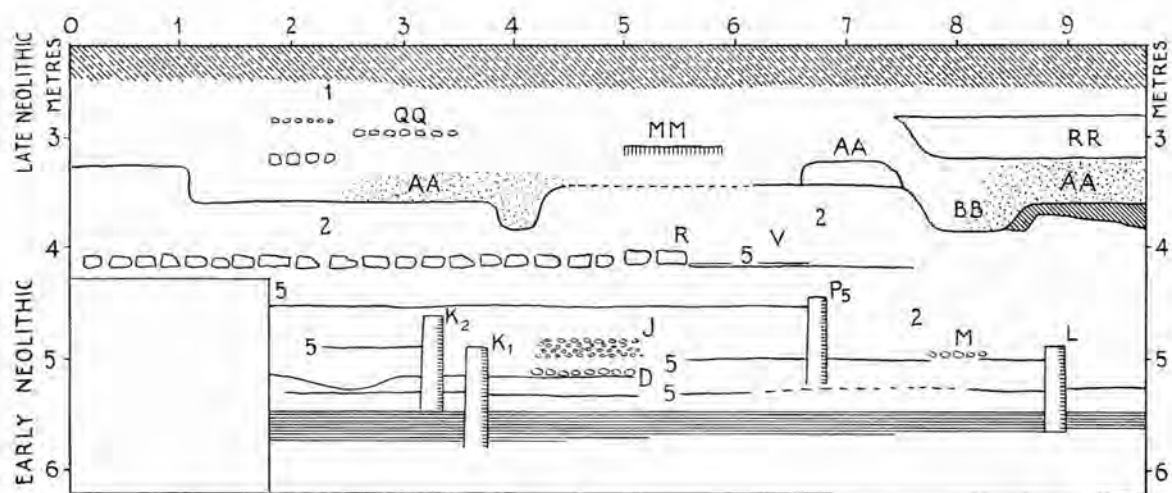
purpose was a fosse to protect the houses to the west of it, it was soon given up, because the daub wall and post-holes of a house were found on its farther side in the north-east corner, and a corresponding level running as far as the line of the supposed artificial cut can be seen in the south half of the east face (B). The ditch was gradually filled up with rubbish during the first occupation, and three rubbish layers ran under the wall of settlement 2.



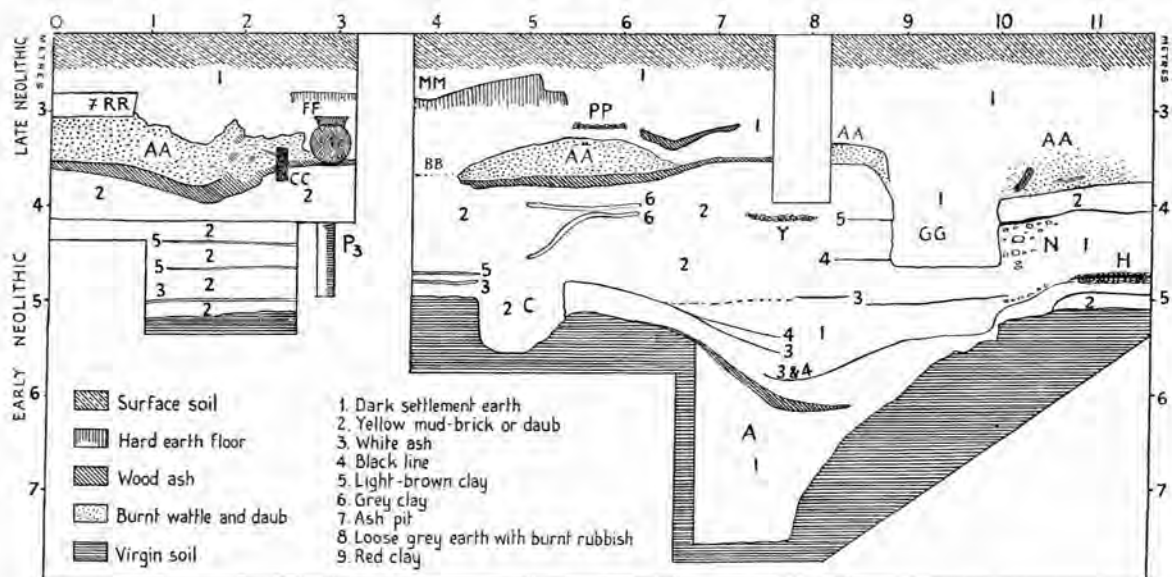
West of the fosse, traces of houses were found. The cut, 0.30 m. deep and 0.80 m. wide in the centre of the north section (C), is probably the line of a wall; for the level of settlement 2 stops abruptly on either side of its line, and it is more probable that the people of 2 used an old wall than that they dug their own foundations to 0.80 m.

In the south-west corner a cut of 0.20 m. in the level, filled with decayed daub, probably marked a house-wall. 0.15 m. north of this cut was a layer of white ash

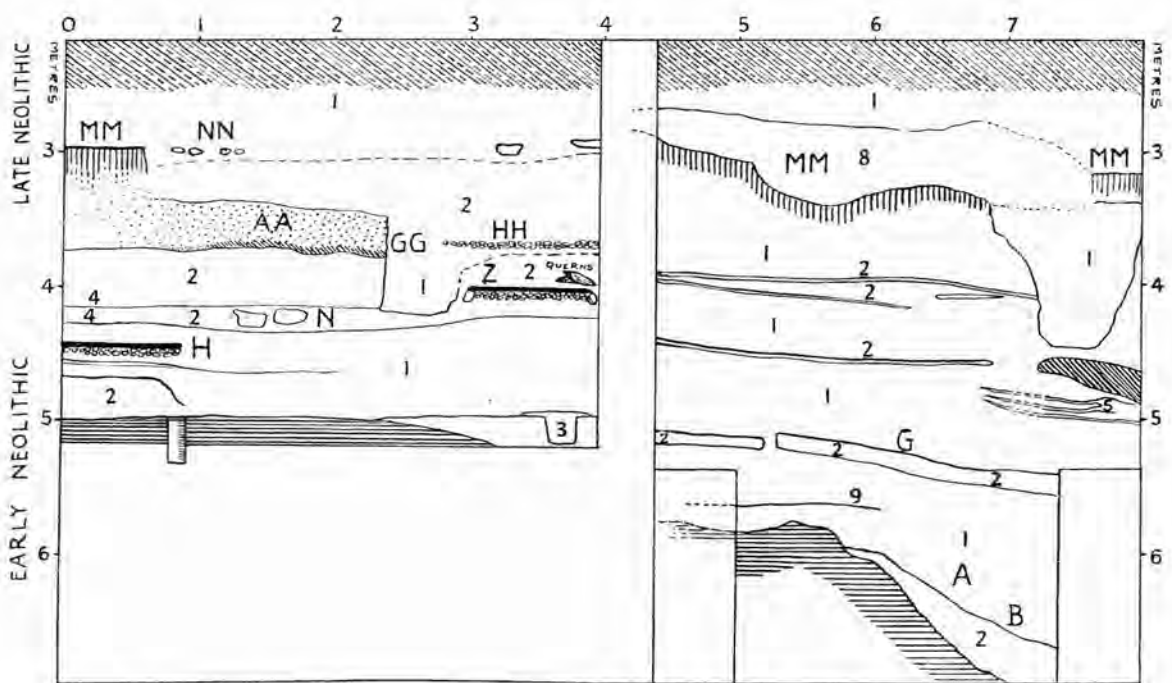
¹ Drawn by Mrs G. A. D. Tait.



(a)¹



(b)



(c)

Fig. 46. Sérvia. Pit F; (a) west face; (b) north face; (c) east face. For key to lettering, cf. Fig. 45.

¹ Adapted from *Sérvia*, Fig. 3.

with carbon fragments. Over this simple hearth a more substantial one was built later, a single layer of small river pebbles, blackened by fire (D); and the level was raised 0.05 m. to correspond. Considerable fragments of charcoal at the south end of the trench perhaps give the reason for the new houses of settlement 2¹.

Early Neolithic 2. In the second settlement the supposed fosse which had become a rubbish pit was filled in to a shallow depression, and a big wall set over part of its west face. A double row of large unworked limestone blocks in single course was deeply bedded in clay (E) (Fig. 45). This bedding at 5.20 m. was set over the three rubbish layers of settlement 1. The interstices of the wall contained carbonaceous clay and soft brown earth, in places turning to black with white ash. The settlement level sloped for a metre eastward from its general level of 4.80 m. to the top of the stones at 5.10 m. 2 metres of the wall were uncovered till it ran into the south face of the pit. A post-hole (F) (Fig. 45) stood 1.50 m. west of the wall, and to the east the mud level of the settlement (G) ran across the old ditch. The level sloped up gently to the north as in 1. A fragmentary pebble paving was found north of the wall, at 4.70 m., and a circular hearth (H) (Fig. 45) in the north-east corner of the pit at 4.60 m. stood over the carbonaceous stump of the earlier wall of settlement 1: its double layer of pebbles was covered with smooth clay burned to a hard brick.

In the south-west area a new circular hearth (J) (Fig. 45) was set on the site of its two predecessors. On a 0.05 m. fill of soft brown earth was a mass of small pebbles, loosely packed and unmarked by fire and covered with 0.05 m. of baked clay topped with a smooth hard finish. The rim rose in a gentle curve on the west side to a height of 0.05 m., and 0.05 m. in from the south-west rim a post-hole (0.08 m. diameter, 0.30 m. deep) ran through the clay and pebbles, filled with soft earth and charcoal fragments. It had no outlet below, and presumably held a post to support a clay shelter. There was no other hole in the hearth nor did the curving rim continue round to the east; and as burnt daub lay thickly on the west and sparingly on the east of the hearth, the shelter stood only on the south-west side. The floor of the hearth stood 0.15 m. above the earth floor at 4.80 m. At 0.40 and 0.70 m. to the south-west of the hearth were two post-holes (K₁), (K₂) (Fig. 45), 0.20 m. and 0.10 m. in diameter, but the exact relation of this wall to the hearth was not determined.

Another house-wall stood in the north-west corner of the pit, marked by a post-hole (L) (Fig. 45), against which the level from the south stopped abruptly (see west section). On the south side of this wall ran a pebble paving (M) (Fig. 45), whose southern edge remained clear though much of the rest was disturbed. At 0.05 m. above the paving-level a spread of white ash, which was found also in the centre of the pit at the same level and may be connected with the signs of burning in

¹ There were few signs of the first settlement in D, but a post-hole at 4.60 m., and the stiff clay with carbon points and some sherds showed that this part of the hill was occupied.



Fig. 47. Sérvia. Pit F; E.N. settlement 4; foundation wall R (cf. Fig. 45).



Fig. 48. Sérvia. Pit F; E.N. settlement 4; floor of burnt house, showing burnt post (CC) marked x and pithos (FF) *in situ*, marked with an arrow (cf. Fig. 45).

the stone walls of Pits F and D, gives perhaps the reason for the building of settlement 3¹.

Early Neolithic 3. The third settlement was built about 0.20 m. above the second. The two stone walls were abandoned, and the only stonework found in the pits consisted of scattered lumps in the north-east quarter (N), running north-west to south-east, but giving no clue as to their original position. The general level of F retained its gentle slope from 4.45 m. on the north to 4.60 m. on the south. Two rows of post-holes, P₁₋₆ (Fig. 45), do not allow a complete reconstruction, but give a rectangular house about 2.80 m. wide and over 4.00 m. long. The posts were sunk to 0.50 m. below the floor and were 0.20 or 0.15 m. in diameter, except in one place where two smaller posts (P₄, 0.07 m. diameter) did the duty of one. Two of the posts were not carefully trimmed, having branch holes projecting slightly upwards. Two more post-holes, P₇, P₈ (Fig. 45), were found south-east of the house, 2.90 m. apart, perhaps the northern wall posts of another house on a slightly more northward orientation; one of them, set over the earlier wall of 2, was supported at the floor-level by a rough stone and a river pebble. At 2.50 m. to the north of it was a pebble hearth (Q) (0.50 m. diameter, Fig. 45) covered with black earth and ash. In the south-east corner the level terminated in a confused rubbish area².

Early Neolithic 4. The fourth settlement of Period I stood in F at 4.0–4.20 m. In the south-west quarter a house with stone wall-base could be traced with some certainty. A single row of unworked stones (R) (Fig. 45) ran north to south along the west face of the trench (Fig. 47), which was extended to find the south end. There was a definite return at its north end, the stones being larger and more regular and set square to form the corner. The south return was less substantial, but the abrupt end of the wall and the setting of two uneven stones at right angles marked the corner. Neither end wall continued farther than the first stones. The stones of the wall were carefully set in a single course, firmly embedded in clay. A mass of stones lay apart to the east (S) (Fig. 45), a number of them clearly having fallen out of place. But the line of a wall could be followed through them, parallel to the first wall, of a thickness of one, two or three stones according to size. Time did not allow of extension of the trench to the south end of the wall; but the plan of the house is clear, rectangular, 5.60 by 3.00 m. East of the house a paving (T) (Fig. 45) made of rough cobbles extended 2.80 by 2.20 m. with a pebble floor (U) (Fig. 45) (1.00 m. diameter) in its centre sunk 0.15 m. below its level. North of the house a clay floor (V) ran for 1.00 m., and a dark earth line continued the level in section. The kitchen immediately adjoined the west face of the house at its south

¹ A stone wall 0.40 m. wide was found in D at 3.80 m., consisting of large lumps bedded in clay in single or double row; it ran north to south for 2.95 m. though separate stones which had fallen out of place made its original length uncertain. The interstices yielded carbonaceous earth. At the same level lay a mass of charcoal covered with burnt daub, the upper portions of a house which collapsed in flames.

² The level in D at 3.60 m. was marked by a circular pebble hearth and a clay floor burnt hard at one place with a pocket of black earth and ashes adjoining it.

end, where a patch of white ash 0.80 m. long lay on loosely set pebbles. The base of a cooking pot (W) (Fig. 45) stood *in situ*, and the area was thickly packed with grain and coarse sherds.

5.00 m. to the east a similar base for a house wall (X) (Fig. 45), built of smaller stones, 3.00 m. in length, ran parallel to the house; but the area was confused by the bothros of Period II which was sunk below the level of this settlement and passed within 0.20 m. of the wall.

In the north-east quarter two hearths, (Y) (Fig. 45), (Z) (Fig. 45)¹, 0.70 and 1.20 m. in diameter, were made in the usual pebble and clay formation, though the larger one (Z) had an additional ring of cobbles bedded round its edge and two saddle querns lying on it. They stood 5.00 m. apart and had a pronounced cant towards each other, from west to east and east to west respectively, which was probably due to disturbance caused by the burning house conjectured in this area in Early Neolithic 5².

Early Neolithic Settlements 1-4. Summary. The fact that in both series of pits (F, D) four separate settlements were recognized is the reason for their equation; and though the levels did not run undisturbed over the whole area, comparison of all the pits has allowed the reconstruction given above. The levels lay close to each other, the house remains being usually flattened to build the next settlement. Single traces of fire may explain the wholesale burial of settlements 1 (in F) and 3 (in D); three unconnected signs of burning are more convincing evidence for the destruction of 2. But no explanation can be given for the almost complete abandonment of 4, and it is curious to find substantial wall foundations buried, just as it is curious to find it left to the Byzantines to tap the limestone blocks of 2 for their grave in D.

Architectural conclusions can only be drawn when a large area is laid open; but enough was found to recognize rectangular houses built of wattle and daub, at fair intervals, probably with little planning; and stone foundations which were used earlier for large walls were repeated later for at least one ordinary house. Timber was handy and plentiful, and a collapsed house was apparently more easily demolished and replaced than restored.

Early Neolithic 5. The new level was raised 0.20 m. or more above settlement 4, and was built as before of wattle and daub, the few stones found in the level being scattered and of no structural importance. So far as the evidence goes, the village was completely destroyed by fire: fused masses of wall (AA) lay in confusion over a thick layer of charcoal, the timber framework of the roofs having fallen first and been followed by crumbling wall.

In the north-west quarter of F the debris lay south-westward. Cuts 0.30 m. deep in the west (BB) (Fig. 45) and east sections of this quarter give the probable line of

¹ Cf. Fig. 52.

² In D a clay floor, sporadic pebble paving and thickening sherds were found at 3.30 m.; but in the west of the pit the burnt debris of settlement 5 descended as low as 3.30 m., with no level below to correspond to settlement 4.

a wall, and in the north section (BB) a long break in the debris suggests the oblique cut of the parallel wall. This gives an interior width of 2.00 m. A charcoal stump¹ (CC) (Fig. 45), 0.18 m. in diameter, remained *in situ* amid the ruin, sunk in 0.20 m. of soft earth fill below the floor and standing to 0.30 m. above it. It was a free-standing post, for the beaten mud floor could be traced up to it, and its central position, 1.00 m. from either wall, adds to the suggested reconstruction. A second charred stump (DD) (Fig. 45), 0.15 m. in diameter, was found to the south. 0.10 m. of it remained, but no trace of the floor was seen round it nor was it sunk below the level; it stood 0.20 m. outside the suggested wall line and may be a wall post in an irregular face, or it may be the support for a kitchen shelter outside, for the base of a cooking-pot (containing charred grain) stood 0.20 m. east of it. Other fragments of poles were found, but their smaller size and position suggested that they had fallen from the roof. Between the mud floor and the conflagration debris ashes and carbonized grain extended round the central post (CC) and reached the base of a store-jar (10) *in situ* (FF) (Figs. 45, 46(b) and 48) 1.00 m. to the east; grain was also in the pot. The north-west end of this suggested house would have been in an unexcavated area; its south-east end could only be conjectured from the extent of the debris. In the north-east quarter of the pit the similar debris of another house (GG) (Fig. 45) lay north-east to south-west, and two deep cuts seen in the north and east section may give the line of the walls, which are conjecturally traced on the plan. Two more houses stood in the southern half of the pit, but the one to the south-west was only just overlapped and the bothros of II cut through the other, so that nothing was made of their plan.

Most of the fused rubbish was in shapeless lumps, which made it clear that the walls themselves were not made of bricks. But a number of them bore clear impressions of reeds or had been carefully moulded to fit beams. Four examples are given:

Flat in section.



Round in section. One mould fitted the charred central post.



Two beams with a sharp incision between them.



One flat brick had a shallow depression (0.15 m. diameter) with a knob in the middle, perhaps fitted to the top of an upright.



That the conflagration was widespread is shown by similar masses of burnt debris in Pits E and D at the corresponding level².

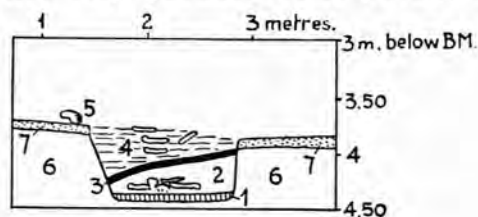
¹ Cf. Fig. 48.

² In D the level slopes from 2.75 m. to 3.20 m. in the west; burnt debris was picked up in three places, and two straight cuts of unburnt daub walls would leave a passage of 1.30 m. between two houses.

Late Neolithic. This is the occupation immediately following the destruction.

In most of F the level was disturbed and not very productive. A paving of big cobbles at 3.20 m. was traced for 1.30 m. in the south-west corner; a pebble floor was found in the north, and another in the east (HH) that lay just outside the supposed house-wall line of GG and may have belonged to it.

But in the south-east the most important find in the excavation was made. A circular shaft (JJ) (Figs. 45 and 49), 1.20 m. in diameter, was sunk to 0.60 m. below the burnt level, the circular cut in the burned debris on the south making it clear that the shaft followed the destruction. At the bottom a skeleton (Fig. 50) lay in soft dark earth on a hard earth floor. A layer of grey ash (KK) (Figs. 45 and 49, 3) with fragments of black-polished and grey-on-grey vases was spread for 2.00 m. on a gentle slope from the burnt level at 3.80 m. on the north to 0.05 m. over the skeleton. The vases were over the skeleton, the orange-rimmed vase (15) over



1. Hard earth floor.
2. Burial (Late Neolithic 1).
3. Layer of grey ash (KK).
4. Dark loose earth with ashes and bones of secondary burial (Late Neolithic 2 (?)).
5. Displaced skull of secondary burial.
6. Debris of Early Neolithic 4 settlement.
7. " " " " 5 (AA).

Fig. 49. Sérvia. Pit F; L.N. settlement 1; section of burial pit JJ (cf. Fig. 45).



Fig. 50¹. Sérvia. Pit F; L.N. settlement 1; burial JJ (cf. Fig. 45).

¹ Reproduced from *Servia*, Fig. 4, by permission of the Society of Antiquaries.

his legs, and the others over the upper part of his body, part of an incised zoomorphic vase in the crook of the right arm (Pt. III, Fig. 9*i*), and an obsidian blade below.

The burial area was filled with loose earth; bones, some of them burnt, lay in it, and scattered cobbles cracked by fire had probably lined the pit and fallen in as the loose fill collapsed. The friable earth of the bothros was clearly distinguished from the clay which otherwise covered the area. A circular pebble and clay hearth (LL) (Fig. 45), 0.80 m. diameter, 0.15 m. high, was placed immediately above the burnt debris 0.40 m. north-west of the burial shaft and along the edge of the bothros; and bones and a skull (of a secondary interment) were found at the same level immediately south of it.

Late Neolithic 2. The level of the last occupation lay close to the surface, varying from 2.70 to 3.30 m. Irregular areas of hard beaten floor (MM), much broken up by ploughing, gave no satisfactory clues to the house plans. A number of cobbles (NN) lay sporadically in the north-east quarter, and though their scattered condition was meaningless they were too numerous for chance intrusion. Two roughly circular cobble hearths (PP, QQ) remained *in situ*, one near this confused stonework consisting of rough limestone blocks with a diameter of 0.80 m. The bases of two cooking pots stood *in situ*; and a pocket of soft black earth (RR), that can be seen in the sections of the north-west corner, ran south-eastwards *ca.* 1.80 m. wide and at least 4.00 m. long. A deposit of soft earth containing ashes and charcoal on the beaten floor suggests that the settlement was destroyed by fire¹.

There are three ceramic phases. With the five lowest settlements is associated only Early Neolithic pottery, mostly with painted ornament, of Thessalian A type. Above, and to some extent in the debris of the burnt houses of the fifth settlement, the pottery is Late Neolithic, which does not occur below this level except in the burial pit. Black-polished ware and its varieties are now common, and there is a fair quantity of 'grey on grey'. Varnished ware plain or with incised ornament is found in the surface metre, and though the stratification is confused it must belong to a rather later phase of the Late Neolithic Age. About the same level Early Bronze pottery appears, and it seems likely that, as at Hágios Mámas and Kritsaná, the two cultures overlapped. It is noteworthy that Early Neolithic painted wares were found even in the uppermost levels. Their quantity, and in some places (e.g. in Pit A) their position above floors, make it certain that they are contemporary with the Late Neolithic and Early Bronze pottery found along with them.

¹ In D, where the hard trodden level of Late Neolithic 1 at 2.45 m. was unproductive, a pebble hearth and paving, with lumps of burnt daub lying on it in places, were found at 2.10 m. In the north of D a Byzantine grave, found in a disturbed condition, had been sunk to the level of Early Neolithic 2; five rough stones which formed the floor were probably taken from the Neolithic wall.

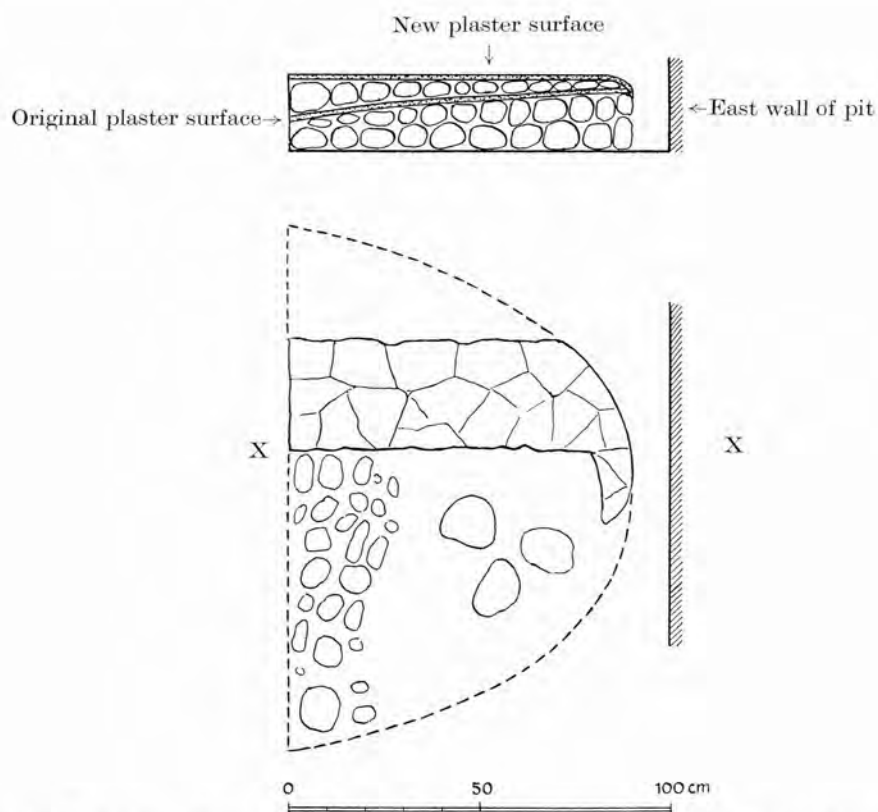


Fig. 51. Sérvia. Pit A; L.N. semicircular hearth; plan and section XX. The original hearth had two layers of pebbles as bedding for a plaster surface; when the surface had, in course of time, tilted, a single layer of pebbles with a new plaster surface was added. Other hearths, found at various levels, were similarly constructed, but some were circular (cf. Fig. 52).



Fig. 52. Sérvia. Pit F; E.N. settlement 4; hearth at 4-10 m. (= Fig. 45Z).

THE TSERNA VALLEY¹

A little south of Bitolj, the Tserna river changes its direction from south to north-east, and leaving the open valley plunges into a rocky gorge. Along its course in the valley are numerous mounds, which may be classed in three groups: (1) those between Kruševo and Bitolj; (2) those in the neighbourhood of Bitolj; these extend as far as the Greek frontier; (3) those lying in the same valley but some distance south of the point where the river changes direction.

ARMENOCHÓRI (T₁ on Map)²

Armenochóri belongs to this third group. It stands in the plain 5 km. east of Flórina, on the edge of an escarpment at the eastern foot of which a tributary stream flows northwards to join the Tserna (Fig. 53).



Fig. 53. Armenochóri. View from the east (x = position of pits A-E).

The top of the escarpment is about 13 m. above the stream. The deposit itself is estimated as having a maximum thickness of about 2 m., but, on account of a modern cemetery, only the edges could be explored (Fig. 54).

Four soundings were made, each 2 m. square in a row along the northern slope: later, the two middle ones were joined and extended northwards, and in this enlarged pit (Pits B, F and E) measuring 6 × 6.5 m. with an eastward extension 2.5 m. long and 2 m. wide, all the important finds were made. To control the results two more soundings X and Y (also 2 m. square) were made on the south-east slope: all were carried down to virgin soil.

The northern area had been much disturbed by the graves of Bulgarian soldiers; remains of two cultural strata and probably of three occupation levels were, however, identified.

Fig. 55. The remains of the two earlier settlements extended down the northern slope; the lower (3)³ rested on a layer of rich brown earth immediately above virgin

¹ Cf. Rey, 1, pp. 171-5; *B.S.A.* xxvi, pp. 34-7; *B.A.S.P.R.* ix (May, 1933), p. 20.

² Cf. *J.H.S.* LI, p. 197. The description here given is by Mr R. J. H. Jenkins.

³ Numbers in brackets refer to Fig. 55.

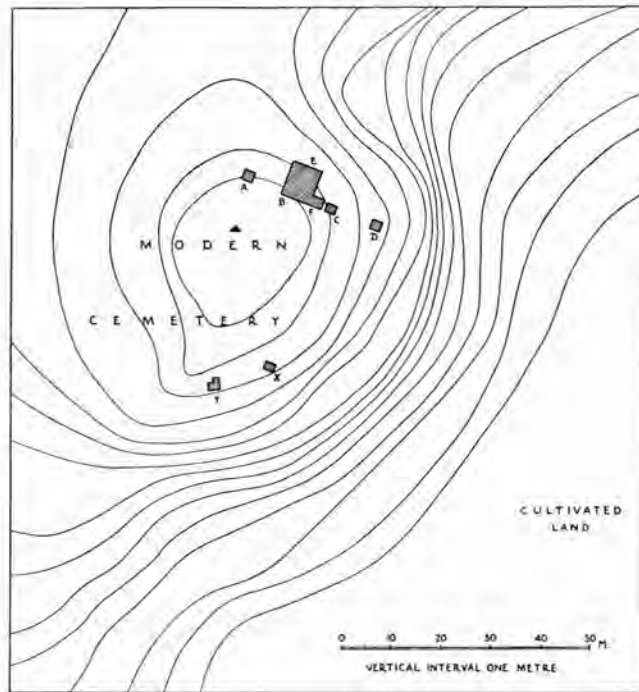
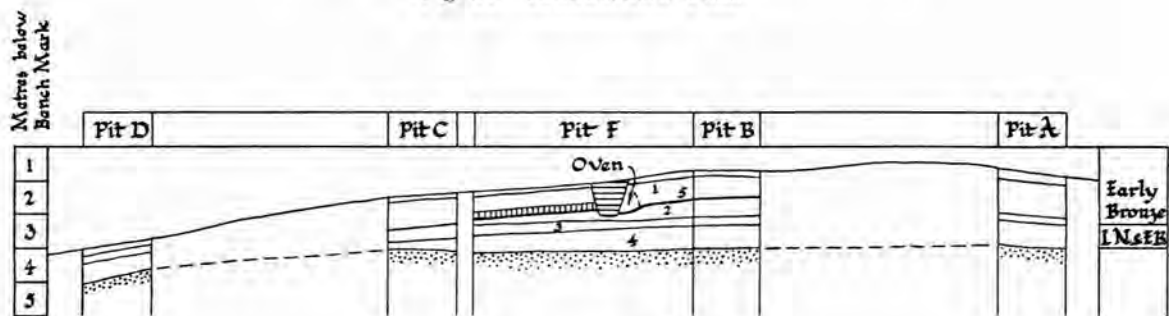


Fig. 54. Armenochóri. Plan.



Section along South Face of the main pits

- Wall of mud brick
- Natural Soil
- Modern Grave

Scale of Metres

- 1. Settlement III
- 2. Settlement II
- 3. Settlement I
- 4. Brown earth
- 5. Carbonized earth

ARMENOCHORI

Fig. 55¹. Armenochóri. Internal faces of pits.

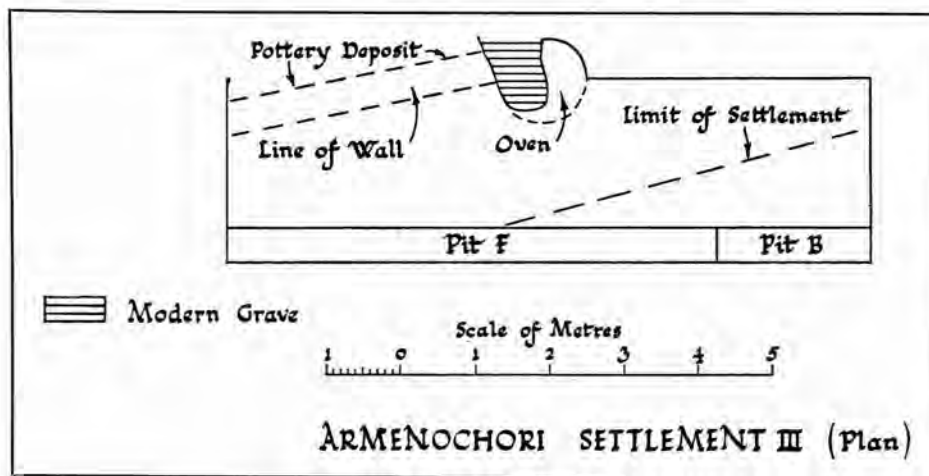


Fig. 56¹. Armenochóri. Settlement 3, plan.

¹ Figs. 55, 56 made by Mr C. A. R. Radford.

soil (4); its huts were of sun-dried brick, and some of these having been destroyed by fire turned into a hard red mass which afforded a firm substructure for the next settlement (2). Traces of this settlement were a foundation-wall of flinty stones and some post-holes, running down through the burnt debris to virgin soil.

The third settlement (Fig. 56) stood on the crown of the hill in a stratum of gravel just below the surface (1). A line of carbonized earth (5), 5 cm. thick, separated it from the settlement below (2). Traces of a large oven lined with whitish plaster and containing two cooking-pots intact were found; eastward from it in a strip of burnt clay, the remains of a mud-brick wall, lay a row of two-handled mugs¹.

Further exploration southwards was impossible on account of the modern cemetery.

In the two subsidiary soundings (X, Y) the same two main strata were detected.

Apart from a few Neolithic elements in the lower settlement, the remains all belong to the Early Bronze Age, and those of the uppermost settlement probably to a late phase of it, perhaps, in point of time, coincident with the Middle Bronze Age in Central Macedonia

¹ 320-349 and the one-handled cup 319.

PART II¹

Chapter I

THE FINDS

Chapter II

GENERAL

¹ All references to figures are to Part III unless otherwise stated.

Chapter I

THE FINDS

A. EARLY NEOLITHIC AGE

THE POTTERY

The earliest pottery from that part of Macedonia with which we are concerned is that from the lowest stratum at Sérvia in the Haliákmon Valley in Western Macedonia. Most of it belongs to the **Painted**¹ and **Scraped Ware**² categories of Thessalian pottery. There is a small quantity of **Plain Red Ware (11)**³ but of an undistinguished kind. In the case of the **Painted (1-5)** and Figs. 1-3), the slip is more often yellow than white, and the paint itself is often buff. The designs were sometimes enhanced by pricked dots, arranged in horizontal parallel rows (Fig. 3 *a-d*)⁴. More common is the Scraped ware (6-10 and Fig. 4). The technique is the same as that described by Wace and Thompson⁵. Two coats were laid on, the upper was then scraped off with a blunt-nosed tool. The upper coat is usually red or pinkish red or buff, and the lower the same colour as the upper but of a lighter tone. The blurred effect was the result of polishing. The Painted vases are also blurred, but the blurring was produced differently, apparently by painting on top of the slip before it was dry (Figs. 2*f* and 3*g*). In both cases the effect was intentional.

The range of ornaments, in both Painted and Scraped, is rather limited; the Painted are mostly decorated with multiple zigzags fringed with projecting rays, the Scraped with interlocking diamonds or half-diamonds, or groups of sweeping curves, these latter motives being determined to some extent by the technical process.

Forms like 2 were the most frequent; but fragments of rims and necks show that vases like 9 or 10 were also common. Among many strap-handles, which usually have upturned edges (9), three with round perforations deserve notice (Fig. 2*b*)⁶.

From first to last, forms and decoration in both categories remain, as far as was observed, unchanged.

Fig. 5. Rather coarse vases were decorated, as in Thessaly, with short **incised** strokes, straight or curved—for the latter the finger-nail was sometimes used

¹ Cf. *P.T.* p. 14.

² Cf. *P.T.* p. 14.

³ Cf. *P.T.* p. 13.

⁴ Cf. *Larisa*, Beil. xx, p. 13.

⁵ Cf. *P.T.* p. 14.

⁶ Because they seem to anticipate E.B.-M.B. handles at Armenochóri (345).

(Fig. 5e)¹—rather closely spaced and disposed apparently over the whole surface of the vase.

Of other **Coarse Ware** very little was found (12). Pithos fragments at Sérvia have plastic strips with impressions as in the Bronze Age, and some coarse pots were decorated by means of the Scraped technique.

Apart from Sérvia, hardly any Thessalian A wares are known from Macedonia. The red-on-white sherds found at Aiváte are of the same family, but are more like Central Greek than Thessalian², and a few plain red sherds resembling Thessalian A1 have been picked up on the Kalamária mound³.

Of local Thessalian varieties it is to that of Tsanglí⁴ and settlements in the neighbourhood of Lárissa⁵ that the Servian pottery is most close, both in form and in decoration.

MISCELLANEOUS OBJECTS

Stone. In the lowest stratum at Sérvia were found forty-five flat river-pebbles, which had been waisted by chipping (Fig. 6j, k). The purpose of these objects is proved by the fact that the ends are bruised. They are in fact a kind of axe, which was probably set in a cleft stick; the nicks in the side prevented it slipping and also made easy the attachment with thongs. In form they resemble the Egyptian pre-dynastic axe⁶, and similar objects have been found⁷ in Mesopotamia⁸, in Thessaly⁹ and at Vinča⁹, but not in large numbers as at Sérvia, where they continued to be used as late as the Early Bronze Age. In the Early Neolithic Period almost circular pebbles were preferred¹⁰.

Of the ordinary celts a fair number (thirty-six) were found (Fig. 6a-e). They do not require elaborate classification; the distinction is between those that are round or almost round in section (Fig. 6c), those that are almost rectangular (Fig. 6a), and those that are intermediate between the two, i.e. with one flat and one arched face (Fig. 6b). Most are made of grey or black stone, not highly polished, two are of veined greenish stone. The end which was held by the haft was sometimes left rough.

Small chisels (Fig. 6f-i) are of black or green stone, and may be triangular or almost square. They are bevelled on one face, which is usually flat. As at Olynthus¹¹, chisels are often made by splitting celts (Fig. 6i).

¹ Cf. *Larisa*, Beil. xx, 2.

² For reasons which will be given later I have classed them among L.N. fabrics. Cf. p. 75, note 1. But I may be wrong.

³ In the collection of the British School.

⁴ Cf. *P.T.* Figs. 40c, h, 44b, c, 45-48, 49a, b. Cf. especially the ornament Fig. 44c with our Pl. I, 1. The bowls at Tsanglí have not such steep sides as ours.

⁵ Cf. *Larisa*, especially Beil. xxi and xxiii.

⁶ Cf. Petrie, *Prehistoric Egypt*, Pl. XXVII, 20, 24.

⁷ At Nineveh. Cf. *A.A.A.* xx (1933), Pl. LXX, 16-19. They are described as 'flat pebbles chipped as toggles'.

⁸ Cf. *P.T.* Fig. 27h (Rachmání).

⁹ Cf. *Danube*, Fig. 14.

¹⁰ For the use of almost identical axes to-day, and for the manner of making and hafting, cf. *Primitive Methods of working Stone, based on experiments by Halvor L. Skavlem*, The Logan Museum, Beloit, Wisconsin, Pls. 37-43, 57.

¹¹ Cf. *Olynthus I*, p. 65.

Other objects are hammers, wedges, pestles (Fig. 6*l*), rubbers (Fig. 6*m*), whetstones, large ovoid pebbles used as pestles (?), one of which had traces of red matter (ochre ?) on it, pebbles used as polishers, a flat piece of schist with channels on both faces like a mould (Fig. 6*p*), and traces of ochre (?) on one of the broken sides, and part of the ring-foot of a stone vase¹.

There is also part of a white marble bracelet, channelled (Fig. 6*o*).

Part of a blade of pink banded flint was found in this stratum (Fig. 6*n*).

Clay. Clay objects include four spheroid but rather formless whorls or buttons, one a hollow cone decorated on both faces in the painted technique (Fig. 7*l*); seven discs made of chipped sherds, of which one is perforated and one half-perforated. Four are from scraped, one from a painted vase (Fig. 7*k*). The purpose of the pitted clay cube (Fig. 7*g*) is unknown².

Of the three figurines, one was found on the floor of the burnt House (Fig. 7*i*). Another, of dark grey clay, has a strange bird-like head (Fig. 7*j*); the hair is indicated by incised lines, and there are four incised bars on each shoulder. The third is a fragment of a hollow mask in the technique of the painted vases (Fig. 7*h*).

Bone and Horn. There were many bone tools (gouges, awls, or needles) (Fig. 7*a-c*), and a polisher; some horn tools including a sleeve, which has been hollowed at one end to hold the stone blade (Fig. 7*d*), and then perforated transversely for the haft³; ornaments are a bored tusk (Fig. 7*e*), and bored shells (Fig. 7*f*).

Houses, etc. The scope and system of the excavations did not permit of uncovering large areas, and consequently complete house-plans were not recovered; but sufficient indications exist at Sérvia to show that rectangular houses with stone foundations of single stones and wattle-and-daub superstructure were in use⁴. The burnt House, however, which belongs to the end of the period, proves that stone foundations were not indispensable, the supporting posts of the roof being sunk in the debris of earlier houses⁵.

On the floor of this burnt House were two large painted jars⁶; a tiny, handleless saucer of dull red colour⁷, and about thirty Early Neolithic painted sherds, many of which had changed colour owing to the heat.⁸ Inside one of the jars were three spheroid spindle-whorls, and among the carbonized remains of wood scattered about were carbonized grains of *Triticum durum* and of lentils.

A type of hearth, round or half-round with clay floor on a bed of pebbles, persisted here throughout both Neolithic periods into the Early Bronze Age⁹.

¹ Cf. *Larisa*, Pl. XXII.

² Possibly a figurine. Cf. Fig. 67*a, d*. For pitted stone idols cf. Zammit, *Prehistoric Malta*, Pl. IV.

³ Cf. Δ-Σ, Fig. 243; *Danube*, p. 40, and Index of Subjects under *sleeves*.

⁴ Cf. Pt. I, p. 49, and Figs. 45, 47.

⁵ One = 10.

⁶ E.g. Fig. 3*e*.

⁷ Cf. p. 51.

⁸ = 11.

⁹ Cf. Pt. I, Figs. 51, 52.

The earliest settlement was protected by a fosse¹.

Animal² and Vegetable remains. Chestnut was used for the uprights of the same burnt House³, oak and pine for the roof beams⁴. The wheat found on the floor has a special interest on account of the origin and distribution of this variety⁵. The variety of the lentils is not known.

B. LATE NEOLITHIC AGE

THE POTTERY

The Late Neolithic period is introduced at Sérvia by the appearance of four new kinds of pottery, viz. **Incised, Black-polished** with its varieties, '**Grey-on-Grey**', and **Painted**. These new wares did not entirely replace the old, which continued to exist side by side with them. Stratigraphically all four make their appearance at the same level, above a thick layer of burnt debris, so widespread that practically the whole settlement must have been involved in a big fire⁶. The simultaneous appearance of the new kinds of pottery at this point can mean only one thing, viz. the arrival of new people, but it does not of necessity follow that the newcomers brought all four kinds of pottery, ready-made, with them. On the contrary, it seems likely that, of the four kinds, three arose as a result of experiments (whether made by the old or the new potters we cannot know) prompted to some extent by chance discovery due to the fire itself: only one kind, the **Incised**, seems to owe nothing to the old local tradition, but rather to represent the ideas of the newcomers as to what shape a pot should be and how it should be decorated.

The only certain form of the **Incised** vases is a shallow handleless bowl, sides and base forming a continuous curve (13, 14, Figs. 8 and 9, except *f*)⁷. The clay is well-sifted, the walls fairly thick, the surface brown or black and often very highly polished. The decoration is carried out by reduplicated parallel lines forming bands, loops, chevrons, zigzags or fillets. The lines were often, though not always, produced by a series of discontinuous strokes or stabs, usually made by some tool with a crescent end, perhaps a split straw, and were then filled with some whitish matter or ordinary clay.

The next class of new pottery at Sérvia is the '**Grey-on-Grey**' (15–18 and Fig. 10). Unlike the painted styles, to be described later, which, while they differ from place

¹ Cf. p. 45.

² Report not yet received.

³ Cf. p. 53.

⁴ Cf. p. 53.

⁵ Cf. p. 113; *Antiquity*, vii, p. 76. The wheat found in House Q at Rachmáni has not been identified with certainty, but may have been *Triticum durum* (cf. *P.T.* p. 262).

⁶ Cf. p. 52.

⁷ It is not possible to reconstruct the zoomorphic vase which was found with the skeleton (Fig. 9*i*), but 156 (from Olynthus) may be compared with it.

to place according to local tastes, are still united by common elements, the **Grey-on-Grey** is a disconnected style and seems to have been produced originally at Sérvia, whence it was distributed not in the direction of Central Macedonia and Chalcidice, but southwards to Thessalian settlements, retaining, as far as we can judge, its distinctive character unchanged¹. Is the term 'Grey-on-grey' misleading? In Thessaly it was suspected by Wace and Thompson that the original colour of the decoration was not grey², and that this suspicion was justified is proved by many pieces found at Sérvia, on which the paint is actually pale orange or red. The question remains, was it the intention of the potters to produce a reddish tint, which, however, owing to mischance in the firing or insufficient fixing of the paint often turned grey, or was it their intention to produce grey, applying a reddish paint which they knew from experience would turn grey in the baking? I think the latter is the right explanation. Given the known skill of the potters, it is unlikely that the complete pots or the numerous fragments, in which the paint has fired a consistent grey, are all failures, but it is easy to understand that parts of a pot should have, by some accident of firing, retained traces of the colour originally applied. In the case of **15** the band on the rim is bright orange and the upper part of the zigzag a pale orange. This vase was found in a layer of ashes, the remains of a wood fire, above a burial³ and its whole surface shows marks of discoloration. It looks as if it was placed in the fire, mouth downwards, with the result that the decoration on the rim and the upper part of the body have turned from grey, the colour when the vase was taken out of the kiln, back to orange, the colour when it was put in. The brighter tone on the rim would be due to the great heat to which the upper part of the vase was exposed, when it was lying mouth downwards in the ashes⁴.

Technically the grey-on-grey vases are the finest the Neolithic potters produced. In the best examples (especially **15** and **16**), the walls are remarkably thin, the surface texture smooth and firm and the delicate lines of the decoration drawn with a sure hand. In spite of some resemblance in forms⁵ and ornaments⁶ to Early Neolithic, this class gives the impression of something new and individual⁷ and really close parallels are to be found only in the corresponding ware in Thessaly.

Macedonian Neolithic **Black-polished** ware is in fabric identical with the Thessalian (Γ1α), and the alternative methods of enhancing the polished surface which

¹ Cf. *P.T.* p. 17, Fig. 57a-e, Pl. IV, 5, 6; Δ-Σ, p. 243; *Larisa*, Beil. xxvi, p. 8; *B.M.C.* A. 172-5.

² Cf. *P.T.* p. 17.

³ Cf. p. 54.

⁴ Not having expert technical knowledge I make this suggestion with the greatest diffidence and refer the reader to the recent experiments made by Prof. Childe and Prof. Barger. Cf. *Man*, 1937, §55.

⁵ Cf. **15** and **16** with **2**, **5**, **8**; **17** with **11**.

⁶ Cf. the zigzag band (**15**) with *B.M.C.* A. 107; the forked ornament (**17**) with *P.T.* Fig. 42a: in view of the overlapping (cf. the stratification at Tsangli, *P.T.* Fig. 63), the E.N. potters may have been the borrowers.

⁷ E.g. the string of beads (**16**) and the monogram-like ornaments **16**, **18**. For similar monogram-like ornaments cf. *P.T.* Fig. 10, on Incised ware, from Rachmani. For a string of beads on Painted ware cf. Fig. 14 (i) f, a sherd which, incidentally, suggests a connection between Crusted ware and Grey-on-grey.

are found in Thessaly, i.e. by **white painting**¹, **burnish** decorating², **rippling**³, and **beading**⁴, are also found in Macedonia, as well as one other, viz. **ribbing**, which, as far as I know, is unknown in Thessaly. Now all varieties, except the Incised, were found at Sérvia, which also produced more of this ware than any other site, and where, for reasons given later, it seems to have originated. We may therefore take Sérvia as the starting-point for an examination of this remarkable pottery.

Most of the vases are rather wide handleless bowls with rounded bases, not unlike the Incised in form, but deeper (19–25, 27–38). The lip is slightly out-turned, the walls are very thin with finely graduated curves; an angular or carinated profile (26, 39–42, 51, 52) with flat or rounded base appears to be later. The thick black coat is worked well into the clay and, in consequence, seldom flakes off: it is less thick on the inside, where the colour of the clay shows through. Sometimes the black coat is not carried beyond the inside of the rim, the colour of the inside is then such as resulted from the firing of the uncoated clay, i.e. red, yellow or grey. This black coat was very highly burnished and a fine glass-like surface obtained.

Now, in spite of the obvious difference of form and of surface treatment, there is a fundamental technical relationship between this fine black pottery and the fine Red-on-White or Scraped wares of the earlier periods. The same kind of kiln and the same technical processes must have been used to produce both varieties, and, speaking very much under correction, I suspect that the secret of producing this fine black-faced pottery was discovered by chance by the makers of the earlier Painted⁵. It is quite common at Sérvia to find pieces of the Red-on-White or Scraped vases which, owing to misfiring, have turned black owing to being left in contact with intensely hot objects. At the time of the big fire the heat was so great that masses of the mud plaster which covered the reed and timber roofs and walls turned into something of the consistency and colour of brick, and sherds originally baked red, lying on the floors of the burnt houses, and subjected to the influence of the glowing mass, have turned black (Fig. 3e)⁶. Given a taste on the part of the newcomers for dark-faced pottery, combined with the chance discovery how a black shiny surface could be produced, the origin of the black-polished ware is explicable, but whether the discovery was accidental or not, I think the black-polished could hardly have arisen but for the expert technical knowledge of the older potters. It is to them also that the idea of decorating the pots by **Ribbing** must be attributed.

¹ Cf. *P.T.* Figs. 55a–l, 58e; Δ – Σ , Figs. 133–5; *Larisa*, Beil. xxvi, pp. 6, 7, 9–10.

² Cf. *P.T.* Fig. 55n–p; Δ – Σ , Figs. 139, 140; *Larisa*, Beil. xxvi, pp. 1, 3, 4; *B.M.C.* A. 218.

³ Cf. *P.T.* Fig. 55m; Δ – Σ , Fig. 138; *B.M.C.* A. 166, A. 219.

⁴ Cf. *Larisa*, Beil. xxv, pp. 6; also sherds in British School Collection.

⁵ I know that in Thessaly black-polished pottery existed in period A, and I suspect that a good deal of it belongs to the L.N. Age, though its position within the period is much disputed. But the Sérvian potters had lost the black-ware tradition, if it had really come into being, before the migration from Thessaly into Macedonia, and for them true black pottery was an innovation. Scarcely a single black sherd was found at Sérvia in the E.N. stratum.

⁶ Cf. however p. 68, note 4.

Ribbed Ware. In the pre-fire levels were found many pieces of Scraped ware in which the paint displaced by the scraping was left as it were piled up on one side or the other of the tool as it passed over the surface: and thus when the scraped lines lay close together a narrow raised rib was left between them (Fig. 4, especially *d, g, i*). I think it may have been this practice which gave rise to the ribbing with which many of the black-polished vases at Sérvia are decorated. But it was the idea of ribbing, not the process that was imitated. By the scraping process a very restricted number of ornaments could be obtained, and it was therefore sought to produce ribs by another method, and it was discovered that this could be done by *painting* the lines of the design on top of the black coat with the same black pigment. If the mixture in the brush was sufficiently thick, the lines would then stand up in relief from the rest of the surface. Subsequent polishing would reduce the sharpness of the edges a little, but the desired effect was achieved. The ornaments are varied, but simple. They occupy a broad zone round the upper part of the vase, and consist of hatched triangles, groups of vertical lines, opposing groups of oblique lines, oblique lines in pairs, or crossed (19–29 and Fig. 11*a–e*). A zone of **Beading** was sometimes added, bounding the ornamented zone on its upper edge (27–29), or as sole ornament (30). This beading is really a row of tiny pellets made, like the ribs, by the brush dipped into the thicker pigment¹.

True Ribbed ware has not been found in Macedonia outside Sérvia, but is known from Central Greece². Beaded ware is found in Macedonia at Hágios Mámas (cf. Fig. 25*i, j*), and a red example at Várdina³, and has also been found in Thessaly⁴, Central Greece⁵, and Lefkás⁶.

A small quantity of **Rippled** ware was found at Sérvia. This technique consists in tracing in the soft clay very shallow parallel grooves close together: where the grooves are deeper and farther apart the ware is better described as **Grooved**. The two classes may, however, be considered together. The difference between them can be seen by comparing Fig. 11*h* with 11*i–l*. At Sérvia the grooves usually run horizontally, combined in one case (red-polished) with beading (31), but there are a few pieces in which they are oblique (34, 36).

Rippled or grooved vases are on the whole rare throughout Macedonia. Kapoutzédes⁷, Várdina (Fig. 11*g, k*)⁸, Aiváte (Fig. 21*b*), Hágios Mámas (Fig. 25*l, n*), Olynthus⁹,

¹ Cf. note 2.

² Cf. *Orchomenos II*, p. 17 and Pl. VII; combined with beading Pls. VII, 2, X, 2*a, b*.

³ Cf. *Várdino*, p. 21.

⁴ Cf. *P.T.* p. 15 (A 57); and here p. 68, note 5.

⁵ Cf. *Orchomenos II*, pp. 16, 17 and Pls. VI, VII. Kunze here (p. 17) gives a different explanation of the way the beads were applied, but not, I think, the right one.

⁶ Cf. Dörpfeld, *Alt-Ithaka II*, Beil. 86.

⁷ Cf. Rey, II, Pl. XXIII, 1–5; note also one (*ibid.* 6) from Saratsé.

⁸ Cf. also *Várdino*, Pl. VIII, 5, 6, 7, the last a shallow running spiral on the side of a cup, and Pl. X, 10, 12.

⁹ Cf. *Olynthus I*, Fig. 51, classed as 'burnished'. The grooved spiral by the side of the handle is especially interesting, in view of later Macedonian examples.

Kritsaná (Fig. 27 *b, l*)¹ and Armenochóri (104, 105) each produced a small quantity.

A technique akin to rippling is that of tracing on the shoulder a row of oblique almond-shaped grooves, which produce the effect of rippling. This is found at Sérvia (35, grey-polished), and there is one example from Várdina (110)².

Rippled or grooved ware is known from Thessaly³ and Central Greece⁴, and I found a tiny fragment in the 'Cave of Nestor' at Pylos⁵.

White on black-polished. The idea of decoration with white paint also seems to have been inspired by the earlier wares, pieces of which found in the pre-fire and in the fire levels have turned accidentally from their original colour to black and white. It is most unlikely that the newcomers brought the white-on-black technique with them, but, evidently, they appreciated the effect and set the potters to discover a pigment which, whatever its colour, when applied to the unbaked pot, came out white after firing. The colour on the finished vases is rather fugitive and often barely survives washing. There are a fair number of pieces from Sérvia (37–41 and Fig. 17 *a, d, e, p*). Here, as elsewhere, the ornaments are very simple, and usually consist of groups of oblique lines, very thin and delicate. One vase has a wavy line (38). The shapes are much the same as those of the Ribbed ware, but at Várdina, where white-on-black is the rule, we have perhaps to do with the second phase when vases with angular profiles (110, 111) and with flat not rounded bases are common and handles more frequent (113, 114)⁶. At Várdina also curvilinear ornaments are usual (112–114 and Fig. 17), combined, however, fairly often with rectilinear (Fig. 18 *a–c, f*). But, as far as could be observed, the curvilinear, i.e. loops, groups of undulating lines, terminating in one case in a spiral volute (Fig. 18 *i*), groups of lines arranged like growing plants⁷ or the petals of a flower⁸ are found on vases with curved outlines, whereas the rectilinear are found rather on the vases with angular profiles (110, 111) which invite a tectonic arrangement. As will be seen later, the Várdina curvilinear style is paralleled by the dark-on-red painted style of Kritsaná, and that the two techniques were in fact interchangeable at will, is shown by a sherd from Saratsé, which is white on black-polished on the outside and dark-on-red on the inside (Fig. 20 *a*)⁹. One is constantly being surprised by the extraordinary skill and

¹ Fig. 27 *b* is grey, and has white-painted ornament also. Collared bowls with rippled shoulders continued into the E.B. Age, and can be distinguished only by their fabric, e.g. Fig. 56 *i*.

² Cf. also *Vardino*, Pls. VIII, 10, X, 10.

³ Cf. *P.T.* Fig. 55 *m*.

⁴ Cf. *P.T.* p. 204 (Drachmáni); the 'Grooved' ware at Orchomenós I have classed as 'Ribbed'. Cf. p. 69; *Eutresis*, p. 78 and Fig. 94, described as 'decorated with shallow ribs impressed into the clay before polishing'. A peculiar kind of rib.

⁵ Collection of British School at Athens.

⁶ The handles (Fig. 19) may also come from white on black-polished vases.

⁷ Cf. *Vardino*, Pl. VIII, 14.

⁸ Cf. *Vardino*, Pl. VIII, 11.

⁹ For the use of white on the outside and dark on the inside, cf. a bowl from Diméni (*Larisa*, Taf. III). But in this case the ground is red on both sides.

command of their craft shown by the Neolithic potters, and in view of the excellence of their products the elaborate nature of the kiln at Olynthus¹ is not surprising.

A small quantity of white-on-black polished was found at Kapoutzédes², at Aiváte (Fig. 21*a, d*), Sédes (Fig. 23*c, d*)³ and in Chalcidice at Hágios Mámas (Fig. 25*g, h*) and Kritsaná (134 and Fig. 27*a-c, f, i*)⁴.

It is known from Thessaly⁵ and Central Greece⁶.

For the ordinary white paint a graphite mixture was sometimes used. Five pieces come from Várdina⁷, one from Olynthus⁸.

Burnish-decorated. Kunze recently noted that there are two classes of burnish-decorated Neolithic ware at Orchomenós; one⁹, confined to black vases in which the deep black slip is partially scraped off, and on the lighter ground of the spaces thus cleared, fine lines are traced with the burnishing tool. In the other class¹⁰, the slip which is often of a lighter tone is not brought up to a uniform closeness and polish, but the strokes of the burnisher are more or less widely spaced, leaving the lighter ground to show between them. On this ground are burnished simple patterns, cross-hatching, etc. I am not prepared, without fresh study of the material, to say to which class the rare examples of burnish-decorated ware from Macedonia belong. But I should be inclined to assign 42 to the first class, though I am not sure if the light zone is produced by scraping or merely reserved, and the sherds from Aiváte (Fig. 21*c*)¹¹. To the second class the sherds from Hágios Mámas, one of which has a light brown ground (Fig. 25*m*), the other a red; also a few sherds from Várdina¹².

Scraped. Only two sherds in which a pattern has been produced by scraping alone are known to me, both from Várdina, one black¹³ and the other yellow¹⁴.

Incised. Incision as a means of ornamenting black-polished ware is unusual. A few fragments have been recorded from Sédes (Fig. 23*a, b*), where the incision was

¹ Cf. *Olynthus I*, pp. 12-18.

² Cf. Rey, II, p. 227.

³ Cf. also Rey, II, Pl. XIII, 8.

⁴ The polished ground is grey rather than black, and in the case of Fig. 27*c* the paint is graphite.

⁵ Cf. especially *P.T.* Fig. 55*a-l* (Tsanglí) and *Larisa*, Beil. xxvi, pp. 6, 7, 9, 10.

⁶ Cf. *Orchomenos II*, Pl. VIII. The paint is described (p. 17) as 'Tonschlemme der ein deutlich tastbares Relief eigen ist'—different in fact to the Macedonian.

⁷ Cf. *Vardino*, Pl. VIII, 8, 9.

⁸ Cf. *Olynthus I*, Fig. 70. Cf. also 133 (Kritsaná) and 128, 129 (Gioumenitza). It seems however to have been at home east of the Struma (sherds from Drama in the British School Collection).

⁹ Cf. *Orchomenos II*, pp. 18, 19 and parallels p. 19, note 4; Pls. IX, 1, 2, 3, X*a-g*. For Thessaly cf. *P.T.* Fig. 55*n-p*; *B.M.C. A.* 218 (Fig. 39), and *Larisa*, Beil. xxvi, pp. 1, 3, 4. To this class belong the sherds from Besika Tepe, *P.Z.* xxiii, 1932, p. 126, Fig. 13.

¹⁰ Cf. *Orchomenos II*, pp. 22-5 and Pls. XI, 1, XII, 1*e, f*, 2 and 3.

¹¹ Cf. also *B.M.C. A.* 87, 5-7.

¹² Not illustrated in *Vardino*. The burnish-decorated ware from Eutresis (*Eutresis*, Figs. 89, 92 and Pl. I, 1-3) seems to belong to this class. The examples from Orchomenos illustrated by Kunze seem much more like the Serbian than the Macedonian are, but this may be due to the fact that little has so far been found in Macedonia.

¹³ Cf. *Vardino*, Pl. XV, 15.

¹⁴ Cf. *Vardino*, Pl. XIV, 5.

made with a sharp instrument after firing. On the pedestal of a fruit stand from Várdina (115) a blunt instrument was used. Among the simple ornaments a pointillé ribbon at Olynthus¹ may be noticed.

Barbotine Ornament on Black-polished Vases. A technique, found only at Sérvia, and more often on coarse ware, is that in which the potter, working a round-ended scraper ray-wise from the base of the pot upwards, left the soft clay, removed by the tool, piled up at the end of each furrow, so that a kind of barbotine arcading was produced, which, however, stopped well short of the rim, leaving a plain zone, to be trimmed and polished in the usual way. In the case of black-polished vases, this decoration seems to have been applied only to wide open plates (56)². A rather similar technique is illustrated by 57, where part of the vase is left rough and covered with small pits, the excised clay being left at the edge of each³. A more normal kind of barbotine ware was also in use, to judge by a few tiny fragments (Fig. 13 (i) e)⁴.

Handles. Whereas almost all the black-polished vases from Sérvia are handleless bowls, a broad strap-handle, attached to a rim, was found in the upper level, from which a jug or cup must be inferred. From Várdina come several strap-handles (113 and Fig. 19*d*), some of which have horned projections (Fig. 19*a-c*), an anticipation of the trigger-handles of the Late Bronze and Early Iron Ages⁵. A similar horned handle occurs on a collared bowl with rippled shoulder at Armenochóri (105) and a horned string-hole on a vase from Hágios Mámas (Fig. 26*d*)⁶. Another handle form, characteristic of Macedonia in the Late Bronze Age, i.e. the thumb-grip handle, is also anticipated in the Late Neolithic period by several black-polished examples found at Olynthus⁷. A zoomorphic lug from Hágios Mámas is noteworthy (Fig. 24)⁸.

Fine Polished Ware of Various Colours. Not to be separated from the black-polished ware, but far less common, is a corresponding ware in which the coat has, by manipulation of the firing, turned yellow, red, grey or mottled. In the mottled vases the base is usually the part fired red (in the case of 22, yellow), less often the

¹ Cf. *Olynthus I*, Fig. 58. There is a fragment of the rim of a bowl in Neolithic (?) black-polished ware, ornamented by incision (curvilinear), from Alishar, in the British School Collection.

² For examples of this technique applied to heavier ware, cf. 87-90. Analogies to this technique can be found in many places, e.g. Starčevo, Malta, Alishar, Ithaca. Those from Malta are the closest, cf. Zammit, *Prehistoric Malta*, Pl. XXXII, 1.

³ Cf. *Larisa*, Beil. xx, pp. 4, 5.

⁴ On a sherd from Hágios Mámas (the rim of a bowl), only the lower part of the vase was polished; a broad zone below the rim is left in the rough (Fig. 25*k*).

⁵ Cf. p. 94, note 2; p. 104.

⁶ For examples from the Troad cf. *P.Z.* xxiii, 1932, p. 115, Fig. 2, 17, p. 118, Fig. 5, 7; p. 127, Fig. 14, 3.

⁷ *Olynthus I*, pp. 35, 36, Figs. 54-56. It is almost impossible to make out from the illustration (Pl. 56) the exact form of these handles, or, for that matter, from the description.

⁸ Principally for its Danubian affinities. Cf. also E.H. examples at Zygouries. For other Macedonian examples cf. Fig. 13 (i) (from Sérvia), and in stone Fig. 34*l* (from Olynthus). Cf. also the 'heads' on Diméni bowls.

rim. There is a particularly fine example of that kind of enhancement from Olynthus¹, one from Hágios Mámas and some (110, 113) from Várdina; 110, as well as being mottled, has added decoration of grooving and white paint. Fig. 18*d*, the rim of a bowl, also from Várdina, has a red-polished zone above the black, both crossed by white stripes. Sometimes more elaborate ornament was carried out in mottled technique (43). The yellow, red and grey varieties are sometimes decorated by ribbing (25 and Fig. 11*a*) or beading or white paint in the same way as the black-polished, to which their shapes also conform. At Várdina there is a large fragment of a wide grey bowl (116) which is ornamented with a row of closely set nicks on the angle between body and shoulder, and with groups of oblique parallel lines in white paint on the shoulder itself. At Kritsaná grey-polished (often white-painted) was preferred, as we have seen, to black (133, 134 and Fig. 27*a-c, f, i*). 146 (Olynthus) is red-polished.

Three vases from Gioumenítza may be mentioned here. All three are bowls with incurving rims and undercut profiles. One is reddish (129), one greyish brown (128), both with simple ornaments in white paint²; the third is greyish-red and has no decoration (130). All are well polished.

That these varieties coincide with the dispersion phase of the black-polished seems likely, since they are more common outside Sérvia than in Sérvia itself³, and since at Kritsaná they occur in fair quantity in the Earliest Bronze Age settlement, in which there is scarcely any black-polished at all.

Varnished. Also to be assigned to the later phase at Sérvia is a ware in which this deep black slip is replaced by a coat of rather thick lustrous paint (laid on with a brush) which tends to flake off more easily than the black slip. The tone is not so deep a black as in the case of the black-polished, and in addition to black, chestnut (65, 75, 76), deep red (67, 72, 82, 83), buff (78), pink (77) and mottled (66, 71, 73) were also used. In one case (85) the coat of orange-red paint is laid on so thinly that the brush strokes are plainly visible⁴. A carinated bowl with slightly out-turned lip is characteristic (62, 65-69). It seems to be due to a fusion of the collared and the rounded bowl. The same fusion is illustrated by a class of small bowls, many of which have retained the rounded bases (79-84). Other forms are bowls with incurved rims (74, 75, 76), some hardly to be distinguished from the well-known Early Bronze form, shallow bowls as in the Early Incised class (78), and dishes with flaring or bevelled rims and often undercut profiles (70-72). The table-vase (91) belongs to this class.

¹ Cf. *Olynthus I*, frontispiece, 3.

² For other similar sherds from Gioumenítza, cf. Rey, II, Fig. 36.

³ Examples from Sérvia are 34, 35, 50.

⁴ Cf. "Neolithischer Urfinis", *Orchomenos II*, pp. 31-5. Actually our whole group of varnished ware might be called *Urfinis*.

Later Incised. With the use of lustrous paint and the new forms is associated a new incised technique, in which the lines are now continuous grooves, and a new system of ornament. The ornaments fall into groups. On a class of dishes with flat or bevelled rims, simple combinations of wavy lines, straight lines and chevrons (58–61); the carinated bowl (62) has a zone of incised triangles filled with dots; the oblique bars on 63, 64 are derived from the rippled technique already described; there are also fragments, mostly from thick vases of large size, showing spirals, returning spirals and concentric circles (some of which are filled with white or pink matter), and other motives (Fig. 9*f*, Fig. 13(i)). Finally, a pyxis-lid and a zoomorphic lug (Fig. 13(ii), (iii)) have roughly cut parallel grooves.

Painted. The light ground which was occasionally preferred in the wares described above was also employed at Sérvia for a simple **Painted** ornament in a dark-on-light technique. It will be seen at a glance at Figs. 14–16 that we have to do with an aesthetic conception of how a pot should be decorated, that owes little to the Early Thessalian Neolithic. The ornaments are almost exclusively groups of thin vertical or horizontal lines, sometimes bordered by thicker ones; the paint is lustrous brown or reddish brown on a buff-ground, or white on pink¹. In three examples a supplementary colour has been used (Figs. 14(i)*e*, *g* and 15*e*).

Some Early Neolithic influence can, however, be detected in the white slip and the red paint (Fig. 14(i)*d*), in the blurred lines (Figs. 15*j* and 16*e*), and in the pinkish ground (Fig. 15*m*, *n*). So, too, the fine, slightly outturned rims (86 and Fig. 15*g*, *j*) recall Early Neolithic bowls, and the strap-handle with the upturned edges (Fig. 14(i)*g*) is probably derived from earlier forms. High stems (Fig. 15*e*) and pulled-out rims (86) are entirely new.

At Sérvia itself the new style did not have much success, perhaps partly for the very reason that it had to compete with the Early Thessalian, and partly because the black-polished developed a new phase², but as the settlements of the black-polished ware people spread eastwards over Central Macedonia and Chalcidice there arose at each a local painted variety. At Várdina, as we have seen, the white-on-black held its own, merely developing along the lines of a more free-style decoration. At Kapoutzédes we find **Crusted** three-colour³ (Fig. 22), at Sédes **red on white**⁴, at Saratsé **dark-on-red** (Fig. 20). The red-on-white at Aiváte (Fig. 21*e*) is perhaps

¹ In Fig. 14(ii) a stiff crusted pigment has been used which is not absorbed by the clay, but comes off easily; this sherd has in fact lost some of its teeth. In Fig. 14(i)*f* a dusty yellow pigment has been used, and in Fig. 15*m* a similar dusty white pigment, of which a broad vertical stripe has flaked off, but is still discernible. All these examples may be classed as 'Crusted'. It is typical of the new pottery that, though the crusted paint is foreign, the teeth are derived from the Thessalian rays of the earlier period. It should be remembered that normal Early Thessalian pots were still being turned out. For other examples of crusted ware from Macedonia cf. Fig. 22 and Fig. 27*k*.

² Cf. p. 73.

³ Cf. above, note 1, and Rey, II, p. 234.

⁴ Cf. following note. The Sédes sherds were found (Rey, II, p. 211) 1½ m. above virgin soil.

another such style and not really earlier than the white-on-black found with it¹. A fairly uniform dark-on-red style was spread all over Chalcidice, as is known from surface finds²; of the excavated sites a fair quantity was found at Olynthus³, a few pieces at Hágios Mámas⁴, while it formed more than 50 per cent. of the pottery in the lowest settlement at Kritsaná.

Kritsaná Painted. Here the vases are made of well-purified clay, fired light red throughout, with a smooth but not highly polished surface, of the same colour as the clay. The paint is usually purplish matt, but at times dull white (143, 144 and Fig. 27) or, rarely, crusted white (Fig. 27*k*) were used. The forms are dishes, open bowls, some with undercut bodies (136–141), some with incurving rims (136, 137) below which may be pointed lugs vertically pierced (137 and Fig. 28*c, k, s*)⁵, rounded bowls (143, 144), collared bowls (142), 'fruit-stands' (145 and Fig. 29*f*), vases of uncertain forms with large strap-handles on the body (Fig. 28*l*), and vases with horned handles (Fig. 30). The ornaments are almost all curvilinear, and there is a fondness for loops, in pairs or more, pendent from the rim (e.g. 138, 139, 141)⁶, inside and out. The style is really the counterpart of the white-on-black at Várdina, and we find the same curved bands starting from a single stem (Fig. 28*o*), which recall growing plants. There is one certain spiral (Fig. 29*b*) and probably more⁷.

The **Olynthus Painted** style is very similar⁸, but here the paint is lustrous as well as matt (Fig. 32). Forms include tumblers (147) and the usual wide bowls with angular⁹ shoulders.

At Olynthus, too, contemporary with the Painted ware is a corresponding **Incised** style¹⁰. The fabric is rather coarse and almost the only shape a three- or four-legged table-vase¹¹. The ornaments are rhomboids, triangles, etc., combined with simple spirals or pot-hook spirals, arranged in a somewhat haphazard way. There is one piece of better fabric, not unlike that of Kritsaná, in which, in addition to the

¹ Cf. also *B.S.A.* xxiii, Pl. IV, 1–5. Technically these sherds might be Early Neolithic, though the wavy lines are Central Greek rather than Thessalian at that period, but in view of the other local Macedonian painted styles of the L.N. Age with similar technique (i.e. lustrous paint on a light slip) there is no objection to regarding them as another instance of such styles. I should compare them rather with sherds like *B.M.C.* Fig. 40, A. 190, 1, from Tsangli, though this is three-coloured, and has matt paint, or with Figs. 14(i)*d*, 16*e* (both from Sérvia) where the paint is also matt. The bowls to which some of the fragments in the *B.M.C.* belong (A. 88, 4, 5) are described as 'globular with sharp shoulders', a form which suggests L.N. rather than E.N.

² Cf. *B.S.A.* xxvi, p. 30; *B.S.A.* xxvi, pp. 30–34, and Fig. 31 here.

³ Cf. p. 75.

⁴ But not all dark-on-red. Cf. 131 and Fig. 25*a–f*.

⁵ Cf. Diméni bowls.

⁶ Cf. *Larisa*, Tafel III.

⁷ For other ornaments cf. Fig. 27*d, e, j, m, n*, 28, 29, 31*g*.

⁸ Cf. *Olynthus I*, pp. 46–9.

⁹ Cf. *Olynthus I*, Pl. I, 1, which seems to be a bowl of Diméni form.

¹⁰ Cf. *Olynthus I*, pp. 39–46.

¹¹ Cf. *Olynthus I*, Fig. 60.

incision, red paint of a darker tone is used for the space enclosed by lines (148). This piece too is a part of a table-vase. There is also a jug with a vertical ribbon-handle¹, ornamented on the shoulder and handle², and a cup with four (?) small lugs (149).

At Várdina a few sherds, mostly grey, have **Grooved** lines, single or in groups³.

At Armenochóri, one piece, probably the leg of a table-vase, has shallow, vertical grooves, intermittent and widely spaced.

There is naturally a good deal of **Plain** pottery, which cannot be classed as either coarse or fine, but holds an intermediate position. There are many examples at Sérvia of a well-made grey buff or reddish or mottled ware, often conforming to the shapes of the finer wares (92–96, 101)⁴; at Várdina a similar **Grey** ware appears half-way through the Neolithic stratum (117–121). Olynthus has some good examples of **Plain** and **Black-unpolished** ware (150–159)⁵. The bowls from Armenochóri (106–109), two with undercut body⁶, the jug from Toptsín (127)⁷ and a two-handled vase from Hágios Mámas⁸, both of which are mottled, may be classed here.

Finally, to the category of Plain ware belongs some **Brick-red** ware from Várdina (122–126), which appears simultaneously with the grey ware mentioned above. A dish with straight sides is characteristic; shallow grooves, mottling and knobs are the only ornament⁹.

Coarse. Coarse ware is best represented at Olynthus¹⁰ (158, 159, 161). It is described as 'made of unsifted clay, full of small stones, sand and mica...thick and not well baked...clay porous...shapes not very regular'. With it may be classed a group of rather formless miniature vases¹¹ and a zoomorphic vase (160).

From Sérvia, 99 and 100 (plain) and 87–90 (with barbotine arcading) belong to this category.

As far as my own observations go, both at Sérvia and other sites, I have noticed that the coarse ware in this period is on the whole superior in baking and in surface texture to the corresponding Early Bronze Age ware, from which it can usually be distinguished. Other forms of ornament, beside the barbotine, are dentated rims

¹ Cf. *Olynthus I*, Fig. 64.

² The shoulder ornament is described as 'a single row of a toothed ornament placed between two parallel lines composed of wedge-shaped impressions'. The illustration (*Ibid.* Fig. 64) does not help.

³ Cf. *Vardino*, Pl. XV, 2–5.

⁴ Other examples from Sérvia, of rather inferior quality, are 97, 98, 102, 103.

⁵ Cf. *Olynthus I*, pp. 22–8 and p. 39.

⁶ 107 has simple incision.

⁷ Except 127, I have not seen the specimens illustrated by Rey, II, Pl. XXXIV. From 127 and from Rey's description (p. 233) I conclude that the ornament on the others was similarly produced, i.e. by mottling.

⁸ Cf. *Hagios Mamas*, Fig. 9.

⁹ These look rather like collared bowls which have lost their lower half. In 132 (Hágios Mámas) the fabric is identical.

¹⁰ Cf. *Olynthus I*, pp. 21, 22.

¹¹ Cf. *Olynthus I*, pp. 27, 28.

(Sérvia), rows of pits (Sérvia) or wedge-shaped impressions (Hágios Mámas), all as in Early Bronze ware.

To sum up: In the Late Neolithic Period we can detect two phases. The first of these is represented only at Sérvia, and is characterized by stroke-incision, black-polished ware and its varieties, grey-on-grey, and by an absence of bases and of handles. In the second phase, at Sérvia itself a simple painted style, varnish instead of polished slip, angular profiles and curvilinear incised ornaments become popular¹, while at each of the numerous settlements, offshoots of Sérvia, which now arose, we find a parallel development of local styles, differing from place to place, but all ultimately dependent on aesthetic conceptions which the first settlers at Sérvia brought with them. Characteristic here of this later phase is curvilinear decoration, the development of bases and handles, and of new forms, especially 'fruit-stands', bowls or jars with undercut bodies, and small pierced lugs set on or just below the shoulder.

MISCELLANEOUS OBJECTS

Miscellaneous objects of the Late Neolithic Period come mostly from the two sites of Sérvia and Olynthus.

Stone. At Sérvia in the Later Neolithic Period waisted axes (Fig. 33*m*), celts (Fig. 33*a-e*), hammers, pestles (Fig. 34*a, b*), and wedges of the same kind as before continued to be made. A certain number of axes and celts come from Central Macedonia, which typologically might be of Neolithic date, but their stratified position is not known².

The Neolithic stratum at Várdina produced a celt of greenish grey stone, with one flat face³. In Chalcidice a small black well-polished celt was found at Hágios Mámas⁴; Olynthus was particularly rich in celts (Fig. 33*f-l*)⁵. Sixty-five complete were found, large and small, made of iron-stone, soap-stone, and river-pebbles, and seven chisels made from the celts. The type with one flat face (Fig. 33*g-i, k, l*) should be noted.

From Olynthus, too, come several pestles and mortars (Fig. 34*c*), as well as grindstones⁶ and whetstones⁷; here the round pounder⁸, characteristic of the Bronze Age at all the sites, is already known, and a small pestle also anticipates an Early Bronze Age form⁹. Knives of flint and quartz occur, both at Sérvia and at Olynthus¹⁰. From Sérvia comes a flint arrow-head (Fig. 33*n*) and obsidian knives were already in use (Fig. 33*o*)¹¹.

¹ There is just sufficient evidence to show that they were known from the beginning.

² E.g. Rey, II, Pl. XLI; note especially 4, with one flat and one highly arched face.

³ Cf. Várdina, Pl. XIX, 18.

⁴ Cf. *Olynthus I*, pp. 63-75.

⁵ Cf. *Olynthus I*, Fig. 84.

⁶ Cf. *Olynthus I*, Fig. 87.

⁷ One was found below the skeleton: cf. p. 55.

⁸ Cf. *Hágios Mámas*, Fig. 27, 3.

⁹ Cf. *Olynthus I*, Fig. 83*b*.

¹⁰ Cf. *Olynthus I*, Fig. 83*b*.

¹¹ Cf. *Olynthus I*, Fig. 85.

Part of a vase of white marble with a lug in the form of an animal's head from Olynthus is interesting (Fig. 34*l*): the shape of the head is exactly like that from the clay vases at Sérvia (Fig. 13(iii)) and Hágios Mámas (Fig. 24). There are fragments of two more stone vases from Olynthus¹, two marble lids, one with three perforations (Fig. 34*k*) from Sérvia, fragments of bracelets from Olynthus (Fig. 34*m*)², and stone figurines from both.

Of the two from Sérvia one (Fig. 34*f*) is assigned to this period; the other (Fig. 34*g*) is particularly striking because of its pronounced modelling; in the former, eyes and breasts are indicated by pits. The seven figurines from Olynthus (Fig. 34*h-j*)³ are rather formless: four are made of local marble.

From Sérvia comes a perforated bead (Fig. 34*n*), part of a perforated pendant (?) (Fig. 34*o*), both of white marble, and a small hollowed stone, used as a palette; from Olynthus two sling-bullets (Fig. 34*d, e*).

Clay. At Sérvia there were two whorls in this stratum, both roughly biconical: a whorl from Olynthus is incised (Fig. 35*p*). Discs made of chipped sherds occur at both places, for which at Sérvia painted sherds were often used. From Sérvia come two pintaderas (Fig. 35*r, s*): also phalloi (Fig. 35*t, u*) vertically perforated, and a tiny bead (Fig. 35*q*). Note a sling-bullet with incised decoration from Olynthus⁴. The sling bullets from Kapoutzédes⁵ are analogous and may be assigned to this period in view of the presence at this site of Neolithic pottery.

Four figurines from Sérvia (Fig. 35*k, m*)⁶ belong to this period, including the expressive dog's head (Fig. 35*o*).

Only one figurine that could be assigned with certainty to this period was found at Olynthus (Fig. 35*n*). It is rather elaborately decorated with incisions and dots. A head with a long neck (Fig. 35*l*) is from Várdina⁷.

At Olynthus were found perforated spit supports (?) with flattened base, rounded⁸ or rectangular; one, spool-shaped and unperforated⁹, anticipates those found at Bouboústi (Fig. 104*v, w*) belonging to the very end of the Bronze Age. They have also been found in Thessaly¹⁰.

Bone, Horn and Shell. Of bone tools, one from Sérvia has a perforated end (Fig. 35*b*), another a ring end (Fig. 35*c*); the only one from Várdina has an ornamental head (Fig. 35*a*). Two combs (Fig. 35*e, f*) come from Sérvia.

There are two perforated horn tools from Sérvia.

Ornaments are a perforated tusk (Fig. 35*j*) and a shell bracelet (Fig. 35*i*) from Olynthus: a similar bracelet (Fig. 35*h*) and a perforated shell (Fig. 36*g*) from Sérvia.

¹ Cf. *Olynthus I*, Fig. 81*b, c*; cf. also *Larisa*, Beil. xxii.

² Cf. *Olynthus I*, Fig. 81*d, e*.

³ Cf. *Olynthus I*, Fig. 92.

⁴ Fig. 35*k* should be compared with *P.T.* Fig. 77*e* (from Tsangli).

⁵ Cf. *Vardino*, Pl. VII, 28; *P.T.* Fig. 75*e, f* (Tsangli).

⁶ Cf. *Olynthus I*, Fig. 89*d*.

⁷ Cf. *Olynthus I*, Fig. 73.

⁸ Cf. Rey, II, Fig. 37.

⁹ Cf. *Olynthus I*, Figs. 88, 89.

¹⁰ Cf. Δ-Σ, Figs. 278, 279.

Houses, etc. Structural remains of the successive occupation levels at Olynthus are of rectangular houses with one or two rooms, built of sun-dried brick, resting on low, rather thick foundations. The entrances were openings in the walls, and wood does not seem to have entered into the construction of the houses¹.

At Olynthus, too, was found the elaborate and interesting kiln².

At Sérvia a body was buried in a roughly circular pit³, cut through the hard baked floor of one of the burnt houses of the last Early Neolithic settlement. Below the body was an obsidian blade, in the crook of the right arm part of a zoomorphic vase (Fig. 9*i*); above, in the ashes of a fire, which had been lit above the body, several vases⁴, some apparently broken before they were placed in the ashes. Within the pit, at the same level as the vases, but not demonstrably associated with the lower burial, were five axes made from waisted pebbles, a small celt, and the fragment of a rectangular whetstone.

Of the later burial⁵, the bones and part of the skull were found, but all was in confusion. The following objects were within the pit at the same level and were presumably placed there at the same time as the body; two waisted pebble-axes, two small celts, a marble lid (Fig. 34*k*), part of a marble bracelet, an obsidian blade, a clay phallus (Fig. 35*t*), and two bone pins, both broken. A vase (76) stood on the hard floor at the edge of the cut.

Animal and Vegetable Remains. In the two lowest settlements at Kritsaná, which contained both Late Neolithic and Early Bronze pottery, were found bones of sheep (or goat), pig, oxen and deer; at Olynthus, sheep, oxen and wild boar⁶.

Wheat, millet and figs were found at Olynthus⁷.

C. EARLY BRONZE AGE

The standard site for this period is Kritsaná on the west coast of Chalcidice. Here the earliest settlement, which as we shall see reason to suppose is the earliest Bronze Age Settlement in Macedonia, was succeeded by five others, all of which fall within the period. Though the pottery is substantially the same throughout, what development there was can be accurately traced, and valuable evidence is thus obtained for the chronology of other sites.

In general, the Early Bronze Age Macedonian pottery is conspicuous for its rather poor quality in comparison with the Neolithic. The clay is usually gritty, porous and

¹ Cf. *Olynthus I*, p. 8.

² Cf. Pt. I, pp. 9, 10 and *Olynthus I*, pp. 12-18.

³ Cf. Pt. I, p. 54.

⁴ Including 15, 42, 91: the conical foot (42) contained red matter, perhaps ochre.

⁵ Cf. Pt. I, pp. 54, 55.

⁶ Cf. *Olynthus I*, p. 82. From Sérvia, a report on the bones is awaited. For the skeleton cf. Appendix II.

⁷ Cf. *Olynthus I*, p. 82.

on account of imperfect firing extremely friable. The quality improves towards the end of the period, when pots with a firmer texture were produced. Aesthetically a lack of inventiveness and experiment, in contrast both to the Neolithic and also to what was happening in the Early Helladic world, is characteristic, and, though the wheel was known almost from the beginning¹, little use was made of it.

On account of the uncertain firing the vases may be almost any colour, or several colours at once, but darker tones, especially grey, prevail. Few vases have more than the ordinary mechanical **slip**, but some have a thin coat of semi-lustrous **paint**² (*Urfirnis*), applied with a brush. The slipped vases (especially black) are sometimes well polished. Decoration, except for an elementary kind of **incision**, is almost unknown.

Bowls. Among the finer vases the characteristic form of the period at all the sites is a bowl, which may be quite small or have the dimensions of a basin, with sides sloping sharply to a narrow flat base and with an incurving rim (Figs. 36–38 and 162–167, 178–182, 207, 216, 217, 241, 242, 245, 246, 249–253, 282, 307–311)³. The degree of incurvature varies greatly, in some cases being very slight, while in others the extreme edge is sharply curled over. At Kritsaná broad rims increase in frequency from the third settlement until they become normal in the last (Fig. 36*h–m*; Fig. 38*d* and 250; Fig. 62*a, c* and 308, 309)⁴. Rims were sometimes pinched out to form small spouts (167, 179, 245, 246, 251, 253)⁵.

At the very end of the period (though not at Kritsaná) this bowl acquires an everted rim (310, 314, 315).

The stages of development of the lugs and handles noted at Kritsaná are as follows (Figs. 37, 38). Lugs are at first long and tubular with spreading ear-like ends, and a narrow string-hole (Figs. 37, 45*j*)⁶. As flattened rims begin to appear, the lugs gradually lose the spreading end and become simple tubes (242, 252)⁷ and may be set below the rim (216), or the string-hole is widened so that they become strap-handles (241 (grooved), 309 and Fig. 62*f*)⁸. The loop-handle on the other hand

¹ Actually in the third settlement at Kritsaná.

² E.g. 178, 200, 212, 213.

³ Mylonas (*Olynthus I*, pp. 32, 33) has made the suggestion that this class of bowl with incurved rim developed directly from the biconical Neolithic jar, the upper half of which was progressively lowered until it was no more than a rim. This suggestion contains perhaps some truth, but not the whole truth. This final stage can hardly have taken place in Macedonia, since the Bronze Age settlers brought the bowl with them, but the popularity and variety of these bowls in Macedonia may be due to Neolithic influence.

⁴ Cf. also *Vardaroftsa*, p. 14, where the flattened rims are common in the lowest levels.

⁵ Proto-sauce-boats: for fragments that suggest sauce-boats of E.H. form cf. 312 and Fig. 56*h*.

⁶ 'Growing out of the rim' as they are happily described, *Eutresis*, p. 80; the ribbed example (Fig. 37*d*) is early.

⁷ Obliquely shaved ends like 252 are not the primitive form in Macedonia. They have been found also at Karamán in Western Macedonia (surface find) and Naxos (surface find). For the history of this form at Thérmi, cf. *Thérmi*, p. 79.

⁸ Characteristic at Vardaroftsa of the lowest levels; cf. *Vardaroftsa*, Pl. I, 4, 5; Rey, II, Pl. III, 5; *Orcho-menos III*, Abb. 28*g*, Taf. XXVI, 2.

(Fig. 38*e, f, g* and **166, 178, 209, 249, 310, 311**)¹, rising obliquely from the rim, seems to have arisen from a pierced lug like Fig. 38*c*. It is enhanced occasionally with plastic terminals (Fig. 38*e* and **166, 311**; and, probably from bowls, Fig. 60*a-c*).

At first round in section, this handle in its latest stage is more often flat (Figs. 38*g*, 45*a* and **282**), and about the same time a true side-spout takes the place of the pinched-out rim (**251**). Most of these modifications are established by the time of the fifth settlement at Kritsaná. At the very end of the period the loop-handle begins to be replaced sporadically by the 'wish-bone' handle (Figs. 52 (ii) *d, e* and 56*e*).

Ledge-lugs² begin early, but are characteristic of the later half of the period. Some have single or double perforations; most have straight but some curved or wavy edges (Figs. 38*b*, 45*i* and **250, 307, 308**)³. Fig. 39 (ii) *a-d* are perhaps from bowls of this class⁴.

Another kind of bowl, common at Kritsaná, is deep and globular with a narrow mouth (Fig. 40*h-m*). Only fragments were found, but **265** (Saratsé) gives perhaps an idea of the complete form⁵, of the broad-lipped class.

Cups. One-handled cups are common (**168-171, 183-188, 202, 221-228, 243** (note the projections on the handle), **254-256, 266, 279-281, 283, 284, 305, 306, 313, 319, 369**). One of these (**168**) comes from the lowest settlement at Kritsaná, and in the same context were many ribbon-handles starting from rims, which seem to belong to vases of this kind though of larger size⁶. In some the bases are not flat (e.g. **171, 254**), and they may have been intended to be used as fillers or ladles. A few have a stem (**224**, Fig. 56*b* and **266**). Handles are usually rolled but may be flat⁷; sometimes they start below the rim⁸.

There are also many two-handled cups, or mugs. Of these, the handles are almost always ribbon-shaped and start from the rim itself (**229, 257, 258, 268-270, 285-290, 320-349**; and perhaps **210** and Fig. 49*a, b*). These mugs form an interesting class; they do not occur at Thérmi, and in Macedonia, to judge from the scanty stratigraphic evidence, they must have begun rather late in the period⁹ (the Armenochóri group being probably the latest); they have special affinities with Troy; they are clearly the Macedonian counterpart of the Early Helladic tankards; and finally

¹ Also Figs. 46*d* and 61*c* (both with stamped circles) are perhaps from such bowls.

² Cf. Rey, II, Pls. II, 1-4 and 5 (horned), III, 2.

³ Cf. also *Vardaroftsa*, Pl. I, 1, 2; Rey, II, Pls. II, 3, III, 2; *Orchomenos III*, Abb. 37, Taf. XXV.

⁴ But cf. **212** and **350**.

⁵ Cf. also *Thérmi*, Fig. 9, 132/1; *Orchomenos III*, Abb. 30*b*.

⁶ Possibly like **210**, but with one handle; cf. also *Thérmi*, Pl. VIII, 58, 73.

⁷ E.g. **188**, which is unusual in other ways; otherwise, in *small* cups, flat handles are late.

⁸ In the case of three cups from Hágios Mámas (**185-187**) the way in which the handle is flattened where it joins the rim should be compared with Early Helladic examples; *Zygouries*, Fig. 102; *B.S.A.* XXII, Pl. VI, 1; cf. also *Thérmi*, Fig. 32, 511. Note the rope-handle on **313** and the plastic ornament on **202**.

⁹ Unless the ribbon-handles at Kritsaná in the lowest settlements already mentioned come from two-handled, and not one-handled cups.

some Macedonian examples seem to anticipate in technique as well as in form the Minyan cups with high-swung handles (229, 258).

Fragments of what seem to be vases with rounded or pointed ends, like the well-known Trojan tankards, have been found in Chalcidice¹. One of these, however, had only one handle² (Fig. 39(i)).

Related to the tankards are some vases, each with a pair of small loop-handles, like spreading ears, on the body (189, 190, 271, 272, 316). Similar in form but larger is the jar from Hágios Mámas (200).

Jugs. A favourite form in the period is a one-handled jug, of varying size but often rather small (172–175, 193, 194 (both incised), 195–199, 211, 214, 215, 230–235, 248, Fig. 56*g*, 273–278 (the two latter incised), 291–297, 302–304, 370). Normally it has a globular body and cylindrical neck, expanding towards the rim. The lip is usually horizontal, but may slope upwards from the back (248, 273, 275), or be cut away (174, 175, 211): the handles are flat (e.g. 195), or rolled (e.g. 196), sometimes made in two pieces (cf. Fig. 56*f*)³, sometimes with grooves or ribs⁴, and sometimes twisted like a rope (cf. Fig. 61*a*)⁵. They are either attached to the lip (e.g. 195), or to the middle of the neck (e.g. 194)⁶.

Askoi. Closely related to this form is the *Askos* or askoid jug. Only a few complete examples have been found (191, 192 (both incised), 215, 244), but that it was common may be inferred from numerous large handles with slight curve⁷ (Figs. 39(ii)*e*, 45*c*, 49*c* and 52(i)*e*, which as well as being grooved has a small boss at the upper end).

The handles are split (244) or may have double (Fig. 45*c*) or triple (Fig. 49*c*) grooves.

A pyxis (212) with two loop-handles and two ledge-lugs with double perforation was found at Hágios Mámas. Like Cycladic pyxides which it recalls, it probably had a lid, which was kept in place by strings passed through the lugs. It is coated with thin lustrous paint. Lids like Fig. 48 belong perhaps to pyxides. Other pyxis-like vases are 298, 299.

Large water jars with tubular handles at the widest part of the body must have been common: one example (176) from Kritsaná could be reconstructed. The concave neck and the great width of the body, which tapers below the line of the handles to a small base, are worth noting on account of Thessalian⁸, Central

¹ Cf. *Hágios Mámas*, Fig. 20, 5.

² Cf. *Orchomenos III*, Taf. XXIII, 2.

³ And probably Fig. 61*b*.

⁴ Probably Fig. 39(ii), *j–m*, and some of the handles in Fig. 52(i) and Figs. 61*b*, 62*d*, *e*. In Fig. 52(i)*c*, *i* (M.B.), note the small circular pits at the base of the handles.

⁵ And there is one from Kritsaná (not illustrated).

⁶ Cf. especially Figs. 56*g* and 370, which illustrate the method of attachment.

⁷ Such handles might of course belong to two-handled jars like *B.M.C.* A. 65 from Yortan; or to one-handled mugs like *Eutresis*, Fig. 165, 2. Cf. also the *trompetenkannen*, *Orchomenos III*, Taf. IX, 1, 4, 5.

⁸ Cf. *P.T.* Fig. 125 (painted ornament; from Lianokládi III); Δ-Σ, Fig. 222 (plastic ornament).

Greek¹, Trojan², and Peloponnesian parallels³, and should be compared with the Minyan water-jar (402), also from Chalcidice, with its comparatively slender proportions, and vertically pierced handles. There is however some evidence that the latter already existed in the Early Bronze Age⁴.

Decoration of the finer vases is mostly by **Incision**. Kritsaná (167 and Fig. 39(ii)h), Hágios Mámas (180–182, 191–194 and Fig. 46, 47e, f), each produced a fair quantity, Central Macedonia very little (241, Fig. 57e, f, 277, 278)⁵. The ornaments are uniformly simple and almost exclusively rectilinear⁶: hatched or latticed triangles, sometimes arranged so as to leave a reserved zigzag band, chevrons, zigzags, rows of dots and stamped circles, and cuneiform impressions: the tool may be blunt (e.g. 180, 181), or fine (e.g. 182), and the incision was sometimes made after the firing (e.g. 182, 278). In the case of bowls, rim and body are decorated, in the case of jugs, the shoulder or neck. **White-filling** is exceptional.

The Anatolian character and disposition of the ornaments is striking. Note especially the chevrons (191), the necklace-like arrangement on the askos (192), and the system of enclosing ornaments within parallel lines (277, 278)⁷.

Isolated pieces in which the incision looks as if it had been produced by a string (*Schnurkeramik*) were found at Kritsaná and Hágios Mámas (Fig. 46a).

Mottling was frequently used as a means of brightening the surface of the pot (e.g. Fig. 45b), but not so as to form definite designs.

Other methods of embellishing the finer vases are rare. There are a few instances of **White on black-polished**⁸ and of **Rippled** (Fig. 25o, p) or **Grooved** (282)⁹. A carinated bowl at Saratsé has a rippled shoulder in imitation of Neolithic (Fig. 56i).

Plastic ornament occurs on a cup in Chalcidice (202), and the cup from Kilindír (243) has plastic projections on either side of the handle where it joins the rim. A fragment of an 'owl' vase¹⁰ probably belongs here.

Striation or **Combing**, which evidently had a decorative as well as practical purpose, is found on fine as well as coarse vases, notably at Vardaróphtsa (Fig. 53).

¹ Cf. *Orchomenos III*, Taf. II and Taf. III, I.

² There is one from Troy ornamented with lustrous paint in the Schliemann Sammlung (not, as far as I know, published).

³ Cf. *Korakou*, Fig. 8. For parallels to the handles, cf. also *Zygouries*, Fig. 99 and for a flattened type, *Zygouries*, Fig. 95, a form which has also been found in Macedonia (Kritsaná).

⁴ To judge from identical handles found in the E.B. stratum at Hágios Mámas, akin to the well-known E.H. type found on similar jars, e.g. *Orchomenos III*, Taf. III, 2, IV, 1; *Korakou*, Fig. 8.

⁵ Vardaróphtsa, two pieces, cf. *Vardaróphtsa*, Pl. IX, 1, 2; Fig. 72a–e (Saratsé) are perhaps transitional to M.B.

⁶ Exceptions are 277, 278, which have curvilinear elements. Fig. 61, 5 (part of a lid) may be L.N.

⁷ For Anatolian characteristics cf. Frankfort, *Studies II*, pp. 59, 86.

⁸ Cf. *Hágios Mámas*, Fig. 8, 10.

⁹ This grooved neck is either an imitation or an anticipation of Minyan cups.

¹⁰ Cf. Rey, II, Fig. 28.

Parts of two vases in which the surface was studded with small **Bosses** were found in Chalcidice (213)¹.

Burnish decorated. A treatment of the surface which might just be classed as decoration is that in which the slip is not brought up to a uniform smoothness or polish, but the darker marks of the polisher are left visible running irregularly in all directions². This technique occurs in all periods of the Bronze Age, and was used with more definitely decorative purpose in the Iron Age³.

Lids are a disc with a central knob (Fig. 41)⁴; with a loop-handle (Fig. 50)⁵; cylindrical and fitted over the neck of the vase (Fig. 48).

Coarse vases. The uniformity of the Early Bronze Age civilization in Macedonia is clearly illustrated by the larger vessels, store-jars and the like. Most are made of the same gritty clay as the finer vases, are well shaped and the surface is carefully finished. Considering the great size of many of these vases, the comparative thinness of the walls is remarkable. A common form throughout the area is a deep pot with almost straight sides (narrowing sometimes at the rim), and tubular or ledge-lugs set halfway down the body or a little below the rim (Fig. 40*a-g*, 177, Fig. 45*d*, 203–206, 240, 260–263, 354–366)⁶. These vases are decorated with plastic impressed strips, plastic discs (Fig. 39(ii)*f* and 356, 360), or by a zone of small pits or wedges below the rim (Fig. 45*e*; Fig. 58 and 359; Fig. 62*h* and 371)⁷, or the rim itself is dentated (e.g. 204, 358–366)⁸.

A large water-jar (208), similar to the finer kind (176)⁹, was found in the kiln at Hágios Mámas; it has an almost pointed base, and a pair of plastic strips rising from each tubular lug to the base of the neck¹⁰.

A lug which first makes its appearance in the fifth settlement at Kritsaná is a kind of ledge in the form of a half-disc with a wavy or dentated edge, produced by a series of impressions (e.g. Fig. 54). These lugs have so far been found attached only to the deep jars just described (262, Fig. 62*g*, 364), but it is likely enough that they were used with other forms, e.g. the water-jars. They have been found at most

¹ Cf. also *Hágios Mámas*, p. 136. Cf. also numerous examples of a similar ornament in what seems an E.B. context from Dodona. *Ἡπειρωτικά Χρονικά* x (1935), Pl. VIII, *b*; cf. also *B.S.A.* xxxii, p. 133, Fig. 2; p. 134, Fig. 3.

² Cf. p. 71.

³ Cf. Cuttle in *Vardaroftsa II*, Pl. XXXVIII, 'Scraped ware'.

⁴ Cf. *Thermi*, pp. 223–6.

⁵ Cf. *Orchomenos III*, Abb. 33, 34, *Thermi*, Pl. XXXIX.

⁶ Some of the latter have more rounded profiles.

⁷ Cf. p. 110, note 3. The ornament was also known to the L.N. potters.

⁸ Also known to the L.N. potters.

⁹ The neck may have been cut away, like the similar jar from Eutresis; cf. *Eutresis*, Fig. 157.

¹⁰ Cf. the Thessalian example already mentioned, and *Orchomenos III*, Taf. VI, 1, 2. Similar strips were found at Kritsaná. The lugs with simple incised designs (Figs. 42*g*; 47*c, d*; 57*a–d*) belong either to this or the preceding class. For other plastic decoration, cf. Figs. 39(ii)*f, g, i*; 42*a–f*; 47*g, i, j*. *Ibid.* *b*, a plastic rivet-head on a strap-handle anticipates the Minyan (Fig. 76, *c, d*). Cf. also E.H. examples, *Orchomenos III*, Abb. 3, Abb. 36, on a rope-handle. Note also the plastic coil (Fig. 51). Impressed strips are very common. Fig. 61*d* is unique but may be L.N.

Macedonian sites and are useful for dating within the period, because they first appear at Kritsaná in the fifth settlement¹.

Individual forms are the **perforated** vase (236); the large dishes with perforated rims (Figs. 44, 45*h*; Fig. 55 and 312 (sauce-boat?); Fig. 62*b* (from a vase in form like 317) and 368); **miniature** vases (237–239); stoppers of large vases (Fig. 59). Two coarse sherds from Hágios Mámas have stripes of **crusted** white paint (Fig. 45*f, g*).

On account of certain peculiarities that mark it off from the rest, the pottery from Armenochóri and the Monastir mounds may be considered separately. The nature of this divergence can be seen by a glance at 314–318, 345–348, 352, 353. There are few instances of incurved rims, the everted rim has taken its place (314, 315); the two jars (352, 353) have unfamiliar forms; the curious plastic enhancement of the tubular handles is found only here (355–357)². The two-handled tankard is popular, and shows a progressive development from the rather formless, sagging kind (320–340, 342) to more elegant form (341, 343, 345–349) with clearly differentiated parts, plastic decoration (345, 346) and thin high-swung handles pierced with a row of holes (345) or narrow slits (346, 347). These finer examples have well-polished smooth, yellow surface like yellow Minyan. There is a high one-handled cup (319) and from Karamán a small jug in the same fabric (370).

350 and 351 have no precise parallels in other Early Bronze strata.

The interest of this pottery from Armenochóri is that it exemplifies the very latest phase of the Early Bronze Age (and, in point of time, probably belongs to the Middle Bronze Age) and thus indicates the lines along which evolution would have taken place at the other sites had not something happened to cause a general break-up of the Early Bronze civilization and a partial exodus into Thessaly. As it was, the further development of the migrating culture took place in Thessaly itself, in new surroundings and in contact with other cultures. The Monastir vases are parallel to those of the latter part of the fourth Thessalian Period, but their development was internal, and it is especially interesting to find that vases like Minyan in form and fabric, which were, as we have seen already, implicit in the Early Bronze Age, could evolve without external influences. In fact, in considering the rise of Minyan we can, perhaps, in the light of the Monastir tankards, isolate what in it was due to inherent tendencies, from what was acquired by contact with the other cultures already established in Thessaly.

¹ Cf. *Zygouries*, Fig. 114, 5.

² Cf. *Zygouries*, Fig. 114, 5; *Thermi*, Fig. 31.

MISCELLANEOUS OBJECTS

Stone. A broad distinction between Macedonian Neolithic celts and unperforated celts of the Early Bronze Age is, that the latter are, in general, smaller and slimmer (Fig. 65*a, b, d, e*),¹ and the type with one flat and one arched face disappears. The perforated type is typical, and to judge from the stratification at Kritsaná the art of perforating celts was known from the beginning but was not much practised before the middle of the period, when spreading ends (Fig. 64*c, i, k*) also appear. Of these perforated celts some are more or less wedge-shaped (Fig. 64*c, g, h*), others expand round the bore-hole (Fig. 64*a, d, e, i*). In workmanship the Early Bronze Age celts do not greatly differ from many of the Neolithic; they are made of the same kind of stones, and are often well polished. The large stone celt from Hágios Mámas (Fig. 64*i*) is a magnificent piece of work: in place of a bore-hole it has a shallow circular depression on each face. The method of boring is well illustrated by a fragment from Armenochóri (Fig. 64*j*), and a mace-head from Grádobor (Fig. 64*l*). Perforated celts were distributed throughout all three areas.

At Sérvia waisted pebbles continued to be used².

Long saddle-querns are now the rule³, but round are also known⁴. Grinders for use with them are normally round. A pestle (?) at Kritsaná (Fig. 65*g*) has worked depressions for the thumb and fingers⁵. There is a small pestle or burnisher from Vardaróphsa with a perforated head (Fig. 65*i*): the rubbing surface is very much worn. Large flat unworked stones were used for whetstones (Fig. 65*h*), but some are small and portable (Fig. 65*j-l, p*), carefully worked and perforated at one end⁶. Knives and saws of flint or chert (Fig. 65*w*) are frequent, especially at Kritsaná (Fig. 65*t, v, w*)⁷; arrow-heads were also made of stone: there is one of reddish brown chert with serrated edges from Kritsaná (Fig. 65*x*); one from Sérvia (Fig. 65*bb*); one from Sédes (Fig. 65*z*); and one of transparent crystalline stone from Saratsé (Fig. 65*y*) may belong to this period.

An arrow-head of obsidian (Fig. 65*aa*) was found at Sérvia, and some blades (Fig. 65*r, s*) and several chips; at Kritsaná, a blade in the lowest settlement (Fig. 65*q*) and a chip in the third; otherwise obsidian has not been found in Bronze Age strata in Macedonia.

¹ In view of the resemblances between L.N. and E.B. Age types it is impossible to assign to these respective periods all the celts illustrated by Rey. His Pls. XL, 4, XLI, 3, 4 may however be assigned to the Neolithic with probability, and Pl. XLII, 3 with certainty to the Bronze Age, as also the mace-heads (*ibid.* 1, 2).

² Fig. 65*o* (from Molyvópyrgo) may also be an axe, though it is comparatively small.

³ Cf. *Vardaróphsa*, Fig. 18, 5.

⁴ Cf. *Vardaróphsa*, Fig. 18, 3.

⁵ Alternatively this is a hammer for striking flakes from cores, and the depressions are caused by the blows. Cf. *Primitive Methods of working Stone, based on experiments of Halvor L. Skavlem*, The Logan Museum, Beloit, Wisconsin, Pl. 57, 3, 4.

⁶ The last (from Armenochóri) is particularly finely made and is perforated at one end and half perforated at the other.

⁷ One is of basalt.

A marble disc, pointed on one side and rounded on the other, from Hágios Mámas (Fig. 65*m*) should be mentioned, and a stone weight (?) with perforated head from Vardaróftsa (Fig. 65*j*)¹. An object from Molyvópyrgo (Fig. 65*n*) is perhaps a figurine or may be some kind of implement.

Bone and Horn. Bone tools are rather rare; they are mostly borers (Fig. 66*b, e, h*). Fig. 66*i* may be a spatula. There are two curious flat bone objects from Kritsaná. One is perhaps a figurine (Fig. 66*f*), the other has toothed edges, much worn (Fig. 66*c*)².

There is a perforated horn hammer from Saratsé (Fig. 66*d*), and the tip of a perforated horn from Kritsaná (Fig. 66*a*).

Ornaments in use by the Early Bronze Age people are illustrated by the necklace (Fig. 66*j*)³ found inside a small pot at Hágios Mámas in a level corresponding to about the middle of the period. It is composed of thirty-one pieces, ten are of bone, one of paste, ten are cat's claws, and ten are dog's and pig's teeth. All are perforated.

Clay. Spindle-whorls or buttons are of various shapes but mostly rather formless (Fig. 67*l-ee*); conoid, roughly conoid, biconical, discoid, and cylindrical are all found. Fig. 67*ff* is perhaps a weight. At Armenochóri the normal form of whorl was a hollow cone (Fig. 67*w-aa*)⁴.

Discs made of chipped sherds, perforated, half-perforated or plain, occur at most of the sites (Fig. 67*gg-jj*)⁵.

A group of weights (?) from Saratsé (Fig. 67*ll-nn*) may be taken as typical.

Anchor-shaped hooks with frontal (Fig. 67*f, h-j*), occasionally lateral (Fig. 67*g*), perforations are peculiar to this culture in Macedonia. They have been found at many of the sites, and were particularly frequent at Kritsaná in the lower settlements. Their distribution in Macedonia is as follows: Kritsaná, Saratsé, Sérvia, Armenochóri; in Greece they have been found at Schisté⁶, Corinth⁷, Ithaca⁸. A similar object, also a hook (Fig. 67*k*), with Lesbian⁹ and Trojan¹⁰ analogies comes from Hágios Mámas.

Other clay objects of domestic use were slabs with perforations on the edge (griddles?) (Fig. 67*kk*).

Figurines are rare. There is what appears to be the base of a figurine from Kritsaná (Fig. 67*d*); it is rectangular and the front is pitted, and there is a rather similar piece from Sérvia, with roughly indicated feet (Fig. 67*e*). Armenochóri produced a

¹ = *Vardaróftsa*, Fig. 24, 8.

² For similar objects cf. Popow, *Le Tumulus de Dénew près du village Salmanovo*, *Bull. de la Société Archéol. Bulgare IV*, p. 210, Fig. 206.

³ = *Hágios Mámas*, Fig. 29.

⁴ The typical 'Danordic' form; cf. *Danube*, p. 123, and Figs. 76, 79.

⁵ *jj* is taken from a vase ornamented with plastic discs.

⁶ Chaerónea Museum.

⁷ Cf. *A.J.A.* xxxiv, p. 405.

⁸ Pelikáta (cf. Heurtley, *Excavations in Ithaca II*, *B.S.A.* xxxv, Fig. 31 (154)).

⁹ Cf. *Thermi*, Pl. XXIV.

¹⁰ Cf. *S.S.S.* Nos. 8831-8835.

headless figure with arms (Fig. 67*a*), also pitted down the front, and the lower half of a female figurine, with well-modelled limbs (Fig. 67*b*), was picked up on the mound of Tsepikovo, north of Monastir, along with Early Bronze Age sherds. It is very like the figurine illustrated by Rey from Gialatzik (Fig. 67*c*)¹, which may, on analogy, be assigned to this period.

Metal. Metal objects and the traces of metal are fairly frequent. Part of a copper pin (Fig. 67*oo*)² was found in the lowest settlement at Kritsaná, and is especially important, since here is the earliest Bronze Age settlement so far discovered in Macedonia; for the latter half of the period we have fragments of copper³ pins, and part of a handle from Vardaróphtsa, a pin from Várdina (Fig. 67*pp*), a blade and slag from Saratsé⁴, where a gold wire hair ring (Fig. 67*qq*) was also found⁵.

Apart from actual objects of metal, a fragment of a crucible from Saratsé may be mentioned here, and gold slag from Vardaróphtsa⁶.

Houses. In Chalcidice foundations were wider than in Neolithic times and stones were laid two or three abreast⁷.

A semicircular stone hearth set against a wall, as in Early Helladic settlements, was found at Hágios Mámas⁸. To this period also belongs the kiln⁹ which should be compared and contrasted with the neighbouring Neolithic kiln at Olynthus¹⁰.

At Molyvópyrgo houses have sun-dried brick walls without stone foundations; each had a bothros, one of which, oval in shape and lined with stones, had been used as an oven¹¹.

Wall foundations have been found in Central Macedonia at Vardaróphtsa¹² and hearths formed of three or four stones in groups¹³.

The first settlement of Góna was perhaps built on piles¹⁴.

Animal and Vegetable Remains. Animals known were the ox, boar, sheep or goat, elk (?)¹⁵, red (?) deer and horse in Central Macedonia: in Chalcidice, sheep, pig, ox and red deer.

¹ Cf. Rey, II, Fig. 38.

² Cf. Appendix I, p. 254 (A).

³ Cf. *Vardaróphtsa*, p. 39 (Period A); *B.S.A.* XXVIII, p. 195; Appendix I, p. 254 (C).

⁴ Cf. *Saratsé*, p. 144; Appendix I, p. 254 (B, D).

⁵ Mr W. E. Woodward, to whom the ring was submitted, wrote provisionally, '(1) I do not know whether the material was melted in the process of manufacture or not, it might have been hammered together in some hot state. (2) I am nearly certain that the ring has been produced by means of a die: one end is nice and circular where it entered and the other looks as if it had been nicked to break it off a larger piece of wire. (3) Some time or other the ring has been heated, whether intentionally to remove the drawing strains I do not know, or because the village happened to get burned down. Of course, both of these things may have happened and we cannot tell. (4) The wire of which the ring is formed is so nearly circular that I do not believe it possible to have produced such a good article by hammering.'

⁶ Cf. *B.S.A.* XXVIII, p. 197.

⁷ Cf. p. 5.

⁸ Cf. p. 5.

⁹ Cf. p. 5.

¹⁰ Cf. p. 9.

¹¹ Cf. p. 14.

¹² Cf. *Vardaróphtsa*, p. 41 (Period A).

¹³ Cf. *Vardaróphtsa*, Figs. 27, 28; cf. also Rey, II, Fig. 45, which may belong to the E.B. Age.

¹⁴ Cf. Rey, I, p. 146.

¹⁵ Cf. *Vardaróphtsa*, Fig. 39. Found at a point where a stratum representing the beginning of the M.B. Age of the tomba coalesced with the upper stratum of the table. I do not feel sure to which of the two it belongs. In the first case its date would be about 1750, and in the second about 250 B.C.

Among trees and plants in Central Macedonia the oak, the wild vetch and wheat have been identified; in Chalcidice the oak.

Shells which belong to the Early Bronze or Middle Bronze Age from Molyvópyrgo are *Spondylus Garderopus*, *Pinna* (probably *pectinata*), *Litorium olearium* and *Arca Noae*. The following were found at Hágios Mámas, but their stratified position was not recorded: *Cardium edule*, *Pectunculus pilosus*, *Cypraea lurida*.

D. MIDDLE BRONZE AGE

THE POTTERY

In this period, of which we know least, Central Macedonia and Chalcidice must be treated separately, as there is a divergence in their ceramic history. Common to both, however, is the replacement of the bowl with incurved rim by the bowl with straight or everted rim and 'wish-bone' handles, and in general a submergence of the Anatolian elements. In Western Macedonia, as we have seen, the period is represented by the developed Early Bronze Age pottery of the Monastir mounds. Sérvia had ceased to be occupied.

CENTRAL MACEDONIA

In Central Macedonia a small quantity of **Minyan** or quasi-Minyan has been found. The neck of a jar, perhaps of the same form as the water-jar (402), with grooved rings round the neck and a group of three on the shoulder comes from Vardaróphitsa (372), and from its stratified position must be dated fairly early in the Middle Bronze Age. Another neck in heavy hand-made ware with uneven grooves was found a little higher¹, and a couple of sherds which look like true Minyan². The others are not actually Minyan, but resemble it. A sherd of true Minyan is among the sherds from Kilindir in the Salonica Museum. It is evident from its scarcity that developed Minyan ware did not penetrate into Central Macedonia as it did into Chalcidice.

Incised. Characteristic rather is an Incised style (cf. Fig. 68 and 374-376, Figs. 70-73 and 379-382), which, while it drew largely upon the old, was enriched by new elements. These are developed curvilinear and spiraliform ornaments (cf. especially Fig. 68), curvilinear and rectilinear in association (cf. especially 374); the use of bands made with a toothed instrument (cf. especially Figs. 68, 73*b, c* and 374), the disposal of the ornaments over the whole body of the vase (cf. 382) and on the handles (Figs. 70*j*, 71*b-d*, 72*f* and 73*b, c*), and the occasional inclusion of the main design within a frame (cf. Fig. 70*b*). The incision is usually carefully executed: **white filling** is the rule. The fabric does not much differ from the earlier ware. Vases are

¹ Cf. *Vardaróphitsa*, Pl. IX, 3.

² Cf. *Vardaróphitsa*, Pl. IX, 2, 4.

made of the same gritty clay, and have the same black, brown, grey, light-faced or mottled surface, sometimes polished, sometimes not.

As to shapes we are not well informed. Bowls with wish-bone handles (374, 381 and Figs. 71*d*, 72*e*), some jugs (Fig. 71*a*), jars with globular bodies and sloping necks (Fig. 70*a* and 375, 376), globular bowls with handles springing from the rim (380)¹ (both the latter shapes common in the next period), and cups with ribbon-handles (Fig. 71*c*) existed. In the case of the Liverpool vase (382) it is interesting to observe how on the one hand its form recalls the Late Neolithic handleless bowls, and on the other anticipates the painted bowls of the next period. The small palette or lamp from Kilindir with the incised rim (379) has, as far as I know, no parallel elsewhere.

Artistic continuity with the preceding Incised is shewn by the enclosing of ornaments within parallel lines (Figs. 72*g*, 73*j* and 374)², by the pendent latticed triangles (cf. Figs. 70*j*, 71*b*), and rows of small pits (374)³, but the placing of the triangles base to base (Fig. 70*a*, *b*, *j*), and apex to apex (Fig. 70*b*) is new: so too is the star set within a circle with a spiral coil at the centre (Fig. 70*e*)⁴.

At each site there are local diacritics. At Kilindir, where the style is best represented, there are two instances of the running spiral (374, 379), otherwise the ornaments are rectilinear. Note also two instances of a reserved zigzag (375 and Fig. 70*a*, *b*), also anticipated in the Early Bronze Age (181).

From Saratsé there are some stratified pieces with spiraliform ornaments (Figs. 72*d*, *g*, 73*a*, *d*), one (stroke-incised) unstratified (Fig. 73*e*), and two unstratified (fragments of rims) with coiled between girding bands made with a narrow comb, which must belong here (Fig. 73*b*, *c*). Otherwise the ornaments are rectilinear. Here also bands enclosing ornaments should be noted, and the prevalence of light-faced fabrics: the two-handled bowl (380) has a vivid yellow surface.

At Vardaróphtsa (Fig. 68) most of the pieces have bands made with the comb, often in a series of short strokes, forming part of spiraliform ornaments or of zones. Associated with these are slender hatched triangles with apex prolonged as a straight line (Fig. 68*f*)⁵; Fig. 68*q*, a small triangle within a larger one, has a pot-hook spiral terminal⁶. Two sherds have a zigzag in triple outline, the angles filled with dots (Fig. 68*c*, *d*).

¹ And probably Fig. 68*g* is from such a bowl. On the analogy of the handle with triangular section (380) the similar handle (Fig. 71*b*) and probably Fig. 70*j* should be assigned to bowls of this class.

² Cf. this vase with 277, 278.

³ Cf. 193.

⁴ For rather similar ornaments on Cycladic incised pottery cf. Åberg, *Bronzezeitl. u. früheisenzeitl. Chronologie IV*, Abb. 138, 141; Frankfort, *Studies II*, Pl. VI, 1 (Naxos). Cf. also *A.J.A.* 1934, p. 273, Fig. 19. This last is identical with our Fig. 70*e*, cf. p. 122.

⁵ Cf. also *Hagios Mamas*, Fig. 12, 12.

⁶ Cf. Fig. 72*g*. This anticipates a similar ornament in L.B. matt-painted ware, e.g. 423. For other examples cf. Rey, II, Pl. XVIII, 3, and *Hagios Mamas*, Fig. 12, 11, imported from Central Macedonia.

Plain. Of the undecorated vases the material is very scanty. There is the tiny paint-pot from Kilindir (377), and some trimmed bases, which probably belong to bowls with wish-bone handles¹. Biconical jars rather like 408 may also be inferred, and there is a curious askoid vase and a bowl with flaring rim from Saratsé², both of which are coated with a slightly lustrous brown paint. Fragments of askoi³ and strap-handled jugs or cups in black or grey polished ware from Vardaróftsa⁴ do not differ from those of the preceding period.

Large store jars with **plastic** impressed strips continue.

The stopper (Fig. 69) belongs to this period.

CHALCIDICE

In Chalcidice Hágios Mámas is the type-station, since at Molyvópyrgo, the only other excavated site which continues into the Middle Bronze Age, the course of events was abnormal; but at Hágios Mámas, apart from the change of bowl form and the disappearance of the characteristic lug forms and of incision there is nothing much of note to record. There was a certain amount of **plain** heavy ware, made of better sifted clay, better baked and with a closer surface texture than the Early Bronze ware of the same class, as well as a certain amount of **Minyan** (383, 384)⁵, which perhaps found its way here from Molyvópyrgo. **Patterned Minyan**, i.e. with grooved ornament (Fig. 75), is, so far, peculiar to this site and appears towards the end of the period⁶.

At Molyvópyrgo the pottery is almost exclusively **Minyan**, mostly grey or black (388, 389 (black), 390, 396–398, 401, 402, and Figs. 74, 76, 82), but there is a fair quantity of red (385 (red varnish), 386, 394, 400), and rather less yellow (387, 391–393, 399). The forms are the well-known Minyan forms, but bowls with wish-bone handles (385–388 and Fig. 76*a, e*) and jugs with cut-away necks (394, 400, 401 and Fig. 76*b, g*) were made in this fabric. Nor have water-jars like 402 been found elsewhere in Minyan fabric. Characteristic too is the method of making the stemmed goblets in two pieces, and stamping them together, the stem being first usually scored to receive the upper part (Figs. 77, 78)⁷. Ribbon-handles were similarly attached (Fig. 77*d*)⁸. The clay was then smeared thickly over the join, which, in the case of stems, the rings also helped to conceal. A good deal of the Minyan, notably the water-jar (402), was made on a core, and along with the wheel-made, pots of the same form were apparently made by hand⁹, varying a good deal

¹ Cf. *Kilindir*, Fig. 3.

² Cf. *Saratsé*, Figs. 8*c*, 13.

³ Cf. *Vardaróftsa*, Pl. V, 28.

⁴ Cf. *Vardaróftsa*, Pl. V, 24–7.

⁵ These two pieces seem hand-made, but wheel-made ware was also found.

⁶ Cf. p. 92.

⁷ There are a few examples from Eleusis, and in the Chaerónæa Museum (from Orchomenós (?)).

⁸ The space just below the rim (of a cup) is scored with crossed lines.

⁹ It is not always easy to tell, e.g. in the case of the jugs, 394, 400, 401.

in quality and in tone. The cups with high handles¹, the plastic rivets², handles like those of 402³, to some extent the grooving⁴, and the custom of stamping two pieces together⁵, were already anticipated in Early Bronze Age strata in Chalcidice or Central Macedonia, but for all that there does not seem to have been continuous development to the finished wheel-made of the Middle Bronze. Either the makers of developed Minyan found 'Proto-Minyan' in use when they arrived, or else the site had been abandoned at the end of the Early Bronze Age and remained for a time unoccupied.

Grooved rings are very common in the Minyan ware in Chalcidice. The rings may lie close together (e.g. 396–399 and Fig. 79), as is usual in Southern Minyan, or be widely spaced (Fig. 74*a–c*); or they are traced in groups of two or three with wide intervals between the groups (402). Sherds like Fig. 74*b, c* might more properly be described as incised, since the grooves are made with a sharp instrument. The rings are not always completed but have loose or overlapping ends (Fig. 74*a* and 402)⁶. One fragment has a wavy band (Fig. 76*h*); and plastic knobs were placed on the neck (Fig. 74*a*) or on the body (Fig. 76*i*), as well as on the handles (cf. Fig. 76*c, d*, and Fig. 82, a five(?)-piece handle which had at least six on its inner side).

At Hágios Mámas towards the end of the period the grooving tool began to be used to produce more elaborate ornaments than the simple rings (Fig. 75); such as zigzags, chevrons, festoons and curved lines, all usually reduplicated and associated with rows of dots or short strokes, and pot-hook spirals, one of which is attached to a triangle (Fig. 75*f*). Apart from two rims (Fig. 75*j, l*) the sherds gave no clue to shapes. In general the style has a good deal in common with the Late Bronze matt-painted style, but does not synchronize exactly with it, since it begins at the end of one period and dies out soon after the beginning of the next. It is confined to Chalcidice, and, so far, to Hágios Mámas⁷.

MISCELLANEOUS OBJECTS

Comparatively few miscellaneous objects have been found in the Middle Bronze strata.

Stone. In the lower part of the stratum at Vardaróphtsa were bored celts (Fig. 83*a, b*) in continuation of those of the preceding period; at Saratsé one unperforated celt (Fig. 83*c*). Flint and chert blades remain in general use (Fig. 83*d–f*). Other recorded implements are the usual pounders and whetstones (Fig. 83*g*), and from Kilindir a spherical hammer⁸. A stone (Fig. 83*h*) with an incised cross from

¹ Cf. 210, 229, 258.

² Cf. Fig. 47*b*.

³ In the E.B. stratum at Molyvópyrgo and Hágios Mámas.

⁴ In the E.B. stratum at Molyvópyrgo; cf. also 282.

⁵ Cf. Fig. 47*h*.

⁶ Cf. *S.S.S.* No. 2093.

⁷ Mention must be made here of the vase from Olynthus, P. 69 (cf. *Olynthus V*, Plates XXXVII, XXXVIII), claimed by Miss Benton (cf. *Man*, 1936, §149) as Late Minoan Ia. I have not seen the vase, but I feel sure it is not Minoan, though it is easy to see why it should be thought to be so. Mylonas' reply has since appeared (cf. *Man*, 1937, §87).

⁸ Cf. *Kilindir*, p. 65: the stone objects mentioned p. 66 are also probably M.B.

Molyvópyrgo is interesting because of its Trojan analogies¹. A small saucer with a dark stain inside (Fig. 83*i*), perhaps a cupel², was found at Molyvópyrgo.

Bone. Bone tools are rare (Fig. 83*j, k*): a bone bead is reported from Kilindir³.

Clay. Clay spindle-whorls are spheroid or biconical (Fig. 83*l-o*)⁴: discs plain and perforated (Fig. 83*s* (with incised cross), *u, v*); two dumb-bell shaped buttons (Fig. 83*q, r*) belong to this stratum at Hágios Mámas⁵. A waisted sherd (Fig. 83*p*) may be a figurine⁶.

Metal (copper or bronze). Finds of metal are rarer than in the preceding period. From Central Macedonia we have only the fragments of a pin from Vardaróphtsa⁷, from Kilindir a thin knife (Fig. 83*w*), a disc (Fig. 83*x*), and a mould for a pin⁸, and copper slag from Saratsé⁹. The copper axe from Góna (Fig. 83*y*) seems to belong here rather than to the Early Bronze Age¹⁰.

Half of a circular ornament of flattened gold comes from Kilindir (Fig. 83*z*).

Houses, etc. Structural remains are very scanty. The wall at Molyvópyrgo¹¹, defended on the sea side by a ditch, and flanked on the land side by a cobbled pavement, is interesting because of its association with Minyan pottery. Remains of house walls with several courses were found at Hágios Mámas¹², sun-dried bricks at Kilindir¹³.

Animal and Vegetable Remains. Animal bones found were those of stag, horse, ox, sheep and pig in Central Macedonia; and ox, pig and goat in Chalcidice.

A tree which is either a willow or poplar has been identified at Vardaróphtsa, where acorns were also found.

The peas from Góna, mentioned by Rey¹⁴, almost certainly belong to this period.

E. LATE BRONZE AGE

THE POTTERY

In Central Macedonia Tsaoutsítza was occupied for the first time, Várdina, deserted since the Early Bronze Age, was re-occupied, but in general no stratigraphic changes mark the transition to the Late Bronze Age. In Chalcidice the small mound at Molyvópyrgo lay abandoned, and in Western Macedonia the Monastir settlements broke up. We shall see reason for thinking that their inhabitants took to a nomad life, and that their new settlements are to be found in the hills.

¹ Cf. *S.S.S.* No. 9327.

² Mr O. Davies made the suggestion.

³ Cf. *Kilindir*, p. 65.

⁴ The incised examples (Rey, II, Pl. XXI) should perhaps be assigned here; but cf. our Fig. 104, *g*, which is L.B.

⁵ Cf. also Rey, II, Pl. XXI.

⁶ Cf. *S.S.S.* No. 7409 (stone).

⁷ Cf. Appendix I, p. 254 (F, G).

⁸ Cf. *Kilindir*, p. 66.

⁹ Cf. *Saratsé*, p. 145; Appendix I, p. 254 (H).

¹⁰ Found at a depth of 11 m. below the highest point, i.e. 1.75 m. below the L.B. level and ca. 5 m. above virgin soil (Rey, II, p. 244). Cf. Appendix I, p. 254 (E).

¹¹ Cf. Pt. I, p. 15.

¹² Cf. Pt. I, p. 5.

¹³ Cf. *Kilindir*, p. 65.

¹⁴ Found in a small pot at almost the same level as the copper axe (Fig. 83*y* and note 10 above); cf. Rey, II, p. 245.

The continuity of the civilization in Central Macedonia and in Chalcidice is evident from the increasing number of bowls with wish-bone handles, of jars with sloping necks, and of jugs with cut-away necks; also from painted and incised wares derived by parallel lines of descent from the earlier Incised.

Painted. Wherever the **Painted** ware, which now appears, is found, we find that one of its principal forms is a shallow bowl (cf. 413, 421, 422, Figs. 89j-l, 90c, 433, 434, 455, Fig. 94m) with angular or sagging body¹ and 'thumb-grip' handles².

Other painted vases are bowls with 'wish-bone' handles (450)³, jugs with cut-away necks (424)⁴, and jars with broken profile (425); also a small jug with high loop-handle (426), and a bowl with flaring rim and tubular handles (423), both from Kilindir.

The ornament varies a little from place to place, but common to most is a predilection for triangles hatched, latticed, closed or outlined, and for attaching pot-hook spirals to them, especially in the neighbourhood of the handles. Note from Kilindir the two registers separated by a zone of tangential circles (421, 425), and on the former the fringe of short strokes on the rim and handles; the multiple zigzag on the neck of the jug (424): from Várdina (413)⁵, and Kalamária (455) bowls with angular profile with neat hatched triangles flanked by pot-hook spirals on the inside of the everted rim; from the neighbourhood of Salonica, running spirals, spiral volutes and tailed zigzag zones (Fig. 89a-d), from Tsaoutsítza multiple chevrons (Fig. 89j, k).

The paint is usually purple, but brown and black, bright red and red of a sealing-wax colour occur. The ground is a yellow-buff or orange slip, generally smooth and even soapy as in yellow Minyan: only at Tsaoutsítza is there a whitish slip (434). There are many pieces, especially in Chalcidice, with a red ground, in which case the paint is always black (Figs. 89e, f, 95d, n).

Two pieces from Vardaróphtsa may be mentioned here: one, part of a jug with

¹ Compare the form of the Liverpool vase (382).

² These handles are ultimately derived from the L.N. Polished handles from Olynthus (*Olynthus*, pp. 35, 36). Intermediate examples are: an unstratified find from Vardaróphtsa (now in the collection of the British School), which may be assigned to the E.B. Age on the strength of the brown *Urfirnis* with which it is coated, and of its close resemblance to certain E.H. handles from Zygouries (*Zygouries*, Pl. VI, 5, 6); two examples from Vardaróphtsa of the M.B. Age (*Vardaróphtsa*, Pl. X (b), 1, 2). Thus this characteristic Macedonian handle seems to have a fairly continuous history from the L.N. to the L.B. Age. As a 'trigger-handle' it was popular in the Iron Age. See below, p. 104, note 4.

In the L.B. Age phase of this handle the upper member retains its triangular form, with the base on the rim of the vase; at the apex, the lower member projects above the upper, forming a kind of grip, further emphasized by a deep central groove. Upper and lower members were often perforated vertically for the passage of a string (e.g. 421), and the upper member was decorated with the same ornaments as the rim of the vase (e.g. 433). Large undecorated specimens of these handles have been found near Oehrid, as Dr Karo informed me. They resemble the Bouboústi fabric, and I should be inclined to place them accordingly in the L.B. to E.L. Age.

³ Cf. also Rey, II, Pl. XXVI, 10.

⁴ There is part of a jug with sloping neck in this fabric from Lémбет, in the British School Collection.

⁵ Cf. *Vardaróphtsa*, Fig. 9.

cut-away neck (Fig. 84*b*), and the other of a jar with flat everted rim. Both are completely coated on the outside with a maroon-coloured wash; the inside is plain¹.

Large coarse vases have sometimes painted ornament like that of the fine.

Simultaneously with the appearance of the painted pottery, a change took place in the **Incised** (403–405, Figs. 91, 92 and 427, 435, 436, 437, 449). The neat rectilinear ornaments and the single stroke technique disappear. The main field is now filled with large, bold ornaments, among which ribbon spirals are the most prominent (especially Fig. 92 and 449). The ribbons are composed of roughly scratched lines, which are seldom parallel but cross and overlap, while transverse and oblique lines were added: they were then overlaid with thick white or pink paste, so that solid coloured bands stood out on the darker surface of the vase. These spirals are sometimes combined with triangles similarly filled (449) and with rows or groups of small round pits (403 and Fig. 92*a*), and the whole was enclosed in a rectangular frame. Rectilinear as well as spiral bands are found (404), and zigzags (405, 435) and discs (Fig. 92*g* and 435) were left in reserve against the incised background. There are instances of ribbons filled with dots (Figs. 92*b, f, h*, 93*a–e, m* and 427, 436) and of incision without filling (Fig. 92*b* and 437).

The forms ornamented in this way are deep globular bowls sometimes without necks, with narrow mouths and two loop-handles (pointed or round) starting from the rim (403, 405, 435, 437, 449); jars with broken profile (404, 427) which have upstanding lugs with string-holes (to which correspond string-holes at the rim); bowls with wish-bone handles (Fig. 93*f*)²; and a small jug (436); bowls with flaring rims at Várdina may have had wish-bone handles³. Two lids were found at Kilindir (Fig. 91).

The partial dependence of the Painted style on the earlier Incised style was first pointed out by Rey: and it is evident that the same aesthetic tradition was responsible in both for the selection and combination of certain ornaments; such as added spiral volutes, running spirals enclosed in parallel lines, latticed triangles placed base to base, and apexes protracted as straight lines or as pot-hook spirals. The Incised style of the Late Bronze Age is also dependent, but in this case the ornaments seized on and developed were the large band spiral and the enclosing frame. The incised wedges are retained or become circular pits⁴.

There is a later **Incised** style of simpler character known principally from Vardaróftsa (Fig. 85), Várdina⁵, Saratsé (Fig. 93*g, i* and 438), and Sédes (453),

¹ Ware technically identical was found at Troy (fifth city level) in 1932. Cf. *S.S.S. Groups* 18, 19.

² Cf. *Vardaróftsa*, Pl. XIII, 30.

³ Cf. *Vardino*, Pl. XIV, 4, 7.

⁴ Cf. *Vardaróftsa*, Pl. XIII, 30. Pieces which especially illustrate this dependence are 449 (which may be compared with *Vardaróftsa*, Pl. IX, 6, for the same combination of spiral bands and hatched triangles) and *Vardaróftsa*, Pl. XIII, 30. Besides the 'wish-bone' handled bowl, the globular bowls have prototypes in the M.B. Incised (cf. Fig. 68*g* and 380), and the jars with sloping necks (cf. 375, 376).

⁵ Cf. *Vardino*, Pls. XII, 12, 13 and XVI, 3.

which first appears a little later than the Incised and Painted wares just described. Note from Saratsé the fragment of a small yellow jug (Fig. 93*g*), with a zone round the centre containing a running spiral, and with small wedges below the rim. From Saratsé also comes the jug with sloping neck (438). The neat shoulder zone recalls similar decoration on a jug of the Early Bronze Age (193); the way in which the parallel lines above the zigzag turn downwards as they reach the handle (cf. also Fig. 93*i*), the fringe below the rim, and the combination of reduplicated zigzag and dots have precise analogies in the Middle Bronze Age (Figs. 68*c, d*, 70*h, i*). 453 also has a strong Early Bronze character. Thus the style is not an innovation, but, like the others, has its roots in the past¹. The incised spiral within a circle on the disc of a wish-bone handle from Várdina (Fig. 88) also belongs here.

Roughly contemporary with this last Incised is the **Mycenaean**. Several complete vases from Saratsé (441–448), several fragments of a stirrup vase from Kilindir², a complete vase from Hágios Mámas (458), almost complete vases from the French excavations (451, 454), as well as a large number of fragments from Vardaróphitsa (Fig. 86 (i), (ii))³, Várdina⁴ and Hágios Mámas (Fig. 96), make it possible to form a reliable estimate of the character of Mycenaean pottery in Macedonia. A fair amount belongs to the earlier half of Late Helladic III, but the bulk is later. An interesting fact is that, contrary to what is usually believed, very little was imported (Fig. 96*a, b*); after the initial imports the pottery was mostly made locally. Next it is to be observed, that though lifeless and mechanical, it is still strictly true to type, and consequently it is not a question of local imitation; and lastly that it is immediately⁵ followed by the local variety of Proto-Geometric.

The forms, including those which may be inferred with certainty from fragments, are, in order of frequency: loop-handled bowls (Fig. 86(i)*c, k, p*, 86(ii), 441, 451, 454 and Fig. 96*k–p*), kylikes (Fig. 86(i) *b*, 414, 442 and Fig. 96*j*), jugs (443–446 and Fig. 96*x, y*), stirrup vases (Fig. 86(i) *o*), and squat jars (Fig. 86(i) *d*). The following are rare or represented by isolated examples: jars with tapering body (448, 458), loop-

¹ On the other hand sherds like Fig. 85, *d, f–h* have striking analogies with Vučedol pottery. Is there any connection with Vučedol, on the one hand, and with the medallions on L.H. III ‘medallion bowls’ on the other? A fragment of one of these was found on the surface at Vardaróphitsa. See my review of Vučedol (Hoffiller, *C.V.A. Jugoslavie*, Fasc. 1) in *Classical Review*, Vol. XLVIII, p. 216. Perhaps the Mycenaean pottery influenced the Macedonian.

² Not published.

³ Cf. also *Vardaróphitsa*, Pls. XV (*b*), XVI (*a*).

⁴ Cf. *Vardino*, Pl. XII, 1–8.

⁵ In the first settlement above the burnt layer which marks the destruction of the Lausitz settlement, ‘Granary’ style (Figs. 86, 107) occurs in the very top of the burnt layer, and just above it. The first compass-drawn concentric circles, one of which has four, one five circles, and one small twofold circles arranged in a group, between hatched triangles (?), occur in the occupation level which rests partly on the debris of the Lausitz.

handled jars (447)¹, hydrias², wide bowls with pinched-out ribbon handles³, stemmed kraters (?) (Fig. 86(i)h)⁴, jugs with cut-away necks (Figs. 86(i)g, 96w), spouted jugs (Fig. 96v)⁵, bridge-spouted bowls (Fig. 96u)⁶, and bowls with moulded rims (small kraters?) (Fig. 96q, r), and bowls or basket-shaped vases with loop-handles on the rim (Fig. 96s, t)⁷.

The ornaments are of the familiar kind, stylized plants (451 and Fig. 96b, u), running spirals (454 and Fig. 96e), girding zones (443–445), running quirks (447), latticing (Fig. 86(i)e, i, m), and wavy bands (441 and Fig. 96i); 441 had perhaps a cuttle fish. The fabric is usually poor and the paint often dull; but the bowl (441) and the kylix-stem (442) and many fragments have quite a fair likeness to good Mycenaean paint.

Plain. Bowls. The Late Bronze Age is the great period of the bowl with wish-bone handles. It is frequent at all the sites, both in Central Macedonia and Chalcidice. The normal form with conical foot and pulled-out rim is well illustrated by the example from Vardaróphtha (406). This typically Macedonian treatment of the rim can be traced back through the Middle (374, 382) and Early Bronze (Fig. 72e)⁸ to the Late Neolithic Age (86, 139): the protraction does not however always lie horizontally to the rim but may rise vertically or obliquely above it. A shallow type of this bowl is found in Chalcidice (457).

Future excavation will no doubt reveal more precisely the successive stages in the history of this handle. Hitherto observation only shews that a type with two horned projections, as well as the normal type, occurs already in the Early Bronze Age⁹; that in Chalcidice these handles are set on the shoulder (385–388) as in Thessaly¹⁰, the Spercheiós Valley¹¹ and Boeotia¹²; and that especially in Chalcidice towards the end of the Late Bronze Age a type, angular in section, and with a round or oval instead of a triangular perforation, was the rule (450, 456, 457)¹³; in Chalcidice, too, the bowls have in-turned rims and well-smoothed yellow or orange surface, which shows marks of the paring tool¹⁴.

Bowls with 'thumb-grip' handles are sometimes plain¹⁵.

Deeper bowls of which the rim is protracted vertically and perforated to form

¹ A cross between the three-handled jar and jars like Wace, *Archaeologia*, LXXXII, Pl. XXXI, 54, from Tomb 515, Kalkáni Cemetery, Mycenae.

² Saratsé: not illustrated; for the form cf. *B.S.A.* xxv, Pl. Xd–f.

³ Saratsé: not illustrated. For the form cf. *B.S.A.* xxv, Pl. XIk.

⁴ Cf. also *Vardaróphtha*, Pl. XVI (a), 24; for the form cf. *B.M.C.* A. 874.

⁵ For the form cf. *B.M.C.* A. 934.

⁶ For the form, cf. *B.M.C.* A. 944.

⁷ Analogies for this form exist, but I have not the reference.

⁸ This example belongs to the transition from E.B. to M.B. but there is a similar stratified example from Vardaróphtha (not illustrated) and there is also one from the fifth settlement at Kritsaná (not illustrated). Figs. 218, 220 illustrate the same principle, but the protractions have been turned into handles. Cf. also 439.

⁹ Cf. Fig. 52 (ii), d.

¹⁰ Cf. *ΔΣ*, Fig. 192.

¹¹ Cf. *P.T.* Fig. 134b, e.

¹² Cf. *Orchomenos III*, Taf. XXX, 4, b.

¹³ Cf. also *Hagios Mamas*, Fig. 20, 1, 2, 10.

¹⁴ Cf. *Hagios Mamas*, Fig. 20, 1, 2.

¹⁵ Cf. *Vardaróphtha*, Pl. X (b), 5, 6.

handles should be noted (439)¹. Their stratified position at Vardaróphtsa² and Saratsé shows that they appear almost at the moment of transition to the Iron Age. Similar vases were found at Bouboústi³ and at Pátele (Pl. XXIII, *p*)⁴.

A small collared bowl with rolled loop-handles comes from Vardaróphtsa (407).

Cups. Cups are not common; there is one with a high ribbon-handle from Kilindir (429).

Jugs. Fragments of many plain jugs with cut-away or sloping necks were found in this stratum at Vardaróphtsa (Fig. 84) and some at Saratsé. The renewed frequency of this form is interesting, since on the one hand it reaches back through the Middle to the Early Bronze Age, and on the other hand forward to the Iron Age, when it is more common than at any other time, even spreading to Thessaly. Nothing shows more clearly the conservatism of Macedonian pottery than the unbroken continuity of this form.

Several small jugs were found at Kilindir (430–432); they are slimmer than Early Bronze juglets, and the handles rise higher above the rim.

To judge from rim and shoulder fragments, another popular form in plain ware at this time is a roughly biconical jar (408, 440). The large jar from Vardaróphtsa (408) has four vertical loop-handles, but I think that on the analogy of the incised urn (404) that certain, large triangular handles may belong to vases of rather similar form.

Plastic impressed strips continue to ornament both small and large vases: a tendency to combine horizontal and oblique strips seems characteristic of the end of the period⁵. Here probably belongs the gigantic pithos from Várdina (420), with plastic rope and knot at the neck.

Lausitz Ware. In the thick burnt strata at Vardaróphtsa and Várdina, containing the latest Mycenaean pottery, was found a quantity of sherds of gritty clay, mostly with fine dark polished surface, and enhanced by vertical or oblique grooves.

A wide, two-handled urn (409) with out-curving rim, fluted body and rolled fluted handles could be reconstructed, and fragments of vases with similar profile and fluted shoulders were fairly common (Fig. 87*l, m, o, p* and 419)⁶, as well as bowls with fluted rims (Fig. 87*r* and 415–418). Many grooved or fluted handles were found (Fig. 87*a–f, h*), and since the earliest of the characteristic Macedonian twisted handles were found along with them (Fig. 106*c–e*), it seems fairly certain that the twisted handles are derived from the fluted⁷. This fluted pottery has been identified with that of the Lausitz culture. It occurred in precisely the same context

¹ Cf. note 8 on p. 97.

² Cf. *Boubousti*, Fig. 21, 12.

³ Cf. *Vardaróphtsa*, Pl. X (*a*), 10.

⁴ Cf. also *Vardaróphtsa*, Pl. XVII (*a*), where the flutings on No. 14 should be compared with those on a Lausitz mug (*Danube*, Fig. 180*b*).

⁵ The method of paring them vertically at the back is older; cf. *Vardaróphtsa*, Pl. XII (*b*), 1 (= 403).

⁶ Cf. *Vardaróphtsa*, Pl. XIX *a*, 10.

⁷ *Boubousti*, Fig. 30, 9.

at Várdina and Vardaróphtsa, and a few sherds were found at Saratsé. Three plain cups (411, 412 and Fig. 87*g*¹), a deep jar (410) with knobs at the angle between shoulder and body and some heavy loop-handles (Fig. 87*a*, *i-k*) also belong to this group.

Boubouísti Pottery. At this point mention must be made of the **Painted** pottery from Boubouísti (459–467 and Figs. 98–102). This small site produced exclusively this painted ware and a small quantity of its unpainted counterparts. The commonest form is the jug with sloping, sometimes cut-away, neck (463–465 and Fig. 98*b*, *d*, *i*), and contour in other respects like that of the jars with broken profile; next, globular bowls with broad everted rims (459, 460 and Figs. 98*a*, 100*b*, *c*, *d*, *f*, *h*, 101*c*, *d*), often pulled out in the characteristic Macedonian manner to form a triangular grip (Fig. 98*a*), and with horizontal lugs of Early Bronze Age type, or with a kind of wish-bone handle, terminating in a disc (Fig. 102); next, tankards with two ribbon-handles starting from the rim (461, 462)²; jars with continuous or broken profiles³, like those of Macedonia in the Middle and Late Bronze Ages; and finally a bowl with broad flat rim⁴. Note split handles (Fig. 101*m*, *n*), and a loop-handle with protracted ends to be stuck through the wall of a vase (Fig. 101*l*).

Fig. 99 shows a lid with central boss.

The decoration is more elaborate than anything known in Macedonia since the Early Neolithic. The ornaments are usually concentrated on the neck and upper parts of the jars, the body has almost invariably slender triangles hatched, latticed or closed, of which the apexes are prolonged almost to the base of the vase (462). The rims of bowls are painted on the inside (459, 460 and Figs. 98*a*, 100*b-d*, *f*, *h*, 101*c*, *d*), the body has triangles (459, 460), and the handles are striped⁵. The ornaments are rectangular and, taken individually, of the familiar types common to primitive geometric pottery in many parts of the world, but a few deserve special notice, e.g. the latticed diamonds within a diamond-shaped frame (Fig. 98*f*), the maeandroid patterns on the necks of jugs (?) (Figs. 100*g*, *j*, 101*i*)⁶, and the stylized bird (?) (463).

The vases are hand-made with fine buff or red, occasionally grey surface, not highly polished. On the buff or grey ground, the paint is purple, on the red black, and always matt.

There was one **incised** fragment, grey, perhaps from the shoulder of a jug; it has a row of hatched and plain triangles (Fig. 100*a*)⁷.

¹ This fragment deserves notice; it is grey and hand-made, and looks like the prototype of the wheel-made grey kantharoi which become popular at the beginning of the Iron Age.

² Cf. also *Boubouísti*, Fig. 22, which however suggests a vase like 380.

³ Inferred from fragments (Fig. 98*j*) on the analogy of Pl. XXIII *v* (Pátele), but they may be jugs like *w* on the same plate.

⁴ Cf. *Boubouísti*, Fig. 28, 5; for the form compare 468.

⁵ Cf. also *Boubouísti*, Fig. 23*A* (= 460).

⁶ Cf. also *Boubouísti*, Fig. 28, 6.

⁷ Cf. similar fragments from *Vardaróftsa*, Pl. XIX (*b*), 14, 16; 477.

Undecorated forms are globular bowls (**466, 467**) and jars with broken profile of the same form as the painted: bowls with loop-handles that suggest Mycenaean influence¹; and a bowl of the same type as that found in strata transitional from the Bronze to the Iron Ages at Saratsé and Vardaróphitsa, to which reference has already been made (**439**)². The split handles (Fig. 101 *m, n*) may belong to plain vases; there is also the wide flat rim of a bowl perhaps in form like **468**.

Fragments of pithoi, etc., were decorated with **plastic** strips and incisions.

Though the Bouboústi pottery is very similar to that from the Pátele cemetery, which belongs to the full Iron Age, there are reasons for thinking that Bouboústi is somewhat earlier and should be included (partly at any rate) within the Bronze Age. Apart from its family likeness to the Late Bronze painted wares of Central Macedonia and Chalcidice³, the reasons are mainly negative, since the one sherd of Late Helladic III⁴ can scarcely be used as positive evidence. But we have no evidence for the length of the occupation of the site, nor, although the Pátele graves fall well within the Iron Age, can we say that the culture represented by this pottery had not been in existence for a long time. In fact, unless we regard them as products of a fairly long established culture, there is nothing in Western Macedonia to fill the gap between Bouboústi and Pátele on the one hand and the Middle Bronze Age sites in the Monastir Plain on the other. Isolated finds show that this pottery was widely distributed in Western Macedonia⁵, and until contrary evidence is forthcoming we prefer to regard Bouboústi as the later representative of the Anatolian-Macedonian culture of the Monastir mounds, and it is perhaps significant of continuity that forms like the two-handled tankards (**320–349**), and the jug with thrownback neck (**370**), specialized products of the Monastir Plain, should recur as characteristic forms at Bouboústi. Pointing to the priority of Bouboústi to Pátele, though it falls short of proof, is the fact that at Bouboústi the globular bowls with primitive handle (**459, 460, 466, 467**) are frequent, but do not occur at Pátele: conversely, wheel-made grey cups and the hand-made grey jug typical of the Macedonian Early Iron Age are known at Pátele, but unknown at Bouboústi⁶.

¹ Cf. *Boubousti*, Figs. 21, 8; 28, 4.

² Cf. p. 98.

³ Due to their common ancestry; cf. *Boubousti*, pp. 185–7.

⁴ If it really is L.H. III. Cf. *Boubousti*, Fig. 29, 3. The Mycenaean sword however from Grevená (Fig. 104*ee*) must be remembered.

⁵ Cf. p. 94, note 2; *Αρχ. Έφημ.* 1932, p. 73, Fig. 34.

⁶ But found at the neighbouring site of Palaiográtiano. Cf. also p. 105.

MISCELLANEOUS OBJECTS

Stone. As is natural, stone celts and chisels become rare; there are a few from Vardaróphtsa (Fig. 103*a*).

The types of querns¹, pounders, whetstones (Fig. 103*d-f*)², small saws and blades (Fig. 103*b, c*) remain unchanged. A waisted stone hammer from Kilindir deserves notice, as there are few complete examples of such objects at any period³.

Part of the rim of a white marble vase comes from Vardaróphtsa (Fig. 103*l*), and grooved stones (moulds for bronze pins (?))⁴ from Vardaróphtsa (Fig. 103*h*) and Várdina (Fig. 103*i*); perforated or half-perforated pebbles from Vardaróphtsa (Fig. 103*j, k*). Objects like Fig. 103*g* are known from Troy⁵.

Bone. There were bone pins with ornamental heads at Vardaróphtsa (Fig. 103*m-r*), and Várdina (Fig. 103*w*)⁶; plain pins were plentiful at Várdina (Fig. 103*t-v*) and Kilindir⁷.

At Bouboústi was found a bone pommel (Fig. 103*y*) with two perforations.

Clay. The normal spindle-whorl (or button) is biconical (Fig. 104*c-i*); one from Várdina (Fig. 104*g*) is incised⁸; cylindrical appear at Vardaróphtsa in the Lausitz layer (Fig. 104*j-l*)⁹. Discs made from chipped potsherds are as before (Fig. 104*m-p*). Cylindrical (Fig. 104*q*) instead of the usual conical (Fig. 104*r, s*) weights (?) are typical for the burnt stratum at Vardaróphtsa and may be peculiar to the Lausitz people¹⁰.

Miscellaneous clay objects are a flat plaque with pitted surface from Vardaróphtsa¹¹; amulets (Fig. 104*t, u*), spool-shaped supports (Fig. 104*v, w*) and a cube with perforations at each corner (Fig. 104*x*), all from Bouboústi. The only figurine is a Mycenaean horse from Hágios Mámas (Fig. 104*y*).

Metal. Of metal objects there are fragments of two bronze blades from Vardaróphtsa¹²: a fine axe of unusual form (Fig. 104*bb*)¹³, and a bronze sickle (Fig. 104*dd*)¹⁴, both from Kilindir; from Várdina a bronze socketed spearhead of Mycenaean type (Fig. 104*cc*) with two rivets, and at the very top of the stratum immediately below the debris of the Lausitz settlement a fibula with flattened bow (Fig. 104*aa*). At Vardaróphtsa iron slag¹⁵ was found in the settlement immediately below the Mycenaean

¹ Cf. *Vardaróphtsa*, Fig. 18, 2, 3 (saddle); 1 (round).

² Cf. also *Bouboústi*, Fig. 31, 4, 11.

³ In the St George Museum, Salonica; in a drawer containing L.B. sherds from Kilindir.

⁴ They may be compared with a similar stone from the E.N. stratum at Servia (Fig. 6 *p*).

⁵ E.g. *S.S.S.* No. 9325.

⁶ Cf. also *Várdina*, Pl. XIX, 15, which probably belongs here; also Fig. 103, 5 (Saratsé).

⁷ Cf. *Kilindir*, p. 67.

⁸ Cf. p. 128, note 1.

⁹ And may be typical of the Lausitz people; *j* is perhaps a loom weight (= *Vardaróphtsa*, Fig. 24, 11).

¹⁰ Cf. preceding note; cf. *Vardaróphtsa*, Fig. 24.

¹¹ Cf. *Vardaróphtsa*, Fig. 23, 9.

¹² Cf. *Vardaróphtsa*, p. 39; Appendix I, p. 266 (I).

¹³ = *Kilindir*, Pl. XVII, Fig. 2 (1).

¹⁴ = *Kilindir*, Pl. XVII, Fig. 2 (2).

¹⁵ Cf. *Vardaróphtsa II*, p. 197. Cf. Appendix I, p. 255.

level and what is probably gold slag¹ in a level corresponding to the end of the Late Bronze Age.

The only metal object from this period in Chalcidice is a bronze pin from Hágios Mámas².

In Western Macedonia there is the bronze pin from Bouboústi (Fig. 104z), which may, however, belong to the Iron Age; and a Mycenaean sword, believed to have come from Grevená (Fig. 104ee)³.

The earliest example of lead occurs in this period; a round lump of lead from Várdina, and fragments of three pre-Mycenaean, and of two Mycenaean vases are mended with lead rivets (Fig. 86 (i) f, g).

Houses, etc. There are the stone foundations of a wattle and daub house with rounded end and a cross wall at Várdina⁴. In this period the necessity for enlarging the habitable area on some of the mounds seems to have become felt and at several sites brick terraces for that purpose have been noted⁵. Bricks used in the making of these terraces at Góna measured $28 \times 35 \times 7$ cm.⁶ The Kilindir layer of 'hard yellow soil, very unproductive' perhaps represents the remains of one of these constructions⁷. A section of such a terrace at Vardaróphtsa was uncovered to a width of a little over 2 m. and a height of 1 m.⁸

In Western Macedonia the pithos hearth at Bouboústi⁹ belonging to the earlier stage of occupation should be assigned here.

Animal and Vegetable Remains. Animal remains are the bones of pig and cat (?) from Saratsé, and stag horns from Várdina.

At Vardaróphtsa wheat and a kind of lentil were found in this stratum.

Of trees the oak has been identified at Saratsé and Vardaróphtsa.

¹ Cf. *Vardaroftsa II*, p. 197.

² Cf. Appendix I, p. 254 (K).

³ Cf. Casson, 'Mycenaean elements in the North Aegean', *Man*, Nov. 1923, pp. 170-3, from which the drawings of this and Fig. 104, ff are taken. The latter is placed here for comparison.

⁴ Cf. *Vardino*, Fig. 7.

⁵ Cf. Rey, I, p. 146 (Góna).

⁶ Cf. Rey, I, p. 247. (In the layers immediately above were rectangular bricks 'in great profusion').

⁷ Cf. *Kilindir*, p. 67 (average width 17 and depth 6 cm.; but these may have belonged to house-walls).

⁸ Cf. *Vardaroftsa*, p. 41.

⁹ Cf. p. 43.

F. EARLY IRON AGE

THE POTTERY

The normal course of ceramic development was interrupted by the Lausitz invasion. For what happened after this had spent itself, and after the Macedonians could re-occupy their homes, the best evidence is from Vardaróphtsa¹.

Hand-made Ware. Here, alongside with wheel-made fabrics, which are described below, hand-made pottery was found in large quantities.

Bowls. A favourite form is the bowl with narrow rim, equipped with flat horizontal handles, formed by protracting and perforating the rim (469 and Fig. 110 *c, e, h, k, l*)². These handles may be triangular and have triangular perforation (469)³, in which case they resemble wish-bone handles lying down instead of rising obliquely; or they are rounded (Fig. 110 *c, h, k, l*)⁴ and have a round perforation. Rim and handle have short slanting strokes along the edges or other simple ornament **Incised** or **Grooved**. Sometimes the protraction of the rim is unperforated and shaped like a tail (Fig. 106 *i*)⁵, and in one case is modelled as a duck's head⁶.

Globular bowls with wide flat rims (468 and Fig. 105 *a-g, i*), of which we have unfortunately no complete shape, but which almost certainly was that of painted bowls like 493, are decorated with similar but more elaborate ornaments, among which are stamped circles with or without a central dot, tangential circles, hatched triangles, diamonds filled with pricked dashes, and excised wedges (Fig. 105 *a-g, i*). A spouted form also occurs (Fig. 110 *j*)⁷.

An open dish with bevelled rim (Fig. 105 *h*) has similar ornament. In both classes of bowls, whether with narrow or wide rims, clay and surface are usually slate-grey, but there are examples of lighter tones (Fig. 105 *c*); especially at Saratsé and among those with narrow rims (Fig. 110 *c, h*). Only one example of these bowls has so far been reported from Chalcidice⁸.

Jugs. This is the period of the jug with cut-away neck (470, Fig. 106 *b-e* and 478, 479, 498), which is now in general use all over Macedonia, including Chalcidice

¹ The dating of the Tsaoutsitza cemetery is still uncertain. That it was in use before 600 may safely be inferred from the presence of 'thumb-grip' handles and of the concentric semicircle ornament, both of which are common in the pre-600 Iron Age strata at Vardaróphtsa, but do not occur later. But, since the other Tsaoutsitza vase-forms occur at Vardaróphtsa in post- as well as pre-600 strata, the cemetery may well have been in use during the sixth century or later. Because of this uncertainty, I have included in this study examples only of those vases, which, from the stratification at Vardaróphtsa, can be proved to have been in use before 600.

² Cf. also Rey, II, Figs. 11, 13; *Vardaróftsa*, Pl. XIX (*a*), 12, 13, 14 (with protracted ends), 16, 18, 20.

³ Cf. also Rey, II, Fig. 13; *Vardaróftsa*, Pl. XIX (*a*), 13, 20; *B.M.C.* Fig. 28, A. 95, 4; at Olynthus they are square with rounded hole (*Olynthus V*, Pl. XXI, P. 19 *B* and P. 19 *c*).

⁴ Cf. also Rey, II, Fig. 11; *Vardaróftsa*, Pl. XIX (*a*), 12, 14, 16.

⁵ Cf. *Vardaróftsa*, Pl. XIX (*a*), 21; *Saratse*, Fig. 24.

⁶ Cf. *Saratse*, Fig. 24; cf. also *Olynthus V*, Pl. XXI, P. 19 *D*; and P. 19 *E* (lug).

⁷ Cf. also *B.M.C.* Fig. 27, A. 92, 5, which I should be inclined to place here, though I have not seen it.

⁸ Cf. *B.S.A.* xxvi, p. 33: from Sermýle (Ormýlia I).

(498), and penetrated into Thessaly¹. Clay and surface are usually ashy grey, in dark or light tone, but at Saratsé brown is more usual, and some of the earliest examples at Vardaróphtha are buff (Fig. 106*d, e*). The characteristic element is the twisted handle, which we have suggested² was inspired by the Lausitz fluted handles, but the vertical paring away of handles at the back was known earlier (404). Some of these vases have simple incised ornaments on the shoulder (Fig. 110*n*)³, usually hatched triangles (478 and Fig. 105*n*), or rows of short oblique strokes. The tall neck with stamped circles from Vardaróphtha is so far unique (Fig. 105*g*).

Of a group of small jugs (501–503) with globular body and splaying flat rim, confined to Chalcidice, 502 is hand-made.

Two roughly made miniature jugs (488, 489) belong to this period.

Cups. 'Trigger' handles (476, 477, 486, 487, 499, 500)⁴ were found at various sites, including Olynthus (499, 500), in Early Iron levels. The form of the cup to which they were attached is known from a few complete examples at Tsaoutsítza (476, 477)⁵. The end of the handles takes various forms: flat disc (476, 499, 500)⁶, conoid (486, 499), hammer-shaped (487), pointed (477)⁷, or blunt⁸.

Handles with only one member probably belong to similar cups⁹.

WESTERN MACEDONIA

Reference has already been made to the finds from Pátele. Unfortunately no full report on this cemetery has ever been published, and the summary report is not easy to get¹⁰. However, some of the facts contained in it have recently been communicated by Rey¹¹, together with a photograph of a few of the small bronzes¹².

¹ The origin of the jugs at Marmáriané must be Macedonian. Cf. *Ant. Journ.* vii, p. 56; *B.S.A.* xxi, p. 43.

² Cf. pp. 98, 99.

³ Fig. 105 *j, m-p* also seem to belong to the shoulders of such jugs.

⁴ Cf. *Vardaróphtha*, Pl. X (*b*), 11, 13, 14; *ibid.* 9, 10, 12 (L.B.) which shew that the precise form already existed in the L.B. Age; on the same plate 1, 2 shew that the prototypes are earlier still, i.e. E.B.–M.B.; 14 was the latest example found at Vardaróphtha. Cf. also *B.M.C.* Fig. 28, A. 96, 1. It is evident from forms like Fig. 106*a* that the 'thumb-grip' and 'trigger' handles were closely connected. For later examples of this handle cf. Skeat, *Dorians in Archaeology*, Pl. II.

⁵ At Vardaróphtha these cups are fairly common in the lower Iron Age levels, but unknown in the late (i.e. after ca. 600). Cf. p. 103, note 1. At Olynthus some seem to have had two handles (499).

⁶ Cf. *B.M.C.* Fig. 28, A. 96, 1.

⁷ In this case they look like syncopated variations of the 'thumb-grip' handle.

⁸ Cf. *Vardaróphtha*, Pl. X (*b*), 11, 13, 14.

⁹ Cf. *B.M.C.* Fig. 28, A. 96, 2, A. 96, 3.

¹⁰ Read by M. Milioukov to the Archaeological Congress at Kiev, August 9th, 1899.

¹¹ Cf. *Albania*, iv, pp. 40–61.

¹² The vases themselves are in the Istanbul Museum, but when I visited it in 1926 had not been cleaned, so that it was difficult to study them. The then Acting Director, M. Makridy Bey, kindly allowed me to have them photographed, and also gave me permission to publish any of the photographs I wished, to illustrate my article on Bouboústi. I take advantage of this permission to publish a further selection (Pl. XXIII); cf. also *Boubousti*, Fig. 30 and *M.T.I.* Fig. 63.

To the brief description of the vases given by Rey I can add the following. Of the total number of vases which I saw, eighty-five in all (Casson gives eighty-seven), there are the following kinds:

A. *Hand-made*

- | | |
|---|----|
| (1) Jugs with cut-away or sloping necks (Pl. XXIII <i>b</i> (with side spout), <i>o, q, r, y</i>) several of which are painted, as at Bouboústi; six are of the same shape and incised in the same way as the Iron Age jugs from Central Macedonia and Chalcidice. Casson (<i>M.T.I.</i> Fig. 63) illustrates one with two horizontal loop-handles on the body. | 32 |
| (2) Two-handled tankards, or bowls (Pl. XXIII <i>i, k, n, x, z</i>); one on pedestal, incised (<i>M.T.I.</i> Fig. 63). | 7 |
| (3) Jugs like (1) but with straight rims (Pl. XXIII <i>a, f, j, l, w</i>); the handle starts about the middle of the neck or lower and there are often pointed knobs on the shoulder. | 18 |
| (4) Jars with broken profile, with shoulder-handles (Pl. XXIII <i>m, v</i>). | 4 |
| (5) Loop-handled cups (Pl. XXIII <i>c, e, g, h, s-u</i>). | 11 |
| (6) Binocular jars (Pl. XXIII <i>d</i>). | 2 |
| (7) Bowls like 439 (one has two square perforated lugs in addition to handles). | 2 |
| (8) Bowl, similar to last but with high unperforated lugs, one broken (Pl. XXIII <i>p</i>) ¹ . | 1 |
| (9) Cup with 'trigger' handle (incised on the rim). | 1 |
| (10) Jar with tall conical neck and upright lugs. | 1 |
| (11) Jar with two horizontal loop-handles ² . | 1 |

B. *Wheel-made*

- | | |
|------------------------------|---|
| (1) Jug with cut-away neck. | 1 |
| (2) Jugs with straight neck. | 2 |
| (3) One-handled cups. | 2 |

The hand-made vases are very close in character to those from Bouboústi; but forms occur not found there³; the fabric is in general heavier; and the ornament much less carefully executed. Of the wheel-made vases (1) has parallels at Tsaoutsítza⁴; (2) have grooved handles; (3) recall the grey kantharoi of Central Macedonia.

Wheel-made Ware. The stratification at Vardaróphtsa shewed that, as one would expect, the poor Mycenaean ('granary' style) of the lowest Early Iron layer⁵ was followed by Macedonian Proto-Geometric, a fusion, as in Thessaly, of lingering Mycenaean elements with local. The compass-drawn concentric circle shews that Macedonia was still in some sort of contact with the Aegaeon⁶, but this ornament was enlisted for vases of local form (491, 496) and in the local matt paint. As the matt paint and

¹ = *Boubousti*, Fig. 30, 9.

³ Cf. p. 100.

⁵ Cf. *Vardaróftsa*, Pl. XVI*b*.

⁶ Concentric circles first appear actually in the 25 cm. overlying the burnt layer; the strongly offset rim, a characteristic of Proto-Geometric bowls, in the 25 cm. above, but in the same occupation level (*Vardaróftsa*, Pl. XXI, 9). Skeat has recently elaborated the view that this ornament originated in Macedonia with the Lausitz people.

² = *Boubousti*, Fig. 30, 10.

⁴ Cf. *Chauchitza I*, Fig. 9*b*.

the lustrous paint, of which the use was learnt from the Mycenaeans, were applied both to local forms and to vases derived from Mycenaean, it seems better to treat them as one class, i.e. a Macedonian Proto-Geometric class, noting however that Proto-Geometric is not an adequate label for a style which was not succeeded here by Geometric but remained crystallized until the arrival of Corinthian imports. Mycenaean derivative forms are the two-handled bowl (480, 481, 490, 497), which is very common, a neck-amphora (485), and the bowl with pinched-out strip-handles set obliquely on the rim (483)¹. Local forms are the bowl with wish-bone handles (491, 493), set however horizontally *on* the rims, which are broad and flat, similar bowls with horizontal loop-handles set *below* the rims (475, 492); bowls with high handles (482)²; and jugs with cut-away necks. A characteristic of the Macedonian Proto-Geometric style is the use of pendant semicircles both on the bowls of Mycenaean derivation as well as on the bowls of local form. Apart from the concentric circles³ or semicircles the ornaments are very meagre (Fig. 109)⁴; zones, wavy lines, groups of vertical stripes, and a kind of net pattern (Fig. 108*g*); sometimes the whole vase is covered with a matt or lustrous wash (Fig. 108*e*)⁵. In Chalcidice a silvery slip (due perhaps to mica) often covers the vase and on it the ornament is painted⁶. Otherwise the class is very close to the Central Macedonian (Fig. 108); some of it is said to be hand-made⁷.

Grey Ware. The other wheel-made ware is **Plain Grey**. In the early half of the Iron Age in Central Macedonia this fabric was used principally for the manufacture of one class of vase, one-handled kantharoi on conical or spreading foot (471, 484). The upper part of these cups has sometimes a straight, sometimes a concave and sometimes a bulging profile⁸, and is decorated with wheel-made grooved zones, either in groups or evenly spaced and covering the whole field. The handle, flat, or rolled with a central groove, or made in two pieces, rises above the rim. This form of vase seems to have been confined to Central Macedonia, where it lasted into the fourth century, but there are fairly close analogies in the Pátele graves⁹; it did not penetrate into Thessaly along with other Macedonian Early Iron Age vases, nor, as far as we know, into Chalcidice.

¹ Cf. *B.S.A.* xxv, Pl. XI, *k*.

² A Minyan form, common in Thessaly at the beginning of the Iron Age, in wheel and hand-made painted ware. Cf. *B.S.A.* xxxi, pp. 16–19 (from Marmárianē), and *ibid.* pp. 26, 27. The Macedonian version has an offset rim and triple handles.

³ The Macedonians interpreted the ornament in their own way. The multiple circle occurs in the lowest level of the Iron Age at Vardaróphitsa, but subsequently the ornament simplified to two concentric rings was preferred. At Saratsé the rings are always multiple.

⁴ Cf. Rey, II, Pl. LI.

⁵ Cf. *Vardaróphitsa*, Pl. XX (*b*), 1.

⁶ Sherds, mostly from Sermýle (Ormýlia I) in the collection of the British School.

⁷ Cf. *Olynthus* V, pp. 23, 24.

⁸ Cf. *Chauchitza* II, Fig. 6*a*.

⁹ Cf. p. 105.

This grey cup has some points of contact with grey Minyan cups, e.g. the colour, the grooving and the high-swung handles; but Minyan was almost unknown in the Axiós Valley, the place where this cup originated. It has points of contact with the grey bucchero which was distributed over Lesbos and Western Asia Minor, at the end of the Mycenaean and the beginning of the Iron Age¹; but in Macedonia, in view of the particular area to which it is confined², might owe its form to metal cups in use by the Lausitz people³. The fact that many vases are coated with silvery micaceous wash perhaps supports this suggestion, and the handles, especially the grey fragment, found in the burnt layer show that similar vases were actually in use by the Lausitz people (Fig. 87*g*); on the other hand, an inherited predilection in Macedonia for cups of this form, for conical feet and for split handles, must also be taken into account.

From Saratsé a two-handled jar (494), with Mycenaean antecedents⁴, is made in this fabric and, after the period with which we are concerned, various other forms, including jugs with cut-away necks and bowls⁵.

Note from Saratsé a bowl with two loop-handles (495) ornamented with stamped circles; its colour is brown.

At Olynthus the small one-handled jugs (501 and 503) are wheel-made; a larger jug (504) has **scraped** vertical lines. This kind of decoration seems characteristic of the Later Iron Age (i.e. after 600 B.C.), to judge by the stratification on the High Table at Vardaróphtsa⁶.

MISCELLANEOUS OBJECTS

The material is rather limited, Vardaróphtsa (toumba and table) and Saratsé being the only well-defined strata of the period⁷.

Stone. A celt and chisel, both of primitive form, and a mace-head of bronzeite (Fig. 112*a*) come from the former; a ceremonial (?) axe (Fig. 112*c*) of schist, with tiny perforation and with spreading end, from the latter. Round querns, flint saws and knives, pounders and whetstones (Fig. 112*d, e*) are as before.

Bone. A bone pin comes from the first occupation level at the table of Vardaróphtsa; from Saratsé a borer (Fig. 112*f*) and the tip of an antler, perforated and polished (Fig. 112*g*).

¹ Cf. Lamb, *J.H.S.* LI, pp. 1 ff.

² I.e. the Axiós Valley and the Lankadás basin.

³ Cf. *Danube*, p. 328: also for a clay cup, Fig. 175.

⁴ Cf. *Archaeologia*, LXXXII, Pl. XXXI, 56 (Tomb 515).

⁵ Cf. *Vardaroftsa*, p. 28; *Vardaroftsa II*, p. 210.

⁶ It has been carefully studied by Cuttle (cf. *Vardaroftsa II*, pp. 233-5).

⁷ The later phase of Bouboústi and the earlier phase of Pátele probably fall within the period; but the assignation of objects to the respective periods is conjectural. At Várdina the E.I. stratum was disturbed, and circumstances prevented its thorough exploration. The stratum at Saratsé may have lasted beyond the limit of 600 B.C., but the site seemed to have been disoccupied at some time during the sixth century, and all the finds are therefore classed as E.I. Age.

Clay. Though the biconical spindle-whorl is typical¹, cylindrical (Fig. 112*h*) are also found; also sherd discs (Fig. 112*i, j*).

*Metal*². Except for part of a pair of tweezers (?) (Fig. 112*l*) and fragments of a pin, no bronze objects were found in stratified sites, but a small schist mould (Fig. 112*b*) for making bronze plaques from Saratsé should probably be assigned to this period: so too some of the bronze objects from Pátele, e.g. the symmetrically arched fibula (Fig. 112*k*), the fibula with broad catch-plate (Fig. 112*n*), some of the spectacle fibulae (Fig. 112*o*), and a double spiral ornament of wire³ and the horse (Fig. 112*m*).

Iron is represented by socketed spear-heads from Vardaróphitsa (Fig. 112*p*) and Bouboústi (Fig. 112*q*).

Houses, etc. Foundation walls at two successive levels in the lower of which limestone blocks were laid side by side with blocks of soft local stone occur at Vardaróphitsa⁴ on the toumba and a similar wall, surmounted by a wattle and daub wall, on the table⁵. At Bouboústi an oven⁶ belongs to the second occupation level.

Animal remains. Of animal remains, those of deer and sheep or goat were found at Saratsé; of stag (*Cervus elaphus*), boar, horse, dog and cat at Vardaróphitsa, but some of these are later than 600.

¹ Cf. *Vardaróftsa*, p. 36.

² In a comparative study of the small Macedonian bronzes (*Albania*, iv, pp. 40ff.), Rey has given reasons for attributing to them a date 'nearer the sixth than the tenth century'. In spite of their affinities with European bronzes on the one hand and with those from Greek sanctuaries on the other, there are individual elements in the Macedonian, which suggest they were manufactured locally. And, if this is so, the survival of Geometric forms from the tenth into the sixth century or later is not surprising, being analogous to the arrested development which has been observed in the case of the vases (cf. p. 106).

Since there is still so much uncertainty about the dating and relationship of these Macedonian bronzes, and since time for a full treatment of the question has not been at my disposal, I have thought it best to omit them from this study, except for a few types known to be proper to the E.I. Age (e.g. Fig. 112*k, m, n, o*). In Rey's article (*Albania*, iv, 40 sqq.) the Bohemítza material is fully illustrated and a list is given of the principal places at which similar bronzes have been found. To these can now be added two groups both from Chalcidice, which have recently been acquired, one by the British Museum (*B.M. Quarterly*, vi, p. 82, viii, p. 108) and the other by the Benaki Museum in Athens.

³ Like *Danube*, Fig. 183. It is said to be with the Pátele material in the Museum at Istanbul, but I have not seen it.

⁴ Cf. p. 38 and *Vardaróftsa*, Figs. 30, 31, 33.

⁵ Cf. *Vardaróftsa II*, p. 208.

⁶ Cf. p. 43.

Chapter II

GENERAL

A. INTERRELATIONSHIP OF THE SITES

EARLY NEOLITHIC AGE

For the Early Neolithic Age the question of interrelationship between Macedonian sites scarcely arises, since the Thessalian culture, represented by the lower strata at Sérvia, did not, as far as we know, extend north of the Haliákmon¹.

LATE NEOLITHIC AGE

In describing the pottery I have given reasons for supposing that the new ceramic styles of the Late Neolithic Age at Sérvia were not introduced ready made by the newcomers, but evolved partly as the result of observation of the effect of intense heat on pots already baked, partly of normal experiment aided by imitation of the methods of the Thessalian potters, and that very soon after the arrival, expansion began which brought the new pottery to Central Macedonia and Chalcidice on the one hand and to Thessaly on the other. In Chalcidice the stratification at Olynthus gives us a clue as to the order of foundation of the settlements. Here the lowest stratum contained black-polished pottery of Sérvian type; only in the second stratum did painted and incised pottery appear.

It follows that the painted ware is a later local development, discontinuous² with the Early Neolithic painted of Sérvia, and only indirectly dependent on it, i.e. in the sense that the technique may have been remembered and in course of time revived. Only at Hágios Mámas do a few sherds recall the Early Neolithic Thessalian, and for this reason its foundation may be a little earlier than that of Olynthus.

Kritsaná on the other hand is the latest of the three, since here painted pottery, similar to that of Olynthus, is characteristic of the lowest settlement, while black-polished ware is almost entirely lacking. It thus seems to be not a direct offshoot from Sérvia but a secondary foundation perhaps from Olynthus itself³.

¹ Unless the red on white sherds found at Aiváte really belong to the E.N. Age. Cf. p. 75, note 1.

² Except at Sérvia itself.

³ This is borne out by its E.B. context. E.B. seems to have been just present at Olynthus, i.e. a few sherds in the uppermost stratum (cf. p. 10, note 1).

Várdina is probably late too, because its black-polished ware has curvilinear decoration from the beginning, a counterpart, as we saw, of the painted ware of Olynthus and Kritsaná¹.

We have then to picture in Macedonia in the Late Neolithic Age a movement out of the Haliákmon Valley eastward, which had as a result the settlement of hitherto uninhabited regions, and the rise of numerous small villages, self-contained but united by ties of common origin and by the normal intercourse of primitive neighbouring communities.

EARLY BRONZE AGE

The vases and other objects included in the inventory show unmistakably that in the Early Bronze Age from Chalcidice to Western Macedonia we have to do with a uniform culture. Like the Late Neolithic, this culture spread by stages, but with a different starting-point and in the reverse direction. These stages can be fairly accurately inferred from the stratification at Kritsaná where was the first settlement (so far discovered) of the new population.

Applying the evidence of the ceramic development there observed², we can say that Hágios Mámas and Molyvópyrgo were founded somewhat later³.

Next Saratsé and Kilindir⁴.

The beginning of Vardaróphtha and Sérvia⁵ seem to be roughly contemporary with the fifth settlement at Kritsaná.

The Monastir sites come last in the series⁶.

The evidence from Góna, Sédes, Várdina and Kapoutzédes is not sufficient to enable us to assign them a place⁷.

Thus in the Early Bronze Age we have to do with a penetration of all Macedonia by a new race of people, who, landing in Chalcidice and occupying in succession sites, some of which were already inhabited by the Late Neolithic population, spread thence over Central Macedonia, working up the river valleys or placing their villages by the side of lakes and eventually finding their way into Western Macedonia beyond

¹ Since the stratified context of the Neolithic sherds at Sédes and Kapoutzédes is not recorded, the place of these sites in the series cannot be determined.

² Best illustrated by the bowls with incurved rims; cf. p. 80 and the diagrams of the respective sites.

³ Inferred from the rarity of lugs with upturned ends, which are very common in the first two settlements at Kritsaná; on the other hand, that the foundation of Hágios Mámas and Molyvópyrgo preceded the fifth settlement at Kritsaná is shown by the presence of a few of these lugs as well as by that of coarse jars ornamented with rows of stabs just below the rim (cf. Fig. 58).

⁴ Inferred from the complete absence of lugs with upturned ends; at both sites however the lugs still 'grow out of the rim'. At Saratsé the stabbed ornament is still frequent, and its foundation may consequently be a little earlier than that of Kilindir.

⁵ Lugs set below the rim; none have upturned ends; the string-holes are wider and the lugs are almost handles; many bowls have flattened rims; loop-handles are common and have protracted terminals or are flat in section; indented ledge-lugs.

⁶ The everted rims of the bowls, the numerous high-swung ribbon handles and a tentative use of painted ornament show that the borders of the E.B. Age have been passed.

⁷ The negative evidence however is in favour of a date corresponding to that of Vardaróphtha and Sérvia,

Monastir. The limits of their progress in this direction are not yet known, but they certainly reached the upper Tserna, and, it seems likely, crossed Pindus and settled in the plain of Giánnina and at Dodona¹. They passed into Thessaly too, where, as we shall see, the pottery of the early part of the Fourth Period is to a large extent Macedonian.

MIDDLE BRONZE AGE

In contrast to the uniform character of the Early Bronze culture throughout Macedonia, there are in the Middle Bronze Age, in addition to divergence in the course of events in the three principal areas, local distinctions as well. Thus, the pottery of Vardaróphtsa is slightly different from that of Kilindír, though both sites lie in the same river basin; and at Saratsé the division between the two periods is so much less clear-cut than at the other two sites that it is not certain whether there was any break in continuity at all. For all that, there is an underlying uniformity, shown positively by the general use of a toothed instrument for making bands, by individual ornaments, by their arrangement and distribution, and by the forms of the vases; negatively by the cessation of characteristic Early Bronze forms. As far as Central Macedonia is concerned, it is legitimate to speak of a homogeneous, if not quite uniform culture.

In Chalcidice, only two strata of the Middle Bronze Age have been explored. At one of these (Hágios Mámas), from the replacement of the bowl with incurved rim by the bowl with wish-bone handles, some kind of parallel development to that which occurred in Central Macedonia may be inferred; the principal difference being that, in Chalcidice, there is no Incised ware, its place being taken by Minyan, of which the centre of distribution was certainly Molyvópyrgo.

This foreign settlement created a new orientation of the villages of Chalcidice, of which Hágios Mámas may be taken as typical, and the normal relationship of the peninsula as a whole with Central Macedonia was for a time interrupted; two handles of Incised vases which must have been imported from Central Macedonia are the only evidence of direct contact².

The course of events in Western Macedonia has been already noticed³.

LATE BRONZE AGE

The divergence which existed during the Middle Bronze Age between Central Macedonia and Chalcidice was temporary, since the matt-painted pottery, which is shown by its dependence on the Middle Bronze Incised to have originated in Central Macedonia, soon found its way to Chalcidice, where it was in common use through-

¹ For remains in Epirus having affinities with the Macedonian E.B. Age cf. Hammond in *B.S.A.* xxxii, pp. 131-139 and Εὐαγγελίδης, *Ἑπειρωτικά Χρονικά*, x (1935), pp. 192-212, and Pls. I-IX *a*. These finds at Dodona establish the connection between Macedonia and Epirus, especially the 'wish-bone' handles (*ibid.* Pl. II, *b*).

² Cf. *Hagios Mamas*, Fig. 12, 11, 12.

³ Cf. p. 85.

out the Late Bronze Age. The basic uniformity of this matt-painted ware in both areas in spite of local peculiarities may be taken as evidence of close interrelationship between them. Two specialized styles, the patterned Minyan in Chalcidice and the Advanced Incised style in Central Macedonia, alone remain as respective legacies of the preceding periods.

Mycenaeans must have reached Central Macedonia and Chalcidice almost simultaneously, and, as at all sites where that pottery is found, the native wares remain in use, there is no reason to suppose that their arrival disturbed existing relations.

The Lausitz incursion did not affect Chalcidice. Western Macedonia remained isolated.

EARLY IRON AGE

The interrelationship between Central Macedonian sites is very close. The pottery from Saratsé is identical with that from Varadaróphtsa and Várdina, except for a difference in surface colour. Since grey kantharoi have not been recorded from the Salonica plain, it looks as if they were at home in the Axiós Valley, from which they reached the Lankadás basin, but spread no farther. It is safe to assume that they will some day be found in the intermediate valley of the Gallikó. Macedonian Proto-Geometric has been found at many sites in the Salonica plain¹.

The Early Iron pottery of Chalcidice, in so far as we know it, has much in common with that of Central Macedonia. From the excavated deposits at Olynthus and from surface finds at numerous mounds, derivative Mycenaean, Macedonian Proto-Geometric, often with compass-drawn concentric circles, wheel and hand-made grey bucchero, scraped ware, trigger handles, jugs with cut-away necks and twisted handles, prove a close intercourse between the two areas. Grey kantharoi however have not so far been found in Chalcidice or one-handled cups like those from Olynthus (501–503) in Central Macedonia.

Western Macedonia. The priority of Bouboústi to Pátele seems fairly certain². Rey has argued from a comparative study of the bronzes that the Pátele cemetery should be dated near the sixth century³. As far as the later graves are concerned, I would agree with him. But, out of the fifty-four graves, some must be earlier and the Geometric fibula (Fig. 105*n*) must really be regarded as proof of this, even when allowance has been made for the seclusion of Western Macedonia and the unreliability of fibulae for precise dating.

Before the cemetery ceased to be used, some sort of contact existed with Central Macedonia, though we cannot be sure whether it was after or before 600. This contact is proved by the jugs with cut-away necks and handles with three twists, a form that first appears in Central Macedonia along with the normal fully twisted

¹ Cf. p. 106.

³ Cf. *Albania*, iv, pp. 59–61.

² Cf. p. 100.

handle (Fig. 106*d, e*). The wheel-made jugs and kantharoi¹ also prove contact, which, in view of the position of Pátele, at the western end of the only easy egress from Central to Western Macedonia, is natural enough.

For all that, the relationship between Central and Western Macedonia was apparently never close like that between Central Macedonia and Chalcidice.

B. EXTERNAL RELATIONS

EARLY NEOLITHIC AGE

The current impression that prehistoric Macedonia 'goes with the North' has attained for many almost the status of an article of faith. I shall try to test the validity of this belief for each successive period in the light of the finds.

The sole representative of the Early Neolithic Age, the stratified deposit at Sérvia, is so clearly an offshoot of the Thessalian culture, that it must stand in the same relation to the North as does Thessaly itself. Here there are, it is true, some analogies in artifacts and ornaments with Vinča I² and Danubian I³, but the pottery associated with these in Thessaly is peculiar to itself⁴, and a northern provenance for this culture is unthinkable, or any connection, except of a vague and ill-defined character, problematical⁵. Its origin remains, in fact, a mystery, but the discovery in a house at Sérvia of *Triticum durum*, a grain of which the centre of diffusion was Abyssinia and the Sudan⁶, with secondary centres in Syria and Mesopotamia, may prove to have significance.

LATE NEOLITHIC AGE

The question of external relations is more complicated. I have expressed the opinion that the new pottery styles evolved in a large measure at Sérvia itself as the result of the impact of the existing aesthetic tradition upon that of the newcomers. As the two traditions were quite distinct it should be possible, by analysis of the mixed style which came almost immediately into being, to isolate what the newcomers brought with them⁷, and perhaps to discover in this way the direction from which they came. The technical perfection, the enhancement of the surface

¹ Cf. p. 105.

² Cf. *Danube*, p. 33; artifacts are 'relatives of shoe-last celts' (i.e. Thessalian Type B), and axes (amulets?) made from waisted stones; ornaments are stone bracelets.

³ Again 'shoe-last' celts and stone bracelets.

⁴ 'Altars' however are thought to indicate relationship (*Danube*, p. 33). Some sherds from Strelíže II, which 'look remarkably like Thessalian A3ß ware' (*Danube*, p. 79), must reflect later contacts, if any. For the pintaderas cf. p. 116.

⁵ The whole question is much complicated by Vassic's latest views about the chronology and origin of the earliest settlement at Vinča.

⁶ Cf. *Antiquity*, VII, p. 76.

⁷ I include forms and ornaments which appear in Macedonia only *after* the arrival, and some of which are found only in the period of expansion.

by ribbing, beading or white paint, forms like the bell-shaped cup and even the use of colours, may have emerged in an atmosphere of experiment and of emulation aroused in craftsmen who now had before their eyes the creations of the Thessalian potters, to which the discovery of the effect of intense heat on finished pots may have contributed; but in clear contrast to anything Thessalian are the shallow handle-less bowls with rounded bases, the carinated and pedestalled bowls, biconical urns, incision and the technique of discontinuous strokes. The sense of ornament too is different. Hence the broad bands composed of reduplicated parallel lines, the zones of hatched triangles and groups of oblique lines, and later the spiraliform grooves, the curious ornaments on the grey-on-grey, the crusted ware and in the painted ware the outlining of thin lines with thick, must be attributed to aesthetic ideas already present in the mentality of the newcomers.

If we can find at any other site or in any other area these or some of these elements in combination, we shall have a clue as to the direction from which they entered the Haliákmon Valley.

Since Childe's attempt to introduce order into chaos, a fresh survey of the present position of research in the Danubian Neolithic field, with special reference to Roumania, has been made¹. The complexity of the material, the rarity of properly explored sites, and, even with a case of those that have been carefully explored, the absence of published reports, and, finally, the astonishing disparity of views as to chronology on the part of experts, make it difficult to find firm ground for basing precise analogies. For all that, those elements which we have seen to be distinctive of the newcomers at Sérvia do find closer analogies in Danubian I and II strata than elsewhere. I take twenty of these elements, all of which appear in Macedonia first in the Late Neolithic Age, and all of which seem to be at home² in the Danube region.

POTTERY-FORMS

(1) *Rounded bowls*. The hemispherical and rounded bowl is characteristic of the Danubian area from the beginning. The Sérvian type is wide and shallow but its relationship to the hemispherical is obvious, and the deeper shape is also known (37, 38)³. The slightly angular type (e.g. 31–33), which seems to mark the transition to the carinated type, has precise parallels at Grossgartach⁴. With the shallow type (13, 14) may be compared vases from Schönfeld, which Hoernes relates to the Danubian⁵.

¹ Cf. Appendix IV under Nestor, J. Fewkes' *Neolithic Sites in the Moravo-Danubian Area*, which has appeared since I wrote the above, must now be added; also Tompa's review of prehistoric exploration in Hungary during the last twenty-five years (cf. Appendix IV, under Fewkes, V. J. and Tompa, F.).

² I.e. common, and not manifestly derivable from anywhere else. Cf. Fewkes, *op. cit.*

³ Cf. *Danube*, Figs. 18, 19 (Moravia); Fig. 31 (Belgium); *Hoernes-Menghin*, p. 761 (Silesia); *Starčevo*, Pls. VIII (b), 3, 5, 8; XIII (with a low foot).

⁴ Cf. *Hoernes-Menghin*, p. 279.

⁵ Cf. *Hoernes-Menghin*, p. 753, especially 1.

- (2) *Carinated or collared bowls*. Characteristically Danubian¹.
- (3) *Pedestalled bowls*. Characteristically Danubian².
- (4) *Biconical urns*. Characteristically Danubian³.
- (5) *Zoomorphic vases*⁴.
- (6) *Zoomorphic lugs*⁵.
- (7) *Table-vases or altars*⁶.

POTTERY-ORNAMENTS

- (8) *Fluted or ribbed vases*⁷.
- (9) *Crusted vases*. Characteristically Danubian⁸.
- (10) *Polychrome vases*⁹.
- (11) *Black-topped vases*. Common at Vinča¹⁰.
- (12) *Incised vases*. Except for pricks and rough finger-nail impressions, incision was unknown at Sérvia in the Early Neolithic Age, when its decorative value was not appreciated. The Late Neolithic ornaments (whether rectilinear bands composed of multiple lines or curvilinear single-lined) and the single-stroke technique are all innovations, and are at home on the Danube¹¹.
- (13) *Spiraliform ornament*¹². Unknown in the Early Neolithic levels; characteristic of the Danube, where it may be indigenous.

ARTIFACTS, TOOLS, ETC.

- (14) *Shell and marble bracelets*¹³.
- (15) *Marble beads*¹⁴.
- (16) *'Shoe-last' celts*¹⁵. Characteristically Danubian.

¹ Cf. *Danube*, p. 28; *Eutresis*, Fig. 90 (from Vinča); *Starčevo*, p. 46 'shouldered bowls with well-marked necks', to be compared with our 50-52 (there is a bowl of this class from Starčevo in the collection of the British School at Athens); *Rumänien*, Taf. 5, 1 (Vodastra); Taf. 3, 1 (painted, from near Tordos); Abb. 12, 6 (Tordos). Forms like our 39, 40, 110, 111 have also many Danubian analogies, especially at Vinča.

² Cf. *Rumänien*, Taf. 1, 1 (Hinovala); cf. also *Danube*, Fig. 61 (Erösd) with our 115.

³ Cf. *Danube*, Fig. 50 (Lengyel), and cf. our 158 (Olynthus), which also has knobs. Note the undercut profile of the Lengyel urn, a Danubian feature found at many Macedonian sites (e.g. 128-130, 136). *Hoernes-Menghin*, p. 257, 1, second row, right (also Lengyel) is even closer to our 158.

⁴ Cf. *Danube*, p. 78 (Polgar A); p. 101 (Erösd); *Vinča*, Pl. XXVI.

⁵ Cf. *Danube*, Fig. 19b (Moravia); p. 28 (Vinča I); *Vinča*, Pl. XXVII, 118, p. 75 (Csoka; cf. our Figs. 13(iii), 24; the Szeged Museum has several).

⁶ Cf. *Danube*, p. 28 (Vinča I); p. 70 (Vinča II, Jakovo); *Vinča*, Pl. XXVII, 115.

⁷ Cf. *Danube*, p. 28 (Vinča I, Tordos I); cf. also *Rumänien*, Taf. 5, 7, combined with a kind of beading.

⁸ Cf. *Danube*, pp. 76, 77 (Polgar A) and references p. 464. Cf. also Tompa, *Die Bandkeramik in Ungarn*, Pls. LV-LVII; *I.L.N.* June 1934. Barbotine ware should now be added. Cf. *B.A.S.P.R.* XII (May 1936), p. 73, note 491.

⁹ Cf. *Danube*, pp. 76, 79 (Polgar B), p. 100 (Erösd).

¹⁰ Cf. *Danube*, p. 28 (Vinča I and Tordos I).

¹¹ Cf. *Danube*, Fig. 26 (Eberstadt); Fig. 31 (Belgium). For a design like our 13, cf. *Danube*, Fig. 24a (Cernyul). White filling is, of course, common, and red filling is found in Hungary. Cf. *Danube*, p. 60, and p. 75 (Csoka).

¹² Cf. *Danube*, p. 471 (references), and pp. 66, 67.

¹³ Cf. *Danube*, p. 31 (Vinča I); p. 41 (Danubian Ia); p. 53 (Rössen).

¹⁴ Cf. *Danube*, p. 78 (Polgar A); p. 91 (Hungary, Pusztastvánhaza).

¹⁵ Cf. *Danube*, p. 470 (references).

(17) *Bone combs*¹.

(18) *Phalloi*².

(19) *Pintaderas*³. A Thessalian source for the pintadera is claimed by Childe. In view of their comparative frequency on Danubian sites, a Danubian source seems more likely.

(20) *Red-ochre in the graves*⁴.

Now, though none of these elements, taken individually, would prove anything, taken all together, since they are, if not indigenous, at any rate at home in the Danube region and appear *intrusively* in Macedonia, a strong impression is produced that their origin is to be looked for round the Danube. It is the nearest focus from which they could have come. A primary source of the Danube culture itself may lie east or south-east, or may not, but the Danube is at any rate a secondary focus from which Danubianism reached Macedonia, Thessaly and Central Greece⁵.

I have so far omitted the painted ware (other than crusted), as it requires special consideration. There is no doubt that the newcomers at Sérvia were familiar with some kind of painted ware, since apart from the grey-on-grey, a few other painted fragments (one three-colour)⁶ were found in their first occupation level. The painted ware at the other settlements (Olynthus and Kritsaná) arose independently of any influence (except indirect) of the Early Thessalian Neolithic⁷. This suggests that these painted styles represent inherent Danubian tendencies and, if this is so, provide a valuable addition to the points of contact with the Danube that have already been noted. I am, of course, conscious of the danger of seeing fanciful analogies, but it is impossible not to be impressed by the extraordinary resemblance between the ornaments on pottery from Olynthus and Kritsaná on the one hand and on the pottery from Starčevo on the other⁸. The pottery from Pestera Mare near Tordos I have not seen, but this, too, to judge from the illustrations and the description⁹, is very similar to that from Chalcidice and from Sérvia also. Childe has already detected the affinities of Starčevo and Diméni¹⁰; had he known the pottery from Olynthus he would, I think, have been still more impressed by their virtual identity. Childe also detected Thessalian I influences on the Danube¹¹, but, now that

¹ Cf. *Rumänien*, Abb. 11, 4, 5 (Tordos).

² Cf. *Danube*, pp. 123, 129 (Stary Zamek in a Danordic context).

³ Cf. *Danube*, p. 80 (Polgar C); p. 103 (Erösd).

⁴ Cf. *Danube*, p. 44 (Moravia, Danubian I; 'lumps of red ochre were placed beside the corpse').

⁵ There is of course the objection that intermediate sites are lacking. For intermediate traces, such as they are, cf. *B.A.S.P.R.* xii (May 1936), p. 72.

⁶ Cf. p. 74.

⁷ Cf. p. 74.

⁸ Cf. especially Figs. 29, 32 and *B.A.S.P.R.* ix (1933), Pls. IX, X, 26-33, XI. Technically too, the resemblance is startling; dark on red is the commoner, but white on red is also found and white is used to outline dark bands. The fact that both at Starčevo and in Chalcidice it is hard sometimes to decide whether the original colour of the paint was black or white suggests that the same kind of pigment was familiar in both. It is a pity that so few shapes of the painted pottery of Starčevo are known. Cf. *B.A.S.P.R. loc. cit.* p. 45.

⁹ Cf. *Rumänien*, Taf. 3, 1.

¹⁰ Cf. *Danube*, p. 105.

¹¹ Cf. *Danube*, p. 79, A 3β sherds from Streliče II, whence also comes the crusted ware, Fig. 40 (Streliče I), to which might be added the waisted axes at Vinča (Danube) and of Csoka (Szeged Museum). There was

we know that Thessalian I continued to flourish at Sérvia side by side with the new culture, it follows that these influences may quite well be subsequent to the establishment of the Danubians in Macedonia, and merely show that contact was maintained with the homeland. A trade route between Western Macedonia and Hungary by means of trains of pack-animals was in existence as late as the beginning of the nineteenth century¹, and what was possible then may have been possible in pre-historic times.

In view of all the analogies the case for a Danubian origin of the Servian Late Neolithic culture, and consequently of the rest of Macedonia, is, at least, respectable². Is it possible to determine precisely its point of departure?

It will be noted that the points of contact on the Danubian side occur mostly at sites that lie along the Tisza or its tributary the Maros. This looks significant, since the Tisza enters the Danube from the north a little west of the point where the Morava enters it from the south. From the Morava valley to the Vardar valley the passage is easily made. The Vardar would be followed as far as Grádsko, whence a fairly easy pass leads into the Tserna valley and so into Western Macedonia.

It looks then as if the point of departure of the Danubians, who entered Macedonia, lay just north of the Danube, perhaps actually in the Tisza valley.

The Diméni and Central Greek Late Neolithic cultures then fall naturally into place as due to the progress of these people southwards via Sérvia—a parallel movement to their eastward expansion over Central Macedonia and Chalcidice. The points of resemblance and of difference between Greece and Macedonia at this time find thus a natural explanation³.

In the Late Neolithic Age then Macedonia may be said to go with the North in the sense that bearers of a Danubian civilization entered the Haliákmon Valley. They brought with them some traditional notions of how a pot should be made and decorated, and finding a race of more skilled craftsmen already established there, set their own potters to imitate their methods. Under this stimulus new pottery with both elements came into existence, and when expansion took place, it was this that was carried to the new settlements, each of which soon developed its own individual style. Thus the connection of Central Macedonia and Chalcidice with the North is one degree farther removed than that of Sérvia.

considerable overlapping between periods A and B in Thessaly and the pintaderas and 'shoe-last' celts found in E.N. strata in Thessaly may really belong to period B and be, as seems more likely, of Danubian origin. It all depends on their exact stratified position. In certain Thessalian B3γ and other sherds Grundmann sees evidence of direct Danubian imports. Cf. his interesting paper, *Ath. Mitt.* 59, pp. 123–136.

¹ Cf. Wace and Thompson, *The Nomads of the Balkans*, p. 214; Leake, *Travels in Northern Greece*, i, p. 307.

² For objections, cf. the careful review of the evidence by Fewkes, *B.A.S.P.R.* xii, pp. 64ff.

³ Cf. pp. 74, 75.

EARLY BRONZE AGE

In the reports on Vardaróphitsa, Hágios Mámas, Molyvópyrgo and Saratsé¹, attention was drawn to the numerous affinities between the Early Bronze Age material from such Macedonian sites as had then been explored and that from North-Western Anatolia and the Toumba of Protesilaos. To these may now be added deposits of the same age at Kritsaná, Sérvia and Armenochóri in Macedonia, and on the Anatolian side the stratified site of Thérmi in Lesbos², which has revealed the successive stages of a provincial culture parallel to that of Troy. As a result of this excavation and of re-studied material from other Troadic sites³ the points of resemblance have been multiplied, and it is now possible to define the relationship between Macedonia and Anatolia more precisely in time and place. Among supplementary parallels with Macedonian material thus supplied are bowls (with incurving rim) with tubular lugs 'growing from the rim'⁴, similar bowls without lugs but with groups of incised vertical stripes on the rim⁵, bowls with contracted mouths⁶, one-handled cups⁷, jugs with sloping or cut-away necks⁸, rope-handles⁹, handles with vertical grooves¹⁰, wish-bone handles¹¹, the device of flattening a rounded handle at the point where it meets the rim¹², jars with two spreading handles¹³, sauce-boats¹⁴, jars with broad strap-handles¹⁵, clay hooks¹⁶ and perforated axes¹⁷.

Particularly significant for the nature of the relationship are the lugs with up-turned ends, because, 'growing from' the same kind of bowl¹⁸, they are characteristic of the first village at Kritsaná and occur sporadically throughout Macedonia. This form of lug, especially with a central rib, could hardly have arisen independently on both sides of the sea, and one must be derived from the other: at Thérmi they are characteristic of the second period¹⁹, but have antecedents in the first: at Kritsaná they occur in large numbers on virgin soil, and in a developed form. It is evident that their origin is in Anatolia, and the culture to which they belong is older there than in Macedonia.

¹ Cf. List of abbreviations, p. xxv.

² Lamb, *Excavations at Thérmi in Lesbos*.

³ Cf. *P.Z.* xxiii, 1932, pp. 112 ff.

⁴ Cf. *Thérmi*, Pl. XVI, 1; Pl. XXXI, 1, 2, 5; Pl. XXXV, 191; Pl. XXXVI, 293. These have precise parallels in Macedonia, where however the ends are usually more spreading (cf. 242, 252). There is also a chance find from Karamán (Western Macedonia) and one from Naxos (both in the British School Collection); cf. *P.Z.* xxiii, p. 117, Fig. 4, 1, 3 (Hanai Tepe).

⁵ Cf. *Thérmi*, Pl. XI, 492, cf. our 107.

⁶ Cf. *Thérmi*, Pl. VIII, 9; Pl. IX, 411.

⁷ Cf. *Thérmi*, Pl. VIII, 255; Pl. IX, third row.

⁸ Cf. *Thérmi*, numerous examples Pl. VIII, fifth row.

⁹ Cf. *Thérmi*, Figs. 30, 32.

¹⁰ Cf. *Thérmi*, Pl. XXXIII, 5a; Pl. XXXIV, 4.

¹¹ Cf. *Thérmi*, Pl. IX, 189; *P.Z.* xxiii, Fig. 2, 11 (Hanai Tepe).

¹² Cf. *B.S.A.* xxx, p. 25, Fig. 9, 41/2, 134/2.

¹³ Cf. *Thérmi*, Pl. XXX, 30; Pl. VIII, 285.

¹⁴ Cf. *Thérmi*, Fig. 32.

¹⁵ Cf. *B.S.A.* xxx, p. 23, Fig. 7, 249/3 and Fig. 9, 9/3.

¹⁶ Cf. *Thérmi*, Pl. XXIV.

¹⁷ Cf. *Thérmi*, Figs. 53, 54.

¹⁸ For analogies cf. *Vardaróphitsa*, p. 51, notes 3-9.

¹⁹ Cf. *Thérmi*, p. 91.

Trojan parallels are already numerous and will, no doubt, be increased by the present excavations at Troy, but even now it is not an exaggeration to say that most Macedonian forms and ornaments can be paralleled at Troy¹, Thérmi, or other North-West Anatolian sites², and the inference is unavoidable that we have to do with a single cultural province. And since we have evidence for the priority of this culture in Anatolia, we can assert that it was introduced throughout Macedonia by Anatolian immigrants. With the Early Helladic culture further analogies in addition to those already noted in individual reports are supplied by the material from Eutresis, now fully published. We may note bowls with incurved rim³; similar bowls with tubular lugs growing from the rim⁴, ribbon loop-handles⁵, spouted bowls⁶, small one-handed jugs or cups⁷, jars with spreading loop-handles⁸, pyxides⁹, jugs with sloping necks and askoi¹⁰ to which rope-handles¹¹, two-piece handles¹², handles with vertical grooves¹³, ribbed¹⁴, or incised¹⁵ handles probably belong, plastic terminals¹⁶, proto-wish-bone handles¹⁷, rims ornamented with rows of stabs or diagonal dashes¹⁸, and cupped bases¹⁹, ledge-lugs below the rims of bowls²⁰. The profile of a small pot also has many parallels in Macedonia²¹. Most of these analogies are to be found in the Early Helladic I and II levels²².

From all these parallels, together with those from other Early Helladic sites like Orchomenós²³, Zygouriés²⁴, Korákou²⁵ and Hágios Kosmás²⁶ some close association of the Macedonian and Early Helladic cultures in a pre-dispersion phase must be inferred, and the points which both have in common with North-West Anatolia suggest that the centre of dispersion lay somewhere east of Troy, unless of course

¹ For Trojan analogies, cf. *Vardaroftsa*, p. 52; also for analogies with the Toumba of Protesilaos, from which site cp. especially a bowl (Demangel, *Le Toumba dit de Protésilas*, Fig. 52, 3) from the second settlement.

² Cf. *Vardaroftsa*, p. 51; for a more recent and detailed review of their interrelationship cf. *Thérmi*, pp. 85-92.

³ *Eutresis*, Pl. V, 1; p. 84. 'One may call it the characteristic shape of the first period of Early Helladic.'

⁴ *Eutresis*, Pl. II; Fig. 96.

⁵ *Eutresis*, Fig. 116, 3.

⁶ *Eutresis*, Fig. 113, 1.

⁷ *Eutresis*, Figs. 105, 122.

⁸ *Eutresis*, Fig. 103.

⁹ *Eutresis*, Fig. 102, 2.

¹⁰ *Eutresis*, Figs. 136, 137 and Figs. 134, 135.

¹¹ *Eutresis*, Fig. 151, 3.

¹² *Eutresis*, Fig. 150, 4 and 3 (three-piece).

¹³ *Eutresis*, Fig. 151, 4 (also with knob).

¹⁴ *Eutresis*, Fig. 115, 1.

¹⁵ *Eutresis*, Figs. 150, 1; 151, 2.

¹⁶ *Eutresis*, Fig. 151, 1, 5.

¹⁷ *Eutresis*, Fig. 114, 3.

¹⁸ *Eutresis*, Fig. 109, 4.

¹⁹ *Eutresis*, pp. 84, 86.

²⁰ *Eutresis*, Fig. 115, 3; cf. especially this with our 164, 307 and 308.

²¹ *Eutresis*, Fig. 138.

²² Analogies with E.H. III Eutresis are discussed below.

²³ Since this was written, *Orchomenos III* has appeared. The analogies are even more striking than those from Eutresis. Note especially the water-jars, Taf. II, III, IV, 1; the tubular handles with plastic strips, Taf. VI, 1, 2; the grooved handles of the askoi, Taf. VII, 1, 2; handles like Taf. VIII, 1-4; bowls like Taf. XXV, XXVI (the lug XXVI, 1 has a precise analogy in Chalcidice (cf. *Hágios Mamas*, Fig. 20, 9)); 'wish-bone' handles, Taf. XXX, 4a, b; split handles, *ibid.* c; and handles like Taf. XXXII, 2.

²⁴ Cf. *Vardaroftsa*, p. 53; *Hágios Mamas*, p. 181.

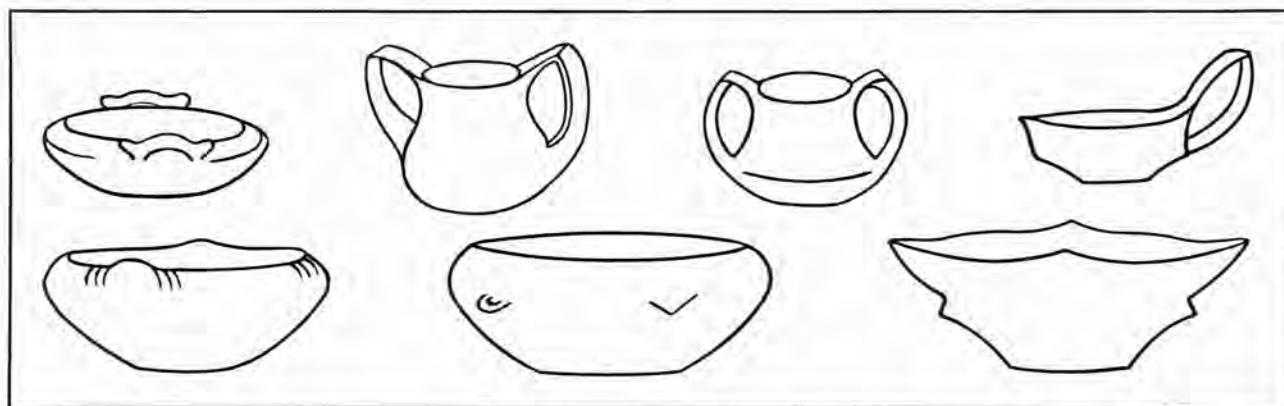
²⁵ Cf. preceding note.

²⁶ Cf. *A.J.A.* 1934, p. 265, Fig. 8.

the Early Helladic point of departure lay in South-West Anatolia as has been suggested and often assumed¹.

The only other explanation would be that the Early Bronze culture of Macedonia is actually an intermediate phase of the Early Helladic, forming the link between the latter and its Anatolian origins. This suggestion, or something like it, has been made by Myres² and may prove correct, but the available evidence is not yet sufficient for proof, and there are many difficulties³.

Material resembling both Macedonian and Anatolian from Danubian sites, especially Csoka, may also be due to a divergent movement from North-West Anatolia up the Danube, but the movement may have been overland through Macedonia and some kind of direct intercourse must, I think, be assumed to explain the extraordinarily close resemblance between certain Lengyel vases, especially



tankards, and vases from Western Macedonia⁴. The attached sketch was made in the Museum at Szekszard. Here, as in Western Macedonia, Neolithic influence (Danubian II) can be detected. In the Museum at Szeged I noted, from Csoka, bowls with incurved rim, dentated ledge-lugs, a studded bowl, and waisted pebble-axes all of which are more Macedonian-looking than Anatolian⁵.

¹ Early Cycladic affinities have also been increased by the finds in the cemetery at Hágios Kosmás (Attica). The cups illustrated *A.J.A.* 1934, p. 272, Fig. 17 are extraordinarily close to Macedonian.

² *J.R.A.I.* LXIII, p. 301.

³ Chiefly chronological, as it would involve a much lower date for the beginning of the E.H. period than has been hitherto accepted. On comparative evidence the earliest E.H. settlements would correspond in time to about the third settlement at Kritsaná. It would mean that some of the immigrants pushed right through overland without halting. The view is an attractive one, but requires working out in detail and all round. The Orchomenós material strengthens the possibility that it is right.

⁴ Cf. also *Dolgazatok*, IX-X (1933-4), Taf. XX, 9-11 from the cemetery of Szentes-Kistöke, south of the R. Körös, which flows into the Tisza from the east.

⁵ The recently published material from Vučedol (*Corpus Vasorum antiquorum*, Yugoslavie, I, Pl. 41, 1, 2) includes some tubular lugs 'growing from the rim' of bowls, which must be of Macedonian-Anatolian origin. This confirms the Aegean analogies of the Vučedol pottery which have been noted by various archaeologists.

Whatever the explanation of these analogies, they cannot be said to support a Danubian origin for the Early Bronze Age culture of Macedonia. Rather the accumulative evidence disposes of the view that Macedonia goes with the North in the sense that its culture was derived from or dependent on the Danube¹. On the contrary, it falls into place as a stage in the Anatolian movement westward, which brought a new population to the Cyclades and to the Greek mainland, and whose ultimate extension has yet to be determined².

Unless we regard the Macedonian-looking material from the Danube as signs of maintained intercourse (which is unlikely), the Macedonian contingent were the least enterprising of the settlers. Otherwise from the time of their arrival they seem to have remained self-contained. Two pieces of obsidian, one in the first and one in the third village at Kritsaná, imply the rare visits of coasting vessels from Melos, but there is nothing else to show trade relations, since the copper pins and perforated stone celts they could make for themselves³. Only towards the end of the period an imported Early Helladic sherd in the last village at Kritsaná proves contact with the South on at least one isolated occasion.

MIDDLE BRONZE AGE

The external relationships of Central Macedonia in the Middle Bronze Age must be considered separately from those of Chalcidice.

The dividing line between the Early Bronze and Middle Bronze Ages was drawn at Vardaróphtsa on the strength of the appearance of a new kind of Incised pottery with spiraliform bands; of the replacement of the bowl with incurved rim by the bowl with 'wish-bone' handles, and the cessation of other Early Bronze elements, changes which all occurred about the same level. Subsequent exploration at other sites showed that the spiraliform bands are not found much outside the Axiós Valley; that elsewhere the Incised is mostly rectilinear, and has so much in common with that of the preceding period, that a *partial* descent of one from the other seems possible; that the cessation of Early Bronze forms was less complete than had been supposed.

In view of all this, the statement that the Middle Bronze culture is 'essentially Northern'⁴ needs revision. It is true that the Liverpool vase and the Vardaróphtsa fragments have a Danubian look, but in order to prove a change of culture it would be necessary to show a wholesale introduction of ceramic ideas from some Northern region where such are known to exist about this time, as it was possible to do in the case of the Late Neolithic Age at Sérvia.

¹ Fuchs' book *Die griechischen Fundgruppen der frühen Bronzezeit*... did not reach me in time to allow me to take his views into account.

² For analogies cf. p. 111, note 1.

³ The gold hair-ring from Saratsé may also be of local manufacture; but perhaps the paste bead in the necklace from Hágios Mámas indicates external relations.

⁴ Cf. *Kilindir*, p. 70.

In the present state of evidence, I think this is impossible. Actually a better case might be made out for Cycladic connections. Cycladic spirals are much nearer than anything Danubian to the Macedonian, and, as in Macedonia, they are associated with stamped or excised wedges. Compare with our Fig. 73*b, c*, **374** or **381** the ornament on the frying-pans from Naxos¹, from Paros², or from Sikinos³; compare the tasselled lines on the Cycladic vases that were finding their way to Eutresis⁴ and Eleusis⁵ with our Fig. 70*b, i*, **375** and **376**; compare the discs on Cycladic vases with our Fig. 70*c*⁶. One from the Cycladic cemetery of Hágios Kosmás in Attica⁷ is so close that some connection must be inferred, but until Cycladic imports or Cycladic vase forms are found in Macedonia, it is not possible to claim that the Cyclades exercised any direct influence upon the course of events in Macedonia. Even if it were possible, some explanation would still be required for the popularity of these ornaments in the Cyclades themselves at this time.

Cycladic-looking vases with incised spirals found in the lowest Early Bronze level at Eutresis suggest that this ornament had a continuous history in the islands, though we have at present evidence for its existence only at the beginning and end of the period. If the ornament was not in continuous use, then the later vogue of it must be due to a revival, and a revival of what was in origin Late Neolithic. Alternating periods of spiraliform and rectilinear systems are not unnatural, and do not perhaps call for any other explanation than that they just happen. The reason for their happening escapes us.

The Cycladic-looking elements in Macedonian Middle Bronze pottery can best be explained as due to a similar recurrence of pre-Early Bronze Age aesthetic ideas, following perhaps on the break-up of the Early Bronze Age culture and the partial withdrawal of its population; and to the introduction of a toothed instrument, the equivalent of a brush, with which the step from drawing ornaments like those of **277**, **278**, to drawing those spiral bands like **374**, **379**, **381**, might conceivably be taken, and pieces like Fig. 72*d* do actually illustrate how the transition might be effected. The further step from drawing these small spiral coils to large (Fig. 68 and **382**) could easily be made, granted a revived feeling for free-field decoration.

The form of the Liverpool vase, a shallow bowl with rounded base, is Neolithic rather than Bronze Age, and the vases with broken profile (**375**, **376** and Fig. 70*a*) have almost precise counterparts in the Late Neolithic⁸. The technique of stroke incision (Figs. 72*d*, 73*a, e*) points in the same direction.

¹ Cf. *Studies*, Pl. VI, 1-3.

² Cf. *Åberg IV*, Fig. 142.

³ Cf. *Eleusis*, Fig. 84.

⁴ Cf. *Studies*, Pl. VI, 1-3; *Eutresis*, Pl. XII, 1; *Åberg IV*, Figs. 139, 141.

⁵ *A.J.A.* 1934, p. 273, Fig. 19.

² Cf. *Åberg IV*, Fig. 141.

⁴ Cf. *Eutresis*, Fig. 254, 2; Pl. XII, 1.

⁸ Cf. **110**.

All things considered this explanation, though not entirely adequate, seems the best that can be offered for the new ceramic style of the Middle Bronze Age in Central Macedonia. The blending of Neolithic and Bronze Age elements is henceforth the distinctive mark of Macedonian pottery.

Thus, apart from Chalcidice, there is really no special evidence either from the pottery or the metal objects of external relations at this time¹.

CHALCIDICE

Mylonas has argued at some length² that the Minyan ware found in the upper stratum at Molyvópyrgo was introduced from the South after the establishment there of the Minyan culture. His arguments are based principally on the stratified relation of grooved to plain Minyan at Eleusis, where the grooved was definitely shown to be later than the plain, and on the similar state of things at Eutresis as suggested in the preliminary report. Since then, however, the final report on Eutresis has been published, in which nothing is said of such priority. It is likely enough that the Molyvópyrgo Minyan is of southern origin, though Mylonas' arguments do not prove it, and if, as we have seen reason to suppose, Minyan arose in Thessaly and Central Greece as the result of the southward expansion of the Early Bronze Age population of Macedonia, then the Minyan of Chalcidice may quite well be the result of a backwash of that movement, and would thus precipitate a Minyanizing tendency already apparent in the latter part of the Early Bronze Age³. Sherds of developed Minyan, found along with the proto-Minyan in the Early Bronze stratum, then represent, unless they are strays, the incipient connections with the South, destined to culminate in the wholesale introduction of Minyan pottery, which ushers in the Middle Bronze Age. If the other view to which I formerly inclined, that the makers of Minyan came from Troy and its neighbourhood, should prove correct, then Molyvópyrgo would be one of the first places at which they must have touched on their way towards Central Greece, and at which they must have left a small detachment. But in either case, there is no evidence of connections with regions directly to the North at this time.

LATE BRONZE AGE

Both the Incised style and the Matt-painted pottery of this period have been used to prove Macedonia's connection with the North, the former on account of its rather barbaric appearance and the latter on account of the 'thumb-grip' handles which

¹ The grooved neck from Vardaróphtha (372) is, I think, Proto-Minyan, and illustrates the same tendency as the cups with high-swung handles (p. 82) and the Armenochóri tankards (p. 93). Cf. also the E.H. grooved stem from Orchomenós (*Orchomenos III*, Taf. XXXII, 3). The grooved neck found 1 m. higher on the other hand is probably a local imitation of true Minyan, of which two sherds (both from one vase), perhaps imports from Chalcidice, were found alongside it (cf. *Vardaróphtha*, Pl. IX (b), 4).

² Cf. *Πρακτικά τῆς Ἀκαδημίας Ἀθηνῶν*, 1931, pp. 106-13.

³ Cf. p. 82.

have Bosnian parallels¹. But the Incised style when analysed² proves to contain very few elements that are not already present in the earlier Middle Bronze Incised. The dependence of the Matt-painted pottery on the Middle Bronze Incised has also been noted and, in describing it, I expressed the opinion that the origin of the 'thumb-grip' handle is to be found in the Late Neolithic Age, and drew attention to intermediate examples³.

In view of all this, it is no longer necessary to look to the North for the origin of either of these two styles, for which in fact close parallels at this date would be hard to find.

We saw that Mycenaean pottery was widely distributed in Macedonia and was produced in large quantities at inland stations like Saratsé. Vardaróphtsa may have been reached by river and was perhaps a secondary centre of manufacture and distribution, from which the pottery reached Várdina, Kilindír and Tsaoutsítza. The fact, already noted, that most of it was made locally does not justify the term 'local imitation' as a description of it, since as far as we can judge, it remained true to type, till the end of the period of the Lausitz occupation⁴. The inference is that there were actually Mycenaean coastal and river-side trading stations, where pottery was manufactured and exchanged with the natives for local products. In any case commercial relations with the Aegaeon, which had before existed intermittently, were now definitely established in both parts of Macedonia and even into Western Macedonia Mycenaean objects were penetrating⁵.

The first unmistakable evidence since the beginning of the Late Neolithic Age of Northern contacts is supplied by the fluted pottery in the burnt strata at Vardaróphtsa and Várdina. A more complete exploration of these strata is much to be desired, but even the restricted material so far obtained is sufficient to prove that people using a special kind of pottery arrived and settled in the Axiós Valley at the close of the Mycenaean Age. It is not certain whether the intruders destroyed an existing settlement on arrival, but it seems fairly certain that their own settlement was destroyed by the natives, since a settlement with Macedonian pottery was built immediately above the debris. It is certain, too, that the new pottery of the burnt strata is that of the Lausitz people who about this time were spreading from their focus in Bohemia through the Balkan peninsula, presumably in a search for minerals⁶. They do not seem to have stayed long in Macedonia, but during that time Macedonia may be said to go with the North in the sense that part of the country was overrun by people of Central European origin.

¹ Cf. *Archaeologia*, LXXIV, p. 83.

³ Cf. p. 94.

⁵ Cf. p. 102.

² Cf. p. 95, and note 4.

⁴ Cf. Pt. I, Fig. 38.

⁶ Cf. *Danube*, pp. 326, 411.

EARLY IRON AGE

The Aegaeon connection in the Axiós Valley had been weakened but not entirely broken off by the Lausitz incursion, and even after the return of the Macedonians to their homes continued just long enough for the compass-drawn concentric circle fashion which had arisen meanwhile in the South¹ to be taken over by the local potters. Hence arose a local Proto-Geometric style, composed, as in Thessaly, of lingering Mycenaean and local elements and of the new ornament which had captured the fancy of potters farther south. But since this local style, once formed, persisted long after Proto-Geometric had been replaced by other styles in succession in the South, we may infer that Central Macedonia relapsed for a time into isolation. The stages of reopened intercourse are illustrated by the Corinthian sherds at Vardaróphtha² and from then onwards by a series of increasingly frequent Southern imports.

In Chalcidice the course of events was similar, but the foundation of the first Greek colony (Torone) in the eighth century³ must have brought Greek pottery to the peninsula. At Olynthus, however, external relations when resumed were with the East Aegaeon and not much before 600 B.C.⁴

C. CHRONOLOGY

In the Corinthian sherds at Vardaróphtha (cf. note 2) we have a precise date within a few years of 600 B.C. and have chosen this for the end of the period with which we are concerned. Working back from this date we have next the Proto-Geometric sherds of which the earliest occurs immediately above the debris of the Lausitz village. To these, on Thessalian analogy⁵, a date round about 1050 may be given, and so to the beginning of the Iron Age.

The Lausitz invasion itself can hardly have taken place before the Trojan war, since, if the Lausitz people had just overrun the Axiós Valley, it would not have been possible for Priam to speak of his Paeonian allies there and call them to his assistance⁶. Therefore the Lausitz invasion must be placed about 1150.

¹ Skeat's thesis that the compass-drawn concentric circle originated with the Lausitz people seems to me disproved by the fact that the ornament appears only after their departure from the Macedonian scene. Had they originated it, it should have appeared in their strata. But no painted pottery (other than Mycenaean) nor fluted concentric semicircles or circles have been found in these. The recent excavations in Ithaca (at Aetós, *B.S.A.* xxxiii, p. 63) suggest that Proto-Geometric developed directly and without external influence from the latest Mycenaean.

² Cf. *Vardaróphtha*, Pl. XXI(b), 1, 2, 10.

³ Cf. Struck, *Makedonische Fahrten*, p. 44.

⁴ Cf. *Olynthus V*, Group III, pp. 25-46, 59-63.

⁵ Cf. *B.S.A.* xxxi, p. 53.

⁶ Cf. Homer, *Iliad*, ii, 348-50.

This date agrees quite well with the Mycenaean pottery found in the debris of the Lausitz settlement, and that immediately above it, which are both in the 'granary' stage (p. 96, note 5).

The earliest Mycenaean pottery must be placed round about 1350 (p. 96), and by inference from the stratified relation of the matt-painted pottery to it the beginning of the Macedonian Late Bronze Age must be placed a little earlier—say 1500 in Central Macedonia and somewhat later in Chalcidice.

The beginning of the Middle Bronze Age is more problematical. The imported Early Helladic sherd in the last settlement at Kritsaná gives a synchronism with the third phase of Early Helladic III and with the earlier part of Troy IV¹.

Åberg has recently made a case for dating the first appearance of Minyan at Paros, which, however, he assumes to be *early* Minyan², about 1700 or a little later. On different grounds, Mylonas has argued for a similar date in Chalcidice³. I do not see any serious objection, though in the former case the deductions drawn⁴, and in the latter case the arguments used, are not convincing. The Middle Bronze Age in Chalcidice would then begin about 1700. This does not, however, apply to Central Macedonia, where true Minyan sherds were found only in the upper level of the Middle Bronze deposit (cf. p. 89). I think that the Middle Bronze Age may have begun earlier there.

It is harder to follow Åberg when he argues for an Early Bronze Age of only three hundred years. Even if it were acceptable for the mainland it is certainly not right for Macedonia. Here the closest analogies of the earliest Early Bronze settlement (Kritsaná) are with the Second Period of Thérmi (the transitional stage which corresponds to the end of Troy I)⁵ and with the Third Period which corresponds to the beginning of Troy II⁶. Now, Stratum Ib at Alishar is dated fairly conclusively, by its position with regard to the Cappadocian tablets, before 2300, and it contained Troy II beakers⁷. Hence we get an equation, Troy II, Alishar Ib, Thérmi Second-Third Period and the earliest Early Bronze settlement in Macedonia, which moreover contained part of a beaker too (Fig. 39(i))⁸.

¹ *A.J.A.* 1935, p. 562. The end of the E.H. Period has since been equated with Troy V, *A.J.A.* 1937, p. 596.

² Cf. Åberg *IV*, p. 276: 'bestehend aus früher Minyerkeramik.'

³ *Πρακτικά τῆς Ἀκαδημίας Ἀθηνῶν*, 1931, pp. 106–13.

⁴ What the Paros site shows is (1) that Early Cycladic pottery remained in use during the latter half of the Middle Cycladic Age. This is not surprising. Incised Cycladic-looking pottery was in use in Central Macedonia throughout the period (p. 90, note 4). In Ithaca, there is reason to think, E.H. pottery lasted till L.H. III times and that E.H., Minyan and L.H. III were all in use together; (2) that Paros was first occupied in the latter half of the Middle Cycladic Age. The necessity for bringing down the usually accepted date of the beginning of the M.H. Age does not seem to me to follow.

⁵ This was based on interim reports before the appearance of *Thérmi*, in which the synchronisms of Thérmi, Macedonia, etc. have been more precisely worked out. (Cf. *Thérmi*, p. 91, and Ch. XIV.)

⁶ Cf. preceding note.

⁷ Cf. Bittel, *Prähistorische Forschung in Kleinasien*, p. 68.

⁸ The beakers found at Orchomenós (*Orchomenos III*, pp. 56, 57) rather upset Åberg's scheme.

If we cannot fix the beginning of the Early Bronze Age in Macedonia with precision, it must however, I think, be placed nearer 2500 than 2000.

The Late Neolithic Age in Macedonia must have been a short one. The deposits are everywhere very thin, except at Olynthus, and overlap elsewhere with the Early Bronze strata. As a guess I suggest one hundred years for the later phase, represented in Central Macedonia and Chalcidice, and perhaps one hundred and fifty for the whole period, represented only at Sérvia.

For the beginning of the Early Neolithic Age at Sérvia we have no means of fixing the absolute chronology, but it must have begun later here than in Thessaly.

D. ETHNOGRAPHY

It is perhaps unwise to try to draw ethnographical conclusions on the strength of a reconnaissance, but provided it claims no finality, no great harm will be done, if I set down what appears to me to be the bearing of the archaeological evidence on the problems of the racial character of the Macedonians.

The whole question is of course highly complex and more than one specialized branch of learning must be laid under contribution before it is solved.

We are concerned here with the archaeological evidence, and here too, as in the case of the discussion on the chronology, we must adopt a working assumption. This assumption is that Aryan-speaking tribes entered Greece from the north or north-east about 2000 B.C. and that the differentiation of the dialects occurred either outside the frontiers of Greece, just before the entry, or within the frontiers immediately after it¹. Now the frontiers are taken to be Olympus, so that the country outside is Macedonia and the country inside is Thessaly. We have to enquire therefore whether archaeology can find traces of a possible Aryan-speaking tribe or tribes, settled in Macedonia just before that date and in Thessaly just after.

Now, as we have seen, the only civilization which was in fact just north of Olympus before that date and just south of it after is the Anatolian-Macedonian civilization of the Early Bronze Age, which, establishing itself in Chalcidice round about 2600 B.C., spread gradually over Macedonia and, filtering into Thessaly, reached there its limit of expansion about 2000 B.C. Can this civilization, which to judge from its pottery was primarily Anatolian in character, have been Aryan? The answer is perhaps, why not? The mere fact that it started from Anatolia does not disprove its Aryan character and moreover, as Childe has shewn, there is good reason to suppose that there was a strong Aryan element in Troy II, with the culture of which the Macedonian Early Bronze Age culture, especially in its later phase, is closely connected. Diacritics of Aryans are held to be high-handled cups,

¹ Buck, *Greek Dialects* (1910), p. 288.

stone battle-axes with spreading ends, and the possession of the horse, and finally, after their arrival in Central Greece, Minyan pottery¹.

But certainly in its later phase the Macedonian-Anatolian civilization possesses all these diacritics, except the last and that it would have possessed of itself, had not the further internal development of Proto-Minyan been in one case interrupted by other influences, and in the other overlaid by the influx of the now-developed southern ware.

The 'Proto-Minyan' elements (which Childe was also the first to recognize) in the pottery of the Fourth Thessalian Period can also now be accounted for as of Macedonian origin.

On the whole the strongest argument for identifying the Macedonian infiltration into Thessaly with the entry of Aryan-speaking people into Greece is that there are no traces of any other civilization which in time and place fulfil the requirements of the problem, unless we suppose the Aryans passed through Macedonia in a single momentary wave, leaving no traces.

This initial Aryan element in the Macedonian race would be subsequently reinforced on three occasions, first by the returning 'Minyans' in Chalcidice; next by the foundation of Mycenaean settlements, and finally by the Lausitz people, who were perhaps Illyrians and would introduce a fresh Aryan strain into the already Aryanized or Aryan stock.

Along some such lines as this the archaeological answer to the question 'Were the Macedonians Greeks?' would seem to lie².

E. SUMMARY

Macedonian pre-history begins with the establishment in Western Macedonia of a colony of Thessalians who had pushed up across the Sarandáporo pass from the South. This colony eventually fell before invaders, whose immediate origin was the Middle Danube; these invaders spread quickly over Central Macedonia and Chalcidice, which were now inhabited for the first time. Detachments of them also passed into Thessaly, where they found in existence a culture similar to that which they had met at Sérvia. This contact with an old-established pot-making tradition resulted in a ceramic period of some brilliance, in contrast to the parallel period in Central Macedonia and Chalcidice where no such tradition existed. Moreover, the

¹ Peas, according to Engler and Praik (cf. Rey, II, p. 245), were introduced into Europe by Aryans. If this is so, those found in the M.B. stratum at Góna may have significance. So too the incised spindle-whorls which are characteristic of the M.H. Age at Eutresis, and confined to it (*Eutresis*, pp. 198, 199), might if their stratified position in Macedonia were known prove significant. The only one, of which the stratified position is known, belongs to the L.B. Age (Fig. 104g). Cf. also p. 121, note 1.

² On the identification of Macedonians with Dorians, cf. two recent essays, both of great value and interest, 'The Dorians in Archaeology' by T. C. Skeat, and 'Epirus and the Dorian Invasion' by N. G. L. Hammond (*B.S.A.* xxxii, pp. 131-79).

period lasted longer in Thessaly, because the Early Bronze people reached Thessaly only after they had already passed through Macedonia from East to West.

The Macedonian Bronze Age has three phases, Early, Middle and Late, delimited not so much by stratigraphic as by ceramic changes.

The Early Bronze Age pottery is Anatolian in origin, and imposed itself on the Neolithic and eclipsed it, retaining, however, certain Neolithic elements. It shows a remarkably uniform character throughout the whole area over which it spread, including Thessaly, the secluded valleys of Western Macedonia, and even beyond, and throughout a long period¹. Towards the end of the period development was in the direction of a kind of Proto-Minyan.

Soon after, a change comes over the pottery; the Anatolian elements recede, without however disappearing, and forms and ornaments (including spiral bands) appear, which may indicate a re-emergence of pre-Anatolian aesthetic tendencies, temporarily submerged, or possibly vague contacts with outside areas. But, in any case, the transition was gradual.

It was at this time that the characteristic Macedonian wish-bone-handled bowl began to be common. It was during the Middle Bronze Age also that fully developed Minyan of southern type obtained a footing in Chalcidice, without however penetrating into Central Macedonia to any great extent. Western Macedonia was completely cut off from the rest and the development that took place there was strictly internal.

The beginning of the Late Bronze Age is determined by the rise of painted pottery of Macedonian character, in a style which is little more than the translation into paint of the earlier Incised style somewhat elaborated, and by a developed class of Incised ware, also based upon the old. There is a renewed frequency of a typically Anatolian form, the beaked jug.

This native pottery was scarcely² affected by Mycenaean pottery, which reached Macedonia shortly afterwards and which was fairly widely distributed, reaching inland as well as coastal settlements. After the first imports it continued to be made locally. Mycenaean objects were finding their way into Western Macedonia also, but only one sherd has so far been identified³.

At the end of the period Lausitz pottery appears in the Axiós Valley, in a context which implies an incursion of Lausitz people. This incursion heralds the Iron Age. After the Lausitz episode, a period of isolation followed, which is characterized by an almost uniform pottery in Central Macedonia and Chalcidice. This isolation was broken in Central Macedonia early in the sixth century when Corinthian imports appear; somewhat earlier in Chalcidice, when the first Greek colony (Torone) was founded.

¹ Cf. p. 121, note 1.

² The curvilinear elements in the matt-painted class may owe something to Mycenaean influence.

³ Cf. p. 100, note 3.

Thus, on the archaeological evidence the connections of Macedonia with the North were limited to two occasions: one at the beginning of the Late Neolithic Age, which had as a result the population of Central European stocks, first of Western and next of Central Macedonia and Chalcidice, regions both hitherto uninhabited: the second at the end of the Bronze Age when Lausitz people overran the Axiós Valley. This movement was shortlived, had no lasting result and the area affected was strictly limited.

With the South on the other hand, apart from the Early Neolithic Thessalian outpost in Western Macedonia, intermittent intercourse begins early in the Bronze Age. In the Middle Bronze Age this was intensified by the Minyan establishment in Chalcidice, and the native tendency to isolation was further broken down by the later Mycenaean penetration. By 600 B.C. the orientation of Macedonia towards the Aegaeon, thus initiated, was in progress of being rendered permanent by the Greek colonization and by the 'rising tide of Greek imports'.

A word about Macedonian pottery found outside Macedonia.

I have already expressed the opinion that the Late Neolithic period in Thessaly arose as a result of the southward expansion of the Danubian invaders, but that here the newcomers found, as they had found at Sérvia, a flourishing painted pottery civilization in possession, and that consequently the ensuing civilization, though parallel, is richer and more diverse than that in Central Macedonia and Chalcidice, where the settlers were cut off from the stimulus of a foreign culture and dependent only on themselves.

If this is so, the Dimeni style falls into place as one of the results of this movement, and it is no longer necessary to regard it as having reached Thessaly ready-made from the Black-earth or any other region. The white-on-black polished and the grey-on-grey, however, had probably already come into being at Sérvia, before they were transmitted to Thessaly.

This movement was the first incursion from Macedonia into Thessaly.

The 'wish-bone' handle is a distinctive Macedonian product, and when it is found in association with other pottery showing Macedonian affinities it may reasonably be taken as evidence of the presence of Macedonians. We have found this to be the case in Thessaly¹ during the Early Bronze Age, and have explained its presence there as due to the southward² expansion of the Macedonian Early Bronze population. This was the second incursion from Macedonia into Thessaly, but this time it was perhaps a long drawn-out movement, for at the tail-end of it Macedonians turn up at Lianokládi in the full Middle Bronze Age. In the course of their wanderings they

¹ For these affinities (Γ3 wares in Thessaly), cf. *Boubousti*, p. 180, and note 3. To the pottery, bored celts and anchor-shaped hooks may be added; cf. also p. 121, note 1. 'Wish-bone' handles have also been found at Orchomenós but, except in one case, the context is doubtful. Cf. *Orchomenos III*, p. 81.

² For the northward and north-westward expansion, cf. p. 120. For the westward expansion, cf. p. 111.

had acquired a painted pottery of which the Macedonian character is shown by the tankards with handles attached to the rim¹, by the wish-bone handles (set, as in Chalcidice, on the shoulder), and by the little spirals attached to triangles². It is not surprising to find Minyan in the settlement, since Minyan is Macedonian pottery which had matured in Thessalian surroundings. Later their traces can be picked up at Thérmos, where there are wish-bone handles (set on the shoulder) and jugs with cut-away neck. They may even have reached Ithaca³ and Lefkás⁴. The nature of their remains suggests that they had taken to a nomadic life, as we have seen reasons for supposing their kinsmen had done in Western Macedonia. A semi-nomad life is the rule amongst a large part of the population in North Greece to-day⁵ and is in fact imposed by climatic and geographical conditions.

Jugs with cut-away necks in late Minyan graves in Thessaly confirm the Macedonian character of the Fourth Thessalian Period in its later phase⁶.

Finally there are unmistakable traces of Macedonians in Thessaly at the beginning of the Iron Age. Jugs in the characteristic Macedonian grey ware with cut-away necks and twisted handles, usually plain but sometimes with simple incised ornaments on the shoulder or handles, are found in the Proto-Geometric Tholos tombs at Marmáriané and the rather later tombs at Volo, Theotókou and elsewhere⁷. These jugs do not seem to be descended from the jugs in Minyan graves (just referred to), because form and handles are of the type that evolved in Macedonia during and as a result of the Lausitz episode, and their presence in Thessalian tombs can only be explained as due to a fresh movement of Macedonians southwards, a final stage in the infiltration which had been going on intermittently for centuries.

The habits of the Macedonian folk underwent little change during the two thousand and odd years covered by this study. Agriculture, stock-raising and hunting formed the means of livelihood of both the Neolithic population and their successors of the Bronze Age.

The civilization of the latter was, however, in advance of the Neolithic in three respects. They had firstly some knowledge of how to extract copper and manufacture from it small objects like pins and blades; gold too was sought in the beds of the

¹ In contrast to E.H. tankards, where the handle is below the rim. Cf. *P.T.* Fig. 126c, d.

² Cf. *P.T.* Figs. 125, 126c, g, h.

³ 'Wish-bone' handles at Pelikáta. Cf. *B.S.A.* xxxv, Fig. 16 (52); p. 22, note 1; tankards with handles on the shoulder at Pelikáta; cf. *ibid.* p. 21; Pl. VI (46); anchor-shaped hooks from Pelikáta.

⁴ 'Wish-bone' handles from the Choirospiliá cave (Lefkás Museum). The wish-bone handled bowl from the 1st shaft grave at Mycenae may be due indirectly to Macedonian influence. Cf. Karo, *Schachtgräber*, Pl. LXVIII.

⁵ As well as the Vlachs. Cf. *B.S.A.* xxxii, p. 140.

⁶ Frankfort's notion (*Studies II*, pp. 170 ff.) that the pot-hook spirals in Cappadocian pottery are an indirect consequence of the arrival of the Macedonian immigrants, whom he equates with the Phrygians, can be accepted only when we know for certain when the pot-hook spirals first appear in Cappadocia. He assumes they belong to the 'mature' phase of the style. But do they?

⁷ Cf. *Marmariane*, p. 14, Fig. 4; also Skeat, *The Dorians in Archaeology*, p. 11.

Gallikó and Axiós rivers as it is to-day, and later the working of iron seems to have been practised in a primitive way. Metallurgy, however, was, as Mr Davies observes, never more than a secondary occupation. Secondly, they knew how to perforate stone, so that the hafting of axe-heads was a more simple affair for them than for the Neolithic people; thirdly, they had horses, a priceless possession in a country which, though more thickly wooded than it is to-day, was well adapted for driving or riding.

But if they were in advance of the Neolithic population in material things, aesthetically they were on a lower level. The aesthetic sense of the Neolithic population, as revealed in the stone bracelets, figurines and vases, and above all in their pottery, was high, and highest among the Thessalian colonists at Sérvia. The lack of receptivity of the Bronze Age people on the other hand is shown by the fact that though the wheel was known they made practically no use of it, and the technically excellent Minyan and Mycenaean pottery made no impression on the local, which remained curiously impervious to external influences, retaining its provincial individuality from first to last.

As to their beliefs, we really know nothing except what may be inferred from the fact that the Neolithic people made stone and clay human and animal figurines and clay phalloi, and that there is a curious rarity of such objects in the Bronze Age. Apart from the Late Neolithic burial at Sérvia we know nothing about burial customs.

Thus the cultural level of Macedonia was evidently never very high. We get the impression of a race of stolid peasants, largely self-contained and with a tendency to prefer isolation, permitting but not encouraging the exploitation of their forests by the enterprising Southerners, and unconsciously beginning to fulfil their traditional rôle of a screen between Hellenism and barbarism¹. The screen has been sometimes pierced, but the rôle has invariably been resumed. At the present time the Macedonia with which we are concerned has recovered its true orientation and forms once more a part of the Greek world.

¹ Myres, *Who were the Greeks?* p. 456.

PART III

CATALOGUE¹ AND PLATES

¹ The Catalogue contains practically all complete or almost complete vases known to me with the exception of those from Tsaoutsitza (cf. p. 103, note 1), Pátele (cf. p. 107, note 7; p. 112), and Olynthus (Iron Age); in the case of more fragmentary vases, of sherds and of miscellaneous objects, only a selection has been made.

In the case of many incomplete vases, the height given is of course conjectural.

EARLY NEOLITHIC

WESTERN MACEDONIA—HALIÁKMON VALLEY

SÉRVIA

1. DISH (= Pl. I): thick reddish orange paint on a thin yellow slip, which has worn off in places. Ht. 6·2 cm.
2. BOWL (= Pl. III): warm buff paint on a lighter buff slip; on the inside of the rim, ornament similar to that on the outside but in the upper angle of the zigzag the rays point from the rim downwards. Ht. 10 cm.
3. BOWL (= Pl. I): deep red paint on a white slip. Ht. 12·8 cm.
4. BOWL (= Pl. III): brownish red paint on a pale buff slip; on the inside oblique parallel stripes from rim to base at intervals of *ca.* 3 cm. Ht. 9·5 cm.
5. CUP (= Pl. II): dark red paint on a lighter red unslipped surface. Ht. 6·7 cm.

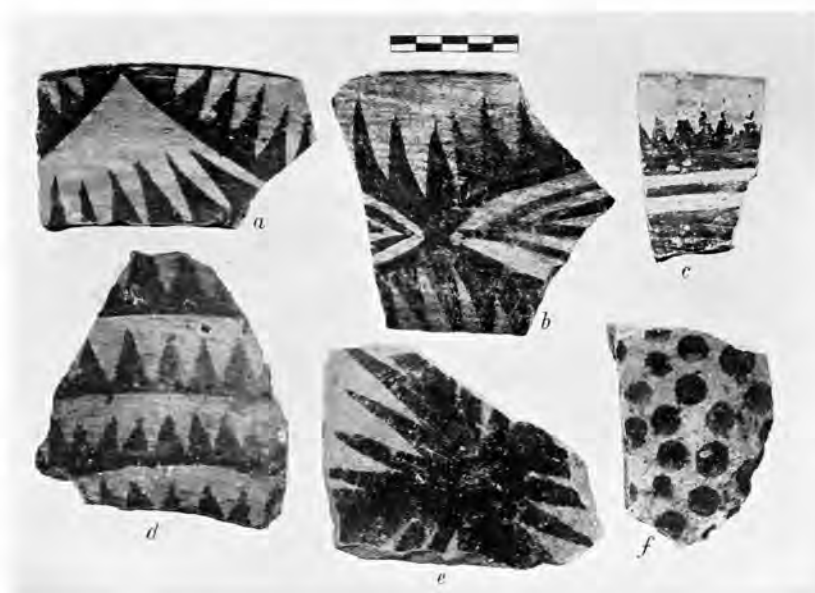


Fig. 1. Sérvia. Painted fragments (red on white or yellow slip) from bowls like 2: *e* and *f* are parts of the flat base (inside).

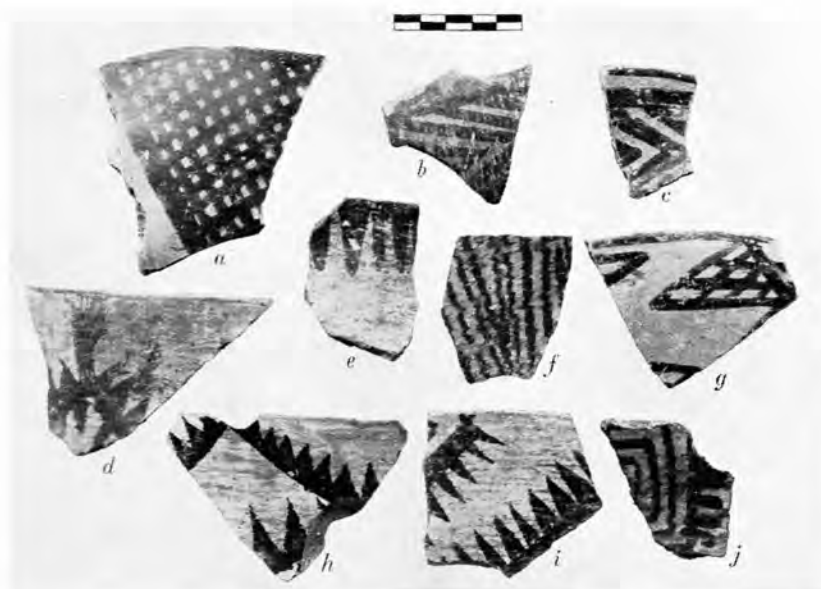


Fig. 2. Sérvia. Painted fragments (red on white or yellow slip): *d, e, h-j* are from bowls like **2**; *a* and *g* are from the outside, *c* from the inside of open dishes like **6**; *b* seems to be part of a strap-handle with a round perforation as in the E.B. Age mugs from Armenochóri¹. Note the wavering stripes in *f*.



Fig. 3. Sérvia. Painted fragments (brown on buff, or red on white or yellow): in *a-d* unslipped zones are filled with rows of pricks; *e* is perhaps scraped, and owing to fire the red has turned to black, so that white on black has resulted; *i* is tile-shaped with upturned edge and cannot be part of a vase; unless it is a lid for a box-shaped vase like Δ-Σ, Fig. 86.

¹ Cf. 345-347.

6. DISH (= Pl. I): dark red paint on light buff slip; scraped technique. Ht. 6.5 cm.
7. BOWL (= Pl. II): three oval knobs just above the widest part; dark on lighter pink in scraped technique. Ht. 17.5 cm.
8. CUP (= Pl. II): flat handle; dark on lighter red; scraped technique. Ht. 6.7 cm.
9. JAR (= Pl. I): flat handle with upturned edges; dark on light buff; on the inside of the rim oblique parallel bands; scraped technique. Ht. 19 cm.
10. JAR (= Pl. II): dark on lighter red, both of varying tones, discoloured in places by fire; on inside of rim oblique parallel stripes resting on a horizontal band; scraped technique. Ht. 46 cm.



Fig. 4. Sérvia. Scraped fragments, mostly from necks of jars like 9; note the ribs left by the scraping in *d*, *g* and *i*, which thus anticipate the ribbed black polished ware.

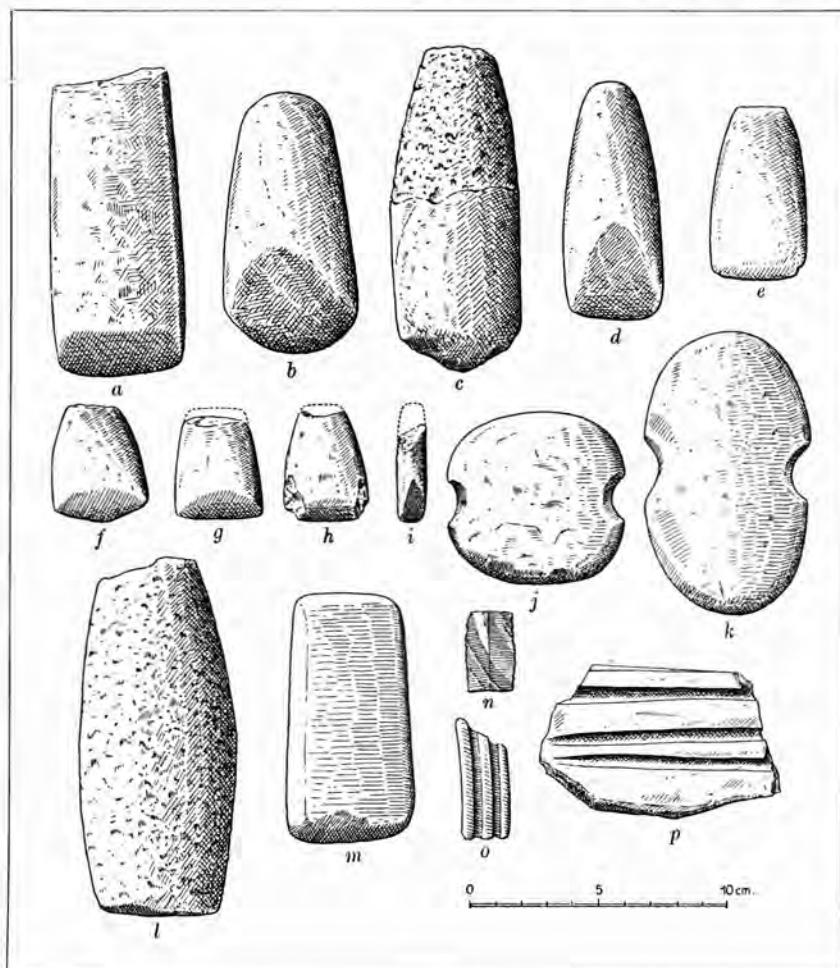
11. SAUCER: reddish; well-finished thin ware. Ht. 3.2 cm
12. BOWL: brown; pierced lugs; heavy ware. Ht. 6.5 cm.





Fig. 5. Sérvia. Fragments of coarse vases, decorated with incised strokes.

MISCELLANEOUS OBJECTS



a. CELT (= Pl. IV): broken butt; rectangular in section, both faces almost flat, both bevelled; bluish stone. *b.* CELT (= Pl. IV): one face flat, one slightly convex, straight sides; grey stone. *c.* CELT (= Pl. IV): round in section, the hafted end left rough; same stone as *a.* *d.* CELT (= Pl. IV): rounded section, both faces slightly convex, bevelled on one side only; same stone as *a.* *e.* CELT (= Pl. IV): flat on one face, which is also bevelled, otherwise rounded section; green stone. *f.* CELT (= Pl. IV): one face flat, which is also bevelled; olive-green stone. *g.* CELT (= Pl. IV): form as last; black, well polished. *h.* CELT (= Pl. IV): form as last; pale green veined stone. *i.* CELT (= Pl. IV): formed from another celt, split longitudinally; flat on one face, both faces bevelled; green transparent stone. *j.* AXE (= Pl. IV): formed from a flattish river pebble, chipped at the side for hafting; pinkish stone. *k.* AXE (= Pl. IV): similar to last; whitish marble-like stone; quartz (?). *l.* PESTLE (= Pl. IV): broken at one end; greyish green stone. *m.* RUBBER (= Pl. IV): flat on one face; quartz (?). *n.* BLADE (= Pl. V): pinkish chert (?) transparent at the edges, with darker bands. *o.* FRAGMENT OF BRACELET (= Pl. V): grooved; white marble. *p.* STONEFRAGMENT (= Pl. V): flat on one face, slanting on the other, the right edge worked, the left broken, three grooves on one face, two on the other; slate-grey stone, stained with ochre (?).

Fig. 6. Sérvia. Early Neolithic stone objects.

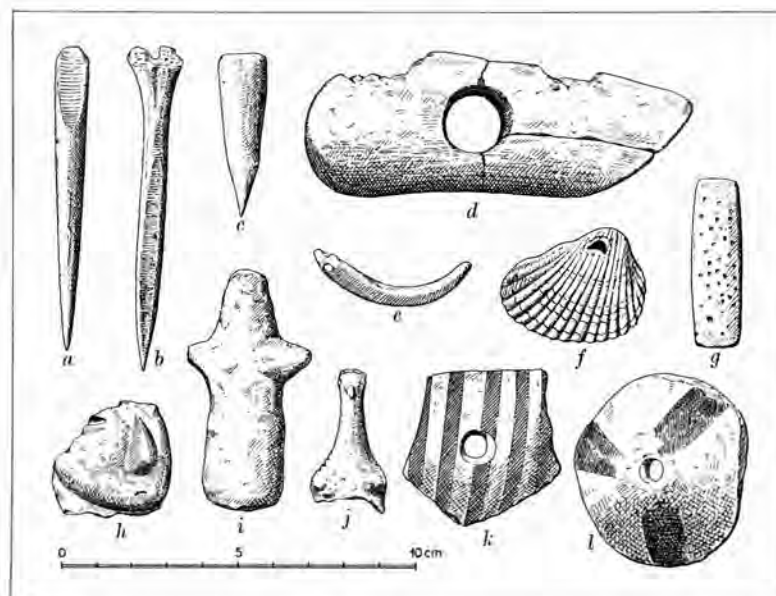


Fig. 7. Sérvia. Early Neolithic objects of bone, clay, etc.

Bone, horn and shell.

- a-c.* AWLS: bone.
d. SLEEVE (= Pl. V): horn; hollowed to receive small celt; perforated for haft (perhaps Late Neolithic).
e. PENDANT (= Pl. V): boar's (?) tusk; perforated.
f. PENDANT (= Pl. V): cockle shell; perforated.

Clay.

- g.* FIGURINE(?) (= Pl. V): pitted upper and lower face.
h. FRAGMENT OF MASK: grey clay coated with light buff slip; the nose and the lower part of the left cheek have reddish lustrous paint; eyes and mouth rendered by slits.
i. FIGURINE (= Pl. X): tip of left arm broken: mud-coloured.
j. FEMALE FIGURINE: lower part missing, hollow: beak-like nose, eyes rendered by slits, the mouth by a pricked hole; the hair is caught up at the back and ends in a fringe in front: four parallel incised strokes across each shoulder.
k. DISC (= Pl. V): made from a sherd of painted (scraped) ware.
l. DISC (= Pl. V): conoid, hollow: on the outside three rays in buff lustrous paint, on the inside four rays in red lustrous paint; light slip on both faces.

LATE NEOLITHIC

WESTERN MACEDONIA—HALIÁKMON VALLEY

SÉRVIA

13. BOWL (= Fig. 9*h*): brown slipped surface well polished. The lines are produced by a series of small loops; chalk filling. Ht. 7 cm.



14. BOWL (= Fig. 8*a*): same fabric and technique as last¹. Ht. 5 cm.



Fig. 8. Sérvia. Incised fragments: *a*=14; *b* from a bowl like 13; zigzag band between vertical (the sherd is on its side) fillets, exceptionally highly polished mottled surface; *c*, *d* and *e* also from bowls like 13.



Fig. 9. Sérvia. Incised fragments: *h*=13; *a*–*d* and probably *g* are from bowls of similar form; *i* is the hind-part of a zoomorphic vase. *b*, *e*, *h* and *i* have white filling; *f* a spiral volute, the lines of which are continuous, belongs to a later class (cf. p. 74). Scale of *h*, *i*: 1:2.

¹ Cp. B.M.C. Fig. 39, A215, 1 (Diméni).

15. BOWL (= Frontispiece and Pl. VI): very thin walls, fine smooth surface, the intended colour scheme was light on dark grey, but the band round the rim has turned orange, and the upper part of the zigzag orange of a less vivid tone; numerous rivet holes. Ht. 12 cm.



16. BOWL (= Pl. VI): same fabric as last; the grey of the ornament has an orange tone in places; inside, a hanging double zigzag. Ht. 11.2 cm.



17. BOWL (= Pl. VI): dark grey paint on lighter ground; on the inside short vertical stripes in three groups of three each starting from the rim. Ht. 6 cm.



18. BOWL (= Pl. VI): low foot; dark grey paint on light grey ground. Ht. 7 cm.

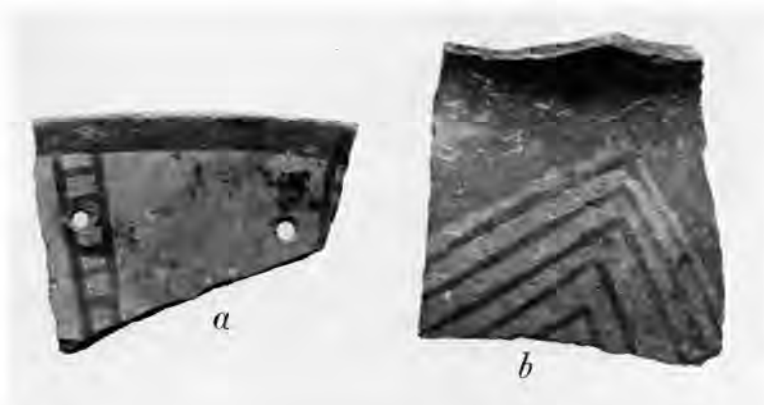


Fig. 10. Sérvia. 'Grey on grey' fragments; *a* is the rim of a bowl like 16; *b* is from the shoulder of a vase with offset rim.

19. BOWL (= Pl. VII): on outside, deep black slip, highly polished; ribbed ornament. Ht. 9 cm.



20. BOWL (= Pl. VII): same fabric as last; the black slip covers only the upper half of the inside; ribbed ornament. Ht. 9.3 cm.



21. BOWL: fine black polished slip; ribbed ornament. Ht. 10.4 cm.

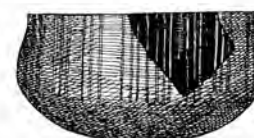




Fig. 11. Sérvia. Examples of ribbed, rippled and grooved ware: *a* is mottled; *b*=28; *c*=24; *d*=25; *e*=22; *f*=57; *i*=31; *j*=32; *l*=34; *g*, thick grey, and *k*, black-polished, are from Várdina.

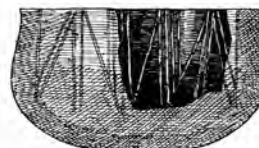
22. BOWL (= Fig. 11*e*): same fabric but the lower part is yellow; also the inside. Ht. 9 cm.



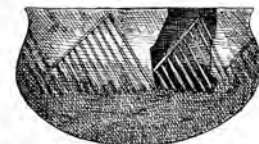
23. BOWL: black, same fabric. Ht. 7.2 cm.



24. BOWL (= Fig. 11*c*): same fabric. Ht. 11.4 cm.



25. BOWL (= Fig. 11*d*): same fabric as last but the upper part is yellow and the lower red. Ht. 11 cm.



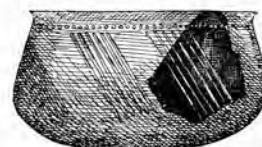
26. BOWL: same fabric as last; black. Ht. 7.4 cm.



27. BOWL (= Pl. VII): same fabric as last; a ribbed zone at the base of the neck filled with small pellets, or beading. Ht. 10.7 cm.



28. BOWL (= Fig. 11*b*): same fabric as last; a beaded zone above the ribs. Ht. 11.5 cm.



29. BOWL: same fabric as last; ribbed ornament combined with beading. Ht. 10.5 cm.



30. BOWL (= Pl. VII): same fabric as last; beading only. Ht. 9.5 cm.



31. BOWL (= Fig. 11*i*): same fabric as last, but the slip is dark red; group of shallow encircling grooves and a beaded zone below it. Ht. 9.2 cm.



32. BOWL (= Fig. 11*j*): same fabric as last, but black. Ht. 11.2 cm.



33. BOWL: same fabric as last, but the grooves are less regular. Ht. 9.4 cm.



34. BOWL (= Fig. 11*l*): grey well-polished surface; oblique grooves on the shoulder. Ht. 5.6 cm.



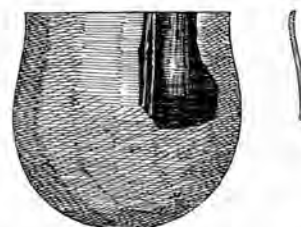
35. BOWL: fabric as last but slate grey, slightly polished; oblique almond-shaped grooves. Ht. 10 cm.



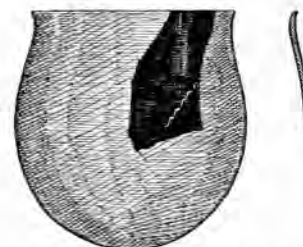
36. BOWL: same fabric as last but mottled black and buff. Ht. 7.2 cm.



37. BOWL (= Fig. 17*e*): same fabric as preceding group (19-30), but the black slip is fired to yellow at the rim, and does not cover the inside, which is grey; ornament in white paint. Ht. 17 cm.?



38. BOWL: same fabric as last, to which it perhaps belongs; ornament an oblique wavy line. Ht. 17 cm.?



39. BOWL: same fabric as last, but there are brown patches on the black slip. Ht. 12.2 cm.



40. BOWL (= Fig. 17 *p*): same fabric as last; in addition to the oblique stripes there is an encircling stripe at the base of the neck. Ht. 11.6 cm.



41. BOWL: same fabric as last, but the slip is dark grey, and the inside very light grey¹. Ht. 11.6 cm.



42. BOWL (= Pl. VII): same fabric as last; reserved or scraped zone on the shoulder, in which are opposing groups of oblique stripes produced by burnishing. A hollow conical foot may belong². Ht. 8.5 cm.; ht. of foot 5.5 cm.



43. BOWL: same fabric as last, but the slip is buff with a black triangular patch, probably repeated round the whole vase. Ht. 10.9 cm.



44. BOWL: same fabric as last; rather dull surface. Ht. 5.6 cm.



45. BOWL: same fabric as last; brown patch. Ht. 6 cm.



46. BOWL: same fabric as last, but thicker; pink inside. Ht. 6.6 cm.



47. BOWL: knobs on the shoulder; same fabric as last, but the slip is rather thin and the light clay shows through; the slip covers only the rim on the inside, the rest of which is light grey. Ht. 6 cm.



48. BOWL: same fabric as last. Ht. 6 cm.



49. BOWL: same fabric as last, rather dull surface. Ht. 7 cm.



50. BOWL: same fabric as last, but the slip is light grey (like 'Min-yan') and not much polished. Ht. 9 cm.



51. BOWL: same fabric as last, but black. Ht. 8.2 cm.



52. BOWL (= Pl. VII): same fabric as last, but less brilliant black; one fragment which includes the base has turned buff as the result of being exposed to great heat, after the vase was broken. Ht. 6 cm.



¹ For other white-on-black polished pieces from Sérvia, cf. Fig. 17, *a, d*.

² Cf. *Servia*, Pl. XXXVII, 4, *b*.

53. SAUCER (= Pl. VII): same fabric as last. Ht. 3.5 cm.

54. BOWL: perforated lug; black polished outside, buff polished inside. Ht. 7.6 cm.

55. CUP (= Pl. VII): one (?) handle; black slip, as in preceding vases, but thinner and less polished. Ht. 8.5 cm.

56. DISH (= Fig. 12*a*): black-polished; barbotine arcaded ornament¹. Ht. 9.8 cm.

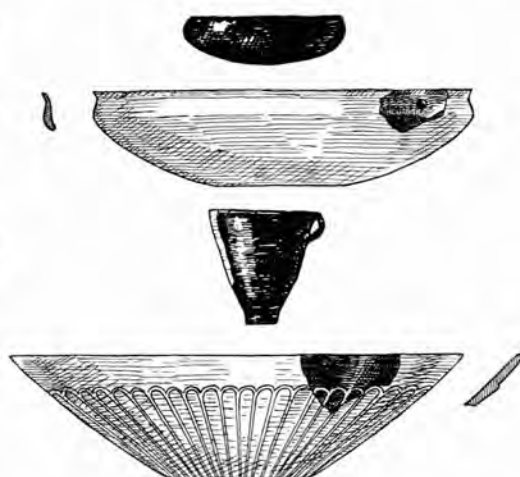
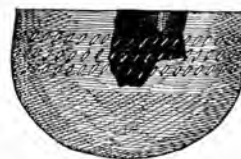


Fig. 12. Sérvia. Fragments of barbotine ware: *a*=56; *b*=89; *c*=87; *d*=88.

57. BOWL (= Fig. 11*f*): ornamented with three (?) encircling rows of small gashes; the clay displaced by the tool is left by the side of each gash; black polished. Ht. 11.8 cm.



58. BOWL: coated with dark lustrous paint; on the rim incised chevrons two abreast alternating with single ones. Ht. 4.4 cm.



59. BOWL: fabric and paint as last; on the rim a group of incised stripes. Ht. 6 cm.



¹ Cf. 87-90 and Fig. 12, *b-d*.

60. BOWL: fabric as last, but paint is reddish; on the rim incised zigzag made by a series of short stabs; bordering lines. Ht. 5.4 cm.
61. BOWL: fabric as last, paint has a brown tone; on the rim, incised wavy line within bordering lines; a similar line on the body, within double bordering lines. Ht. 6 cm.
62. BOWL: exact size not ascertainable; thick ware coated with brown lustrous paint; incised triangles filled with punctured dots. Ht. 8.2 cm.



Fig. 13(ii). Sérvia. Later Incised: pyxis lid; buff; shallow grooves. Greatest width 7.5 cm.



Fig. 13(iii). Sérvia. Later Incised: zoomorphic lug; buff; shallow grooves. Greatest length 5 cm.

Fig. 13(i). Sérvia. Later Incised: *a-d* and *g* have a thick shiny blackish slip, and deep incised continuous lines; they are unusually thick (0.8–1 cm.); *a* and *d* are from bowls or dishes like 13, 14(?); the form of the others cannot be determined¹; *e* (barbotine) and *f* are grey unslipped. Note that *b* and *g*² have white filling, *a* and *c* show traces of it, and *d* traces of red and white filling.

63. BOWL: coated with black lustrous paint; grooved ornament³. Ht. 8.6 cm.
64. BOWL: same fabric and ornament as last, but the coat is chestnut on the outside, black on the inside. Ht. 6 cm.
65. BOWL (= Pl. VIII): coated with dark brown lustrous paint, which has flaked off in places. Ht. 8.8 cm.
66. BOWL: same fabric as last, but with mottled decoration, a row of upright triangles, fired black on the red ground⁴. Ht. 11 cm.



¹ *b* and *c* are almost flat; perhaps from stands like *Eutresis*, Fig. 145 (E.H. II).

² For the ornament (concentric arches) and to some extent the fabric, cf. *Eutresis*, Fig. 145 (E.H. II).

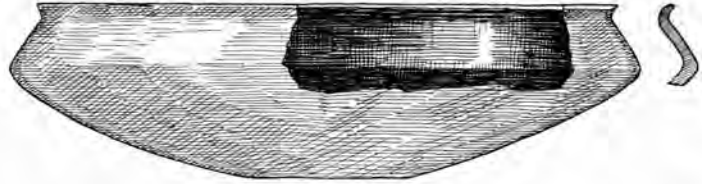
³ Cf. 34–36.

⁴ Cf. 43.

67. BOWL: coated with fine vivid red lustrous paint. Ht. 10 cm.



68. BOWL OR BASIN: coated with black lustrous paint. Ht. 14 cm.



69. BOWL: fabric as last. Ht. 9 cm.



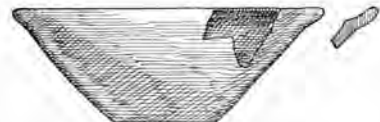
70. DISH: same fabric as last. Ht. 4.2 cm.



71. BOWL: same fabric as last, but red at rim¹. Ht. 6.4 cm.



72. BOWL: coated with thick vivid red lustrous paint inside and out. Ht. 9 cm.



73. BOWL: black paint firing to red at the rim, well polished. Ht. 10.8 cm.



74. BOWL: with projections (?) as last: brown with mottled patches. Ht. 5.8 cm.



75. BOWL: chestnut paint inside and out, well polished. Ht. 11.4 cm.



76. HANDLELESS BOWL (= Pl. VIII): coated with a chestnut lustrous paint. Ht. 8.2 cm.



77. BOWL: buff to grey clay with coat of light red lustrous paint, with a pinkish tinge. Ht. 10 cm.



78. BOWL: coated with thick lustrous dark buff paint. Ht. 4.2 cm.



¹ Note the undercut profile.

79. BOWL: coated with black lustrous paint. Ht. 3.4 cm.



80. BOWL: same fabric as last, but lighter tone. Ht. 3.2 cm.



81. BOWL: horizontally pierced lug rising slightly above rim; same fabric as last. Ht. 3.8 cm.



82. BOWL: same fabric as last, but the coat of paint is bright red. Ht. 4.4 cm.



83. BOWL: same fabric and colour (red) as last. Ht. 4.8 cm.



84. BOWL: same fabric as last, but black. Ht. 4.8 cm.



85. BOWL: coated inside and out with thin reddish lustrous paint; the brush strokes are clearly visible. Ht. 25.2 cm.

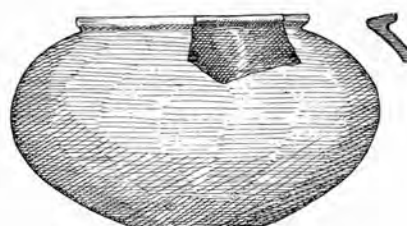


Fig. 14(i). Sérvia. Painted fragments: *a*, rim of bowl, matt red stripes on dull white slip; *b* = 86; *c*, thick ware, lustrous reddish paint on white slip; *d*, dull red paint on white slip; *e*, same technique as *c*, broad brown band with thin black stripe, on buff ground; *f*, crusted yellowish paint on polished red surface¹; *g*, strap-handle, black stripes outlined with white, on red ground; *h*, yellow slip, broad band in brown paint with darker brown border, perforated on lower edge.

¹ For the ornament cf. Fig. 21 *e*.

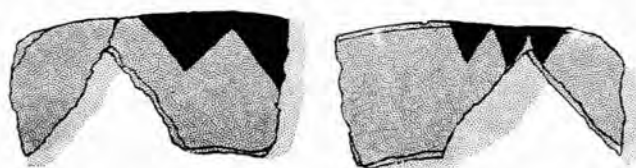


Fig. 14(ii). Sérvia. Crusted fragment: rim of dish; polished pink surface; ornament in black crusted paint. Greatest width 10.7 cm.



Fig. 15¹. Sérvia. Painted fragments: *a*, neck of large jar, lustrous chocolate paint on buff ground; *b*, neck of jar(?), brown on red; *c*, similar fabric; *d*, black on red; *e*, stem of 'fruit-stand'(?), brown with added white outline, on buff; *f*, black on red; *g*, rim, fine ware, dark and lighter red on buff ground, producing three-colour effect, further enhanced by irregular scratched lines, inside similarly decorated; *i*, rim, ochre on yellow; *j*, rim of bowl(?), fine ware like *g*, on the outside red wavering lines on buff ground, inside similar lines but oblique and brown; *k*, 'grey-on-grey' but actually pale orange on grey; *l*, *n*, white on polished pink; *m*, crusted white on dull pink.

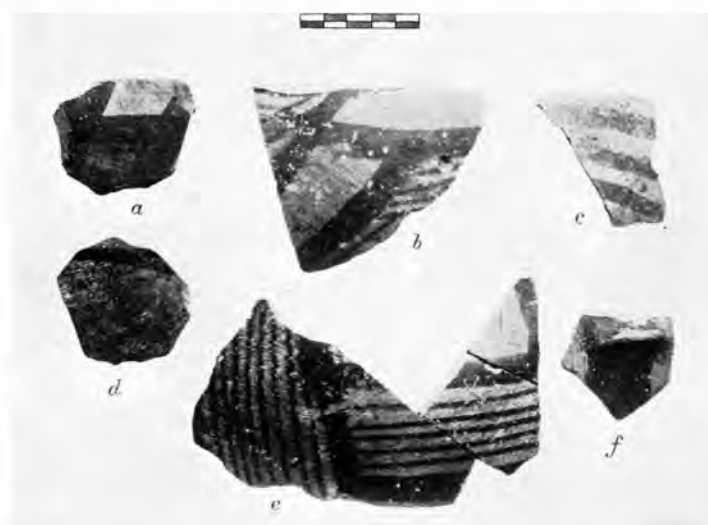


Fig. 16. Sérvia. Painted fragments: *a*, red on buff; *b* and *e* (probably from same vase), brown on buff; *c*, dull brown on polished buff; *d*, disc formed from sherd, dusty black paint on pale red; *f*, perforated lug, red paint on buff ground.

¹ Reproduced by permission of Society of Antiquaries.

86. BOWL (= Fig. 14(i) *b*): double projections on the rim, as in 73; matt white on mottled red and buff ground, white oblique stripe on the inside. Ht. 7.4 cm.



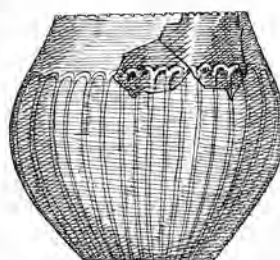
87. DISH (= Fig. 12*c*): grey paste with smooth brown surface, ornament as in 56, but the coat of clay on the lowest half was spread more thinly before being scraped¹. Ht. 12.9 cm.



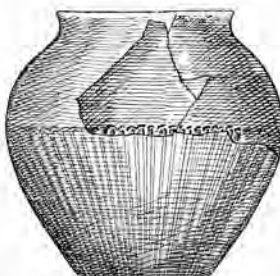
88. DISH (= Fig. 12*d*): polished brown surface; rather finer ware than last; same kind of ornament; perforation below rim. Ht. 10.2 cm.



89. JAR (= Fig. 12*b*): brown, notched rim, very heavy barbotine². Ht. 29.5 cm.



90. JAR: heavy ware, grey with red surface; barbotine ornament. Ht. 31.5 cm.



91. FOUR(?)-LEGGED VASE: heavy ware, coated with lustrous red paint, which has flaked off in places; inside plain; smoke stains inside and underneath. Ht. 6.8 cm.



92. BOWL: good fabric; grey clay and light grey well-smoothed surface. Ht. 10.6 cm.



93. BOWL: fine grey clay with light buff slipped surface, slightly polished. Ht. 9.8 cm.



94. BOWL: fabric as last; marks of the paring tool are conspicuous. Ht. 9.4 cm.



95. BOWL: good fabric; grey clay and polished mottled surface. One fragment has a single perforation.



¹ The drawing makes the barbotine ornament appear more regular than it actually is. The same is the case with 88-90.

² For a vase rather similar to 89 and 90, cf. *Eubresis*, Fig. 149, 1. For analogies farther afield, cf. *Zammit, Prehistoric Malta*, Pl. XXXII, 1, and *Starčevo*, Pl. VIII*b*, 3-8.

96. JAR: vertical tubular string-holes; reddish, with scraped stripes; well finished. Ht. 8.2 cm.



97. JAR: two cylindrical lugs, pierced; grey clay, pinkish surface. Ht. 11 cm.



98. JAR: four shoulder lugs; medium to coarse fabric, grey to red mottled surface. Ht. 20 cm.



99. BOWL: heavy ware, gritty clay, uneven buff surface, mottled. Ht. 9 cm.



100. BOWL: six (?) knobs; thick walls, gritty clay, mottled surface. Ht. 11.9 cm.



101. CUP: traces of strap-handle; light mottled surface. Ht. 8 cm.



102. SAUCER: neutral colour, unpolished. Ht. 4 cm.

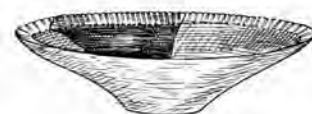


103. CUP OR LADLE: fabric similar to last. Ht. 3 cm.



TSERNA VALLEY ARMENOCHORI¹

104. BOWL: grey-black, inside of rim rippled. Ht. 6.5 cm.²



105. CUP: horned handle; black-polished, grooved or rippled shoulder. Ht. 7.8 cm.



106. BOWL: grey-black. Ht. 6.6 cm.



107. BOWL (= Pl. VIII): two (?) pierced lugs and three knobs; base slightly cupped; greyish black, unpolished. On either side of two of the knobs, a group of three vertical parallel scratched lines (not clear in the case of the third knob); three similar lines on one side of the existing lug. Ht. 7.8 cm.



108. BOWL: two (?) round lugs perforated horizontally, and two pointed lugs unperforated: buff to grey mottled slip. Ht. 9 cm.



109. BOWL (= Pl. VII): two vertically perforated lugs on the body and two (?) knobs below the rim; brownish clay with brownish slip (?); grooved zone just below the rim. Ht. 18 cm.



¹ The only other site in the Tserna Valley at which L.N. remains have been found is, as far as I know, Karamán. Cf. *B.S.A.* xxvi, p. 37.

² 104-109 were found in the lowest settlement, the pottery of which is E.B. But 104-106 are certainly L.N.; 107 and 108 have points of contact with both periods, and may be regarded as stylistically transitional.

CENTRAL MACEDONIA—AXIÓS VALLEY
VÁRDINA

110. BOWL: very fine black polished ware, but the slip thins out at the rim and on the inside; the lower part is fired bright red; on the shoulder a zone of short oblique grooves; on the neck oblique lines in opposing groups of three each, in white paint; thus three kinds of decoration, white paint, mottling and grooving are combined on one vase. Ht. 11.2 cm.



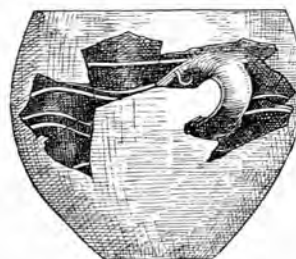
111. BOWL: fabric as last; there is a perforation on the left edge of the fragment (not clear in drawing). Ht. 12.2 cm.



112. BOWL (= Fig. 17o): same fabric as last, but inside is buff. Ht. 8.4 cm.



113. JAR (= Fig. 18i): strap-handle; same fabric as last; lower part fired red. Ht. 20 cm.



114. JUG: rolled handle; same fabric as last. Ht. 7.2 cm.



Fig. 17. Várdina (*a*, *d*, *e* and *p* from Sérvia). White on black-polished fragments: *b* and *c*, rims of cups(?); *e*=37; *o*=112; *n* has a lightly grooved returning spiral; *p*=40.

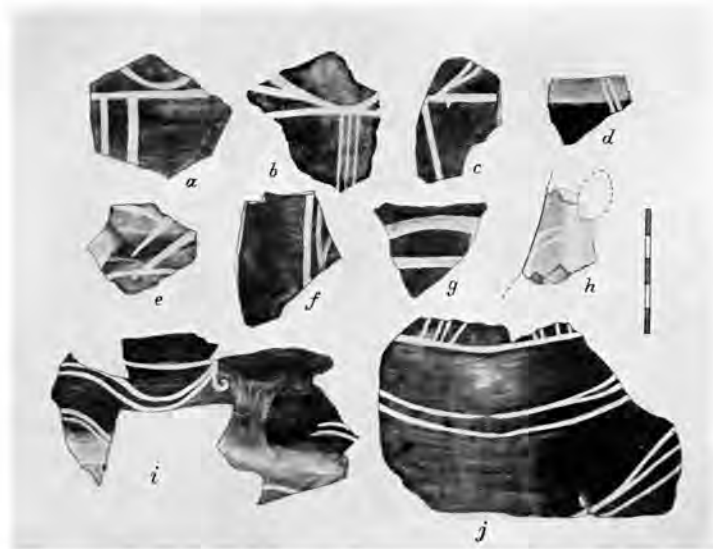


Fig. 18. Várdina. White on black-polished fragments (*h* is grey); *d* has a red polished zone round the rim; *i* = 113.

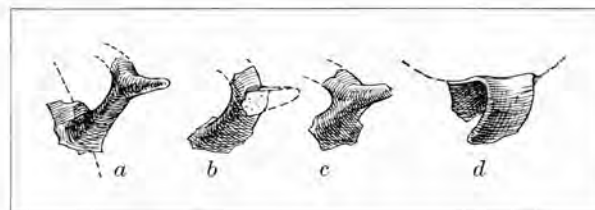
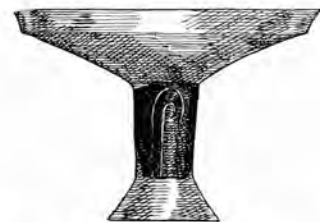


Fig. 19. Várdina. Black-polished handles: *a*–*c*, horned¹ strap-handles from jars like 113 or bowls like 112; *d*, strap-handle from rim of bowl or eup.

115. STEMMED DISH ('fruit-stand'): same fabric as last, but mottled grey and black; incised similarly on the reverse; the dish was made separately and stamped on as in the case of Minyan goblets. Ht. 17 cm.?



116. BOWL (= Pl. VII): same fabric as last but grey; on the angle a row of nicks, on the shoulder groups of oblique lines in white paint (no longer visible). Ht. 8 cm.



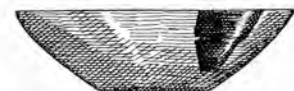
117. BOWL: gritless clay, grey polished surface. Ht. 8 cm.



118. BOWL: bevelled rim and lugs pierced horizontally; grey ware, slightly polished. Ht. 7 cm.



119. BOWL: reddish clay with slate-grey slip; well polished. Ht. 6.4 cm.



¹ Cf. 105, 157; Fig. 26, *d*; Fig. 30; p. 72, n. 6 (Troad).

120. BOWL: fabric resembles last. Ht. 8.8 cm.



121. BOWL: fabric as 117. Ht. 7.4 cm.



122. DISH: red clay and surface; ornamented with shallow curvilinear grooves. Ht. 5.6 cm.



123. DISH: same fabric as last; shallow grooves. Ht. 4.6 cm.



124. DISH: same fabric as last; black mottled ornament. Ht. 5.2 cm.



125. DISH: knobs; same fabric as last. Ht. 4 cm.



126. DISH: same fabric as last but slightly polished. Ht. 7.4 cm.



TOPTSÍN

127. JUG (= Pl. VII and Rey, II, Pl. XXXIV, 1): ground-tone red, with dark mottled ornament, consisting of a loop below the rim on each side of the handle, a zone at base of neck; the lower half is all dark, in varying tones, bordered above by inverted loops; the handle is flattened at the back; heavy ware. Ht. 15.2 cm.



LANKADÁS BASIN¹

SARATSE

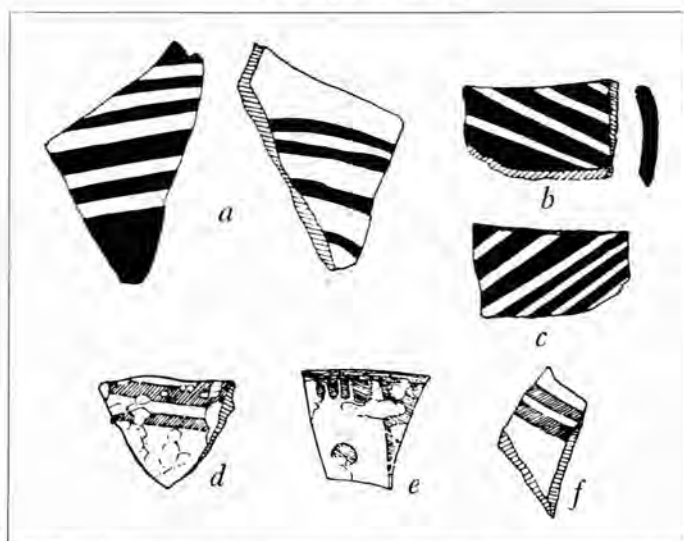


Fig. 202. Saratsé. Painted fragments: black on red; the outside of *a* is white on black-polished. Scale: ca. 1:2.

¹ Cf. also List of Prehistoric Sites, p. xxiii.

² Reproduced by permission of British School at Athens.

AIVÁTE

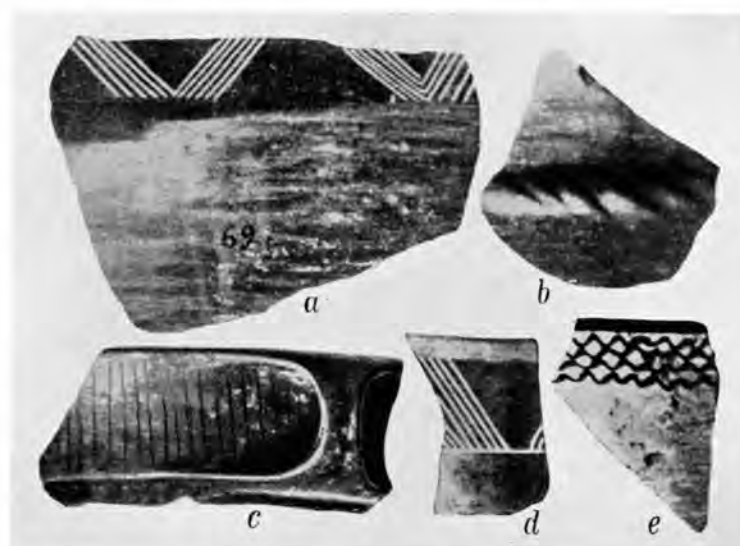
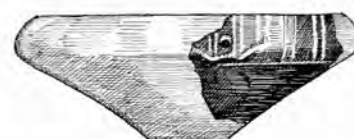


Fig. 21¹. Aiváte (= *B.M.C.* Fig. 26). *a* and *d*, white-on-black polished; *b*, rippled shoulder of bowl in form like 42(?); *a*, burnish decorated; *e*, rim of bowl, red bands on lustrous white slip (cf. p. 75, note 1). Scale: ca. 1:2.

GIOUMENÍTZA (A)²

128. BOWL (= Rey, II, Pl. II, 6): grey-brown, polished on the shoulder; vertical stripes in groups of two in white graphite paint³. Ht. 10 cm.



129. BOWL: red polished, decoration on outside as in preceding vase; on the inside, groups of curving lines radiating outwards towards the rim, below which there is a girding line. Ht. 8.2 cm.



130. BOWL: greyish red, polished. Ht. 10.6 cm. Cf. also Rey, II, Fig. 36, and p. 235.



¹ Reproduced by permission of the Trustees of the British Museum.

² L.N. sherds have been picked up at Gioumenitza (B) also.

³ The undercut profile of this and the two next vases is noteworthy.

SALONIKA PLAIN
KAPOUTZÉDES

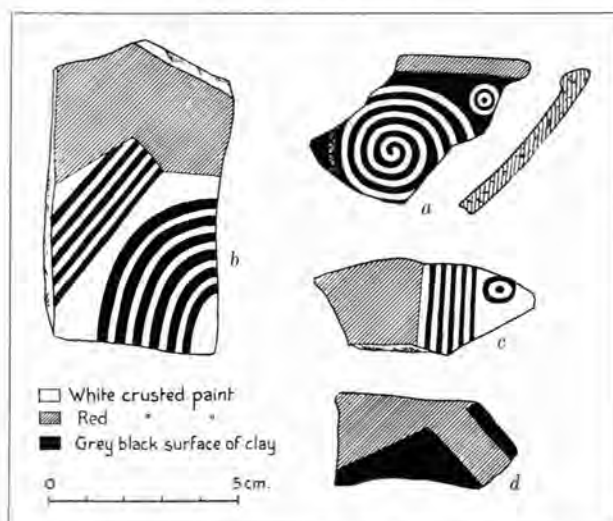


Fig. 22¹. Kapoutzédès. Crusted fragments: the spirals (*a*) and concentric circles (*a, b*) bring them into relation with the Incised ware of Sérvia, where the crusted technique also has analogies (Fig. 14 (i) *g* and (ii)). Similar crusted paint is of course familiar in the parallel painted styles of the Thessalian L.N. Period and its Danubian affinities have been frequently noted. The use of reserved ornament (*a-c*) is interesting.

VASILIKÁ VALLEY
SÉDES

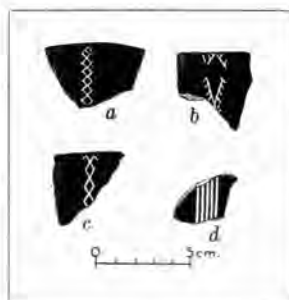


Fig. 23². Sédes. Black-polished, incised or painted: *a* and *b*, rims of cups (?) (= Rey, II, Pl. XIII, 2, 3), incised; *c*, rim (?) of cup (?) (= Rey, II, Pl. XIII, 4), white on black-polished; *d*, fragment of similar ware (= Rey, II, Pl. XIII, 11). Other examples are illustrated on the same plate. From Sédes come also, according to Rey³, a few red-on-white sherds similar to those from Aiváte.

¹ The drawings are based partly on Rey, II, Fig. 35, and partly on sketches kindly made for me in Paris by R. W. Hutchinson.

² From Rey, II, Pl. XIII.

³ Cf. Rey, II, p. 201.

CHALCIDICE¹
HÁGIOS MÁMAS

131. BOWL (= Fig. 25a): brown paint on buff slip; inside, similar ornament². Ht. 7.4 cm.



Fig. 24. Hágios Mámas. Loop-handle ending in animal's head: black-polished ware.



Fig. 25³. Hágios Mámas. *a* = 131; *b*, brown on buff; *c*, black on red⁴; *d*, rim, black on red⁴; *e*, brown on buff; *f*, red bands (scraped ?) on white; *g*, rim, white on black-polished; *h*, white on black-polished; *i* and *j*, (rims) black-polished with beading; *k*, rim, black-polished with reserved unpolished zone; *l*, black-polished rippled; *m*, burnished ornament; *n*, rippled shoulder, grey-brown; *o* and *p*, ribbed fragments unpolished and rather thick (E.B. (?) imitations of Neolithic). Scale = 3 cm.

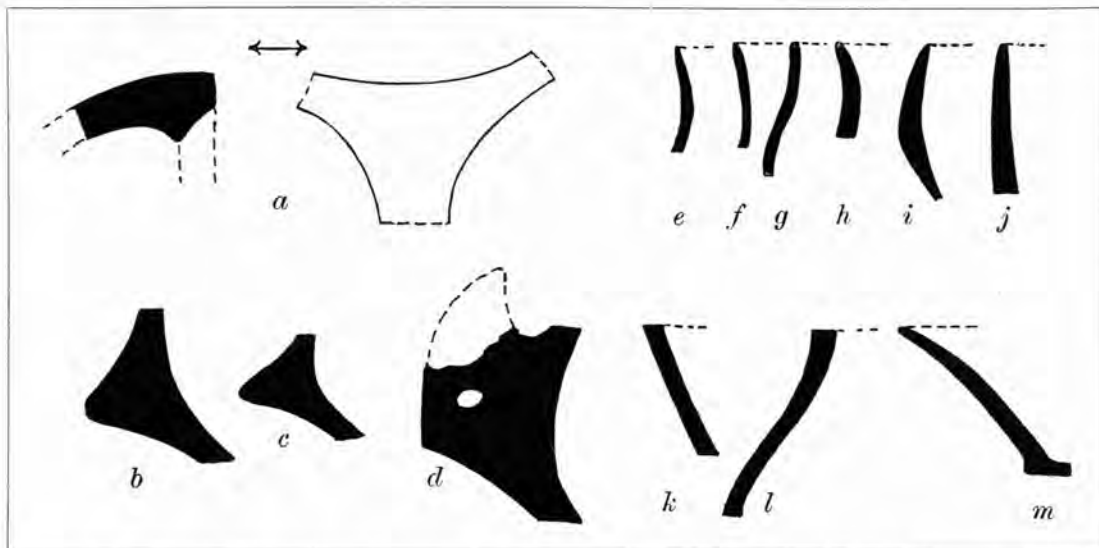


Fig. 26⁵. Hágios Mámas. Black-polished ware, profiles: *a* and *e-l*, rims; *b-d*, shoulders; *m*, dish.

¹ Cf. also List of Prehistoric Sites, p. xxiii, and *B.S.A.* xxvi, pp. 30-4.

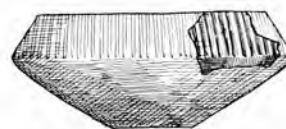
² For inside ornament, cf. *Hágios Mámas*, Fig. 8, 1.

³ Reproduced by permission of British School at Athens.

⁴ For inside ornament, cf. *Hágios Mámas*, Fig. 8, 2.

⁵ Reproduced by permission of British School at Athens.

132. BOWL: brick red, unpolished, with grooved or rippled shoulder. Ht. 9 cm.



KRITSANÁ

133. BOWL (= Fig. 27c): grey polished, on the shoulder oblique stripes in groups of two in white graphite paint. Ht. 7 cm.



134. BOWL (= Fig. 27a): grey polished; on the inside, two oblique parallel stripes starting from the rim, in white paint. Ht. 8 cm.



135. BOWL: grey-black, unpolished. Ht. 5 cm.



136. BOWL (= Fig. 28a): brick red; on the inside three concentric loops starting from the rim; purplish matt paint. Ht. 7 cm.

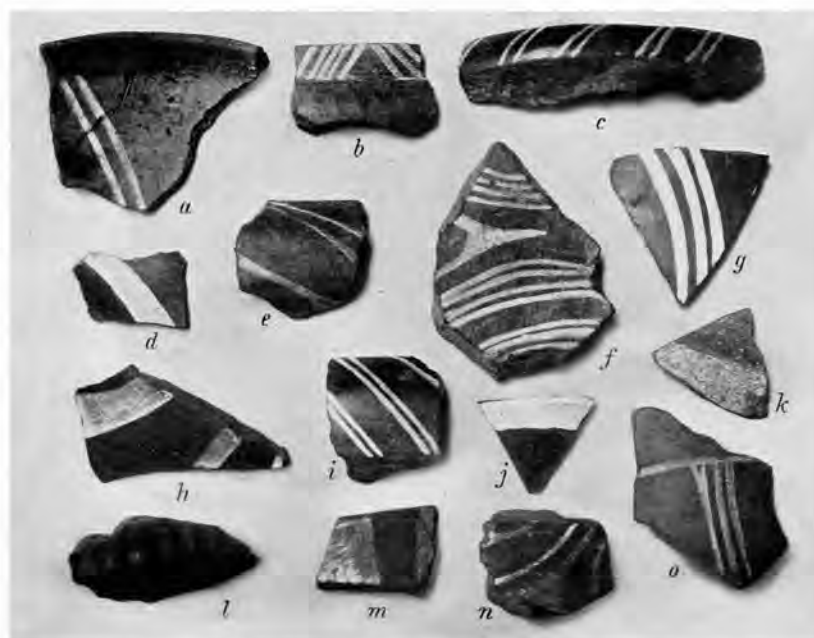


Fig. 27. Kritsaná. Painted fragments: *a*=134; *b*, rim and rippled shoulder, grey; *c*=133; *d* and *e*, white on red; *f*, inside of dish, brown, grey and yellow mottled surface, polished; *g* and *h*, white on red; *i*, rim, white on polished grey to black; *j*, rim, white on red; *k*, crusted white on pale red; *l*, rippled shoulder, black-polished; *m*, rim, white on red; *n*, white on red; *o*, greyish brown, pale white streaks. Scale: ca. 1:2.

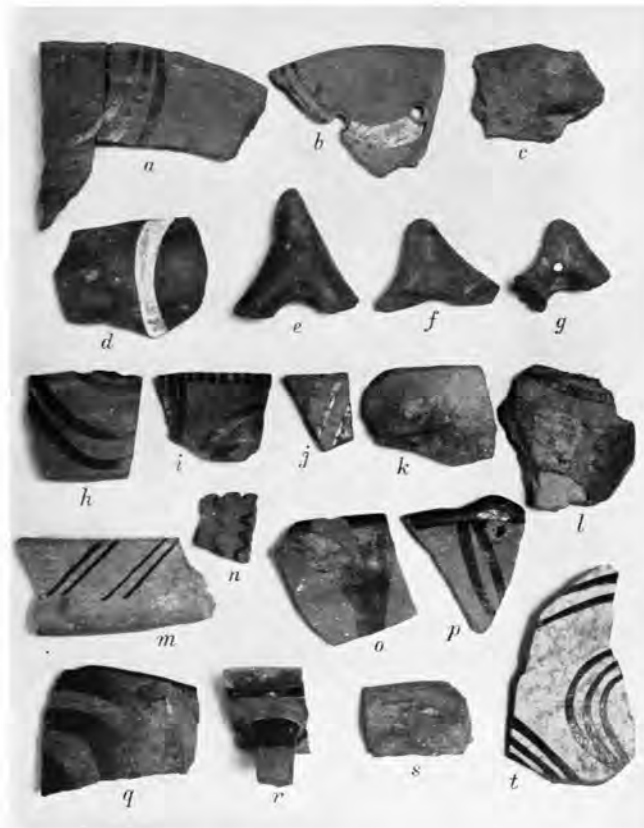


Fig. 28. Kritsaná. Plain and painted fragments, dark on red, except *d* (=144). *a*=136; *b*=141; *c*, *k* and *s* are plain rim lugs, vertically pierced; *e*-*g*=Fig. 30; *h*-*j* are rims; *l*, a strap-handle; *m*=142; *n* and *o*, rims; *p*=139; *q* and *r*, rims; *t*, white slip. Scale: ca. 1:2.

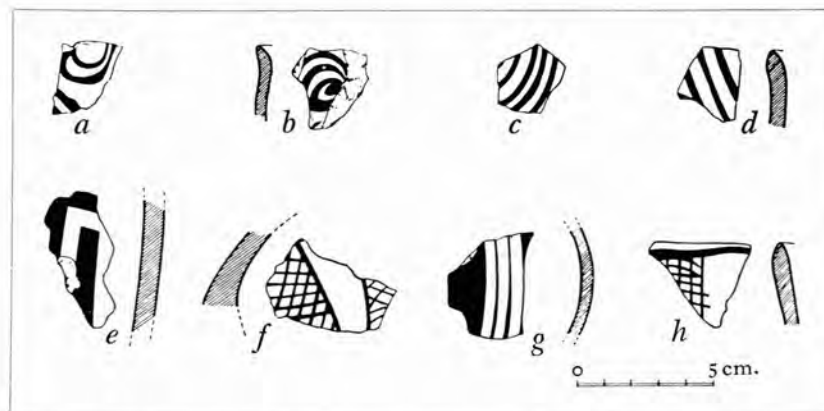


Fig. 29. Kritsaná. Painted fragments: dark on red except *e* and *g*, white on red; *f* is part of a 'fruit-stand', at the junction of stem and dish.

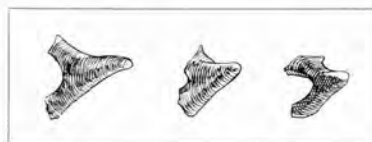


Fig. 30. Kritsaná. Horned handles, set vertically (=Fig. 28, *e*-*g*): red well-finished ware. Scale: 1:2.

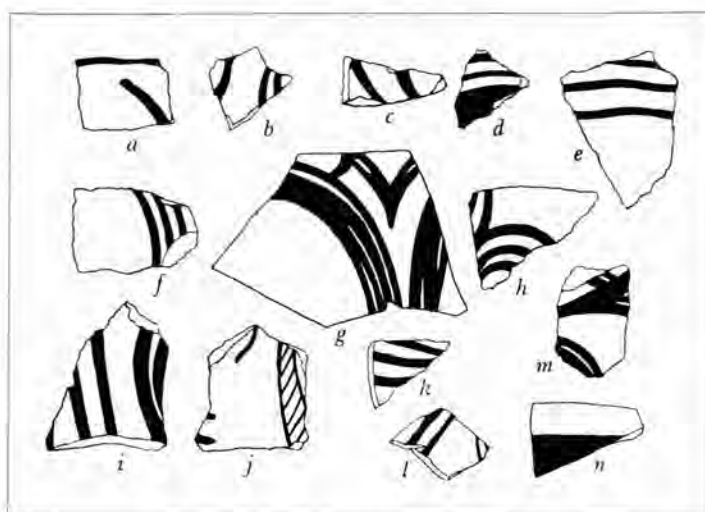


Fig. 311. Chalcidice. Painted fragments (surface finds)²; dark on red, except *d* and *n* which are white on red; *g* is from Kritsaná. Scale: ca. 1:3.

137. BOWL: same fabric as last, but the red is lighter in tone. Ht. 7 cm.



138. BOWL: horizontally pierced lug; purple paint on dull red surface; inside, pendent loops. Ht. 7 cm.



139. DISH (= Fig. 28*p*): two projections on the rim, perforated below; same fabric and technique as last. Ht. 5 cm.



140. BOWL: same fabric as last; on the inside a broad curvilinear band, faint white (?) paint; outside a similar curved band in purplish paint, which has almost vanished. Ht. 5.2 cm.



141. DISH (= Fig. 28*b*): same fabric as last; purple paint; two perforations. Ht. 5 cm.



142. BOWL (= Fig. 28*m*): grey clay, pale red surface; black stripes. Ht. 6.4 cm.



143. BOWL: upturned lug, perforated vertically; red ware with ornament in white paint³. Ht. 7.4 cm.



144. BOWL (= Fig. 28*d*): vertically pierced lug; well-smoothed orange surface, curved band in white paint to right of lug. Ht. 8 cm.

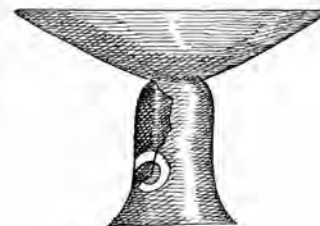


¹ Reproduced by permission of British School at Athens.

² Cf. *B.S.A.* xxvi, pp. 30-4.

³ It is hard to tell whether the paint is dark or white as it turns purple if moistened; the same with 144

145. STEMMED DISH ('fruit-stand') (?): white paint on dull red; stem and dish were made separately and stamped together. Ht. 17 cm.?



OLYNTHUS

146. JUG (= *Olynthus I*, Fig. 52): fine ware, red polished¹.



147. BOWL (= *Olynthus I*, Fig. 68): heavy ware, brown matt paint on red surface^{1,2}.

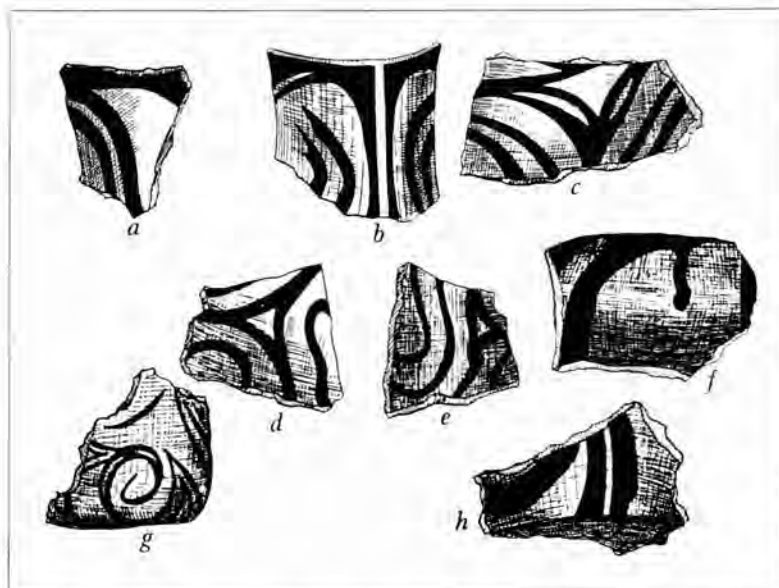
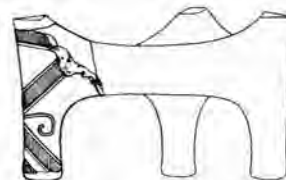


Fig. 32³. *Olynthus*. Painted fragments, dark on red. Scale 1:2.

148. THREE-LEGGED VASE ('table') (= *Olynthus I*, Fig. 62b, Fig. 63 and Pl. II): fine ware, red slip, the incised bands are filled with darker red. Ht. 17 cm.



149. CUP (one half missing) (= *Olynthus I*, Fig. 59a, b): two small horizontally pierced lugs below rim; heavy ware, incised; the toothed ornament below the rim is repeated on the inside¹.



150. BOWL (= *Olynthus I*, Figs. 27, 28): perforation below rim; plain ware¹.



¹ Height not ascertainable.

² For other painted fragments cf. *Olynthus I*, Pl. I.

³ *Olynthus I*, Fig. 66. Reproduced by permission of Dr D. M. Robinson.

151. BOWL (= *Olynthus I*, Fig. 24, 2; = Fig. 25, 2): fabric as last¹.



152. BOWL (= *Olynthus I*, Fig. 23): pointed lugs; fabric as last¹.



153. SPOUTED BOWL (= *Olynthus I*, Fig. 32): fabric as 152. Ht. 8.5 cm.



154. BOWL (= *Olynthus I*, Figs. 29, 30): rim pinched out to form spout; fabric as last¹.



155. CUP (= *Olynthus I*, Fig. 26): plain ware. Ht. 15 cm.



156. JUG (= *Olynthus I*, Fig. 31): fabric as last. Ht. 15.5 cm.



157. JUG (*Olynthus* = *I*, Fig. 48): fabric as last¹.



158. BOWL (= *Olynthus I*, Fig. 21): pointed lugs; coarse ware. Ht. 23 cm.



159. CUP (= *Olynthus I*, Fig. 19): coarse ware¹.



160. VASE IN ANIMAL FORM (= *Olynthus I*, Figs. 35-7): (tail and upper part missing): heavy ware, on the belly between the legs two bosses. Ht. 6 cm.



161. COOKING-POT (= *Olynthus I*, Fig. 22, 1, 2): coarse ware. Inner depth 10 cm.



¹ Height not ascertainable.

MISCELLANEOUS OBJECTS

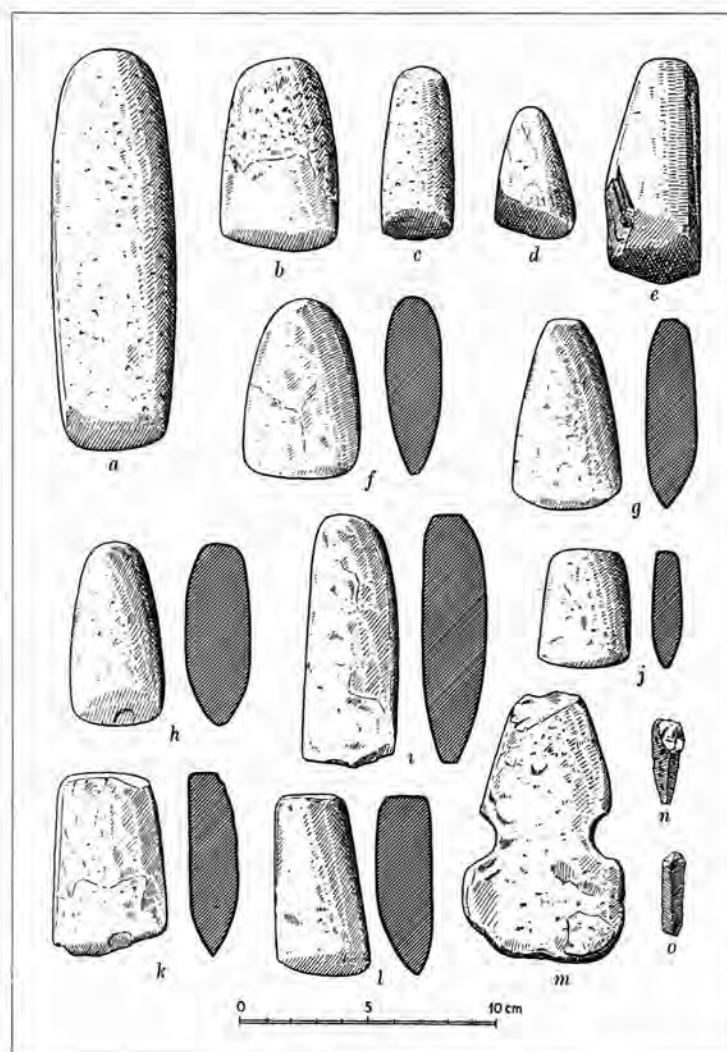


Fig. 33. Late Neolithic stone objects.

- a. CELT (= Pl. IX): both faces flattened and bevelled; grey-black stone. Sérvia.
- b. CELT (= Pl. IX): bevelled on one face, which is flat, rounded sides; black stone, upper part left rough. Sérvia.
- c. CELT (= Pl. IX): rounded section, both faces bevelled; greyish green stone, polished. Sérvia.
- d. CELT (= Pl. IX): one face flat and bevelled; pale green veined stone, polished. Sérvia.
- e. CELT (= Pl. IX): part of a larger one sawn longitudinally and then split: greenish veined stone with pink band, polished. Sérvia.
- f. CELT (= *Olynthus I*, Fig. 78, a): polished. Olynthus.
- g. CELT (= *Olynthus I*, Fig. 78, c): one side flat, one side convex, bevelled mostly on flat side; polished. Olynthus.
- h. CELT (= *Olynthus I*, Fig. 78, d): elliptical in section, bevelled equally on both faces. Olynthus.
- i. CELT (= *Olynthus I*, Fig. 78, e): one flat side, bevelled mostly on one side. Olynthus.
- j. CELT (= *Olynthus I*, Fig. 78, f): both sides flat; polished. Olynthus.
- k. CELT (= *Olynthus I*, Fig. 78, g): bevelled on both faces, quadrangular section. Olynthus.
- l. CELT (= *Olynthus I*, Fig. 78, h): one side flat, both faces bevelled; polished. Olynthus.
- m. AXE (= Pl. IX): split in two horizontally; green schist. Sérvia.
- n. ARROW HEAD(?) (= Pl. IX): transparent yellow chert. Sérvia.
- o. BLADE (= Pl. IX): obsidian, grey partly transparent with darker bands (Melian ?). Sérvia.

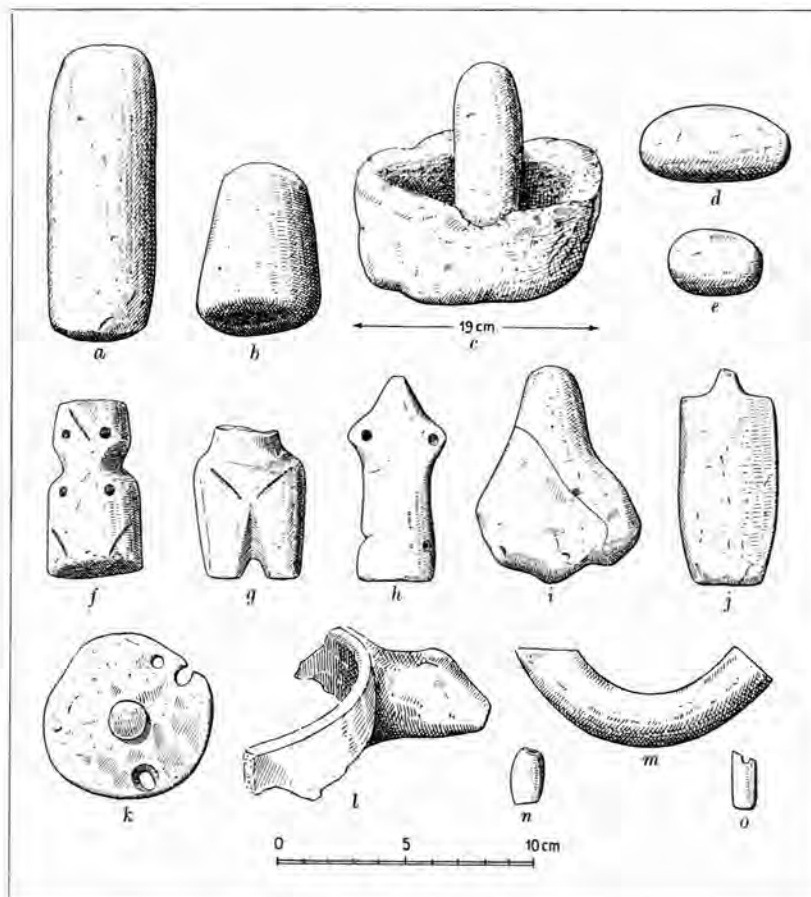


Fig. 34. Late Neolithic stone objects.

- a. PESTLE (= Pl. IX). Sérvia.
- b. PESTLE (= Pl. IX): quartz(?). Sérvia.
- c. PESTLE AND MORTAR (= *Olynthus I*, Fig. 83, a): the pestle is of limestone. Olynthus.
- d. SLING-BULLET (= *Olynthus I*, Fig. 86, a). Olynthus.
- e. SLING-BULLET (= *Olynthus I*, Fig. 86, b). Olynthus.
- f. FIGURINE (= Pl. IX): lower half missing; eyes and breasts indicated by round pits, a slanting groove between the eyes; two more grooves represent the groins; there is a small round pit in the top of the head, and another in the back. Diam. of base 2.9 cm. Sérvia.
- g. FEMALE FIGURINE (= Pl. IX): upper half missing; the back is also carefully modelled. Diam. at break 2.1 cm. Sérvia.
- h. FIGURINE (= *Olynthus I*, Fig. 72, a): two suspension holes; white marble. Olynthus.
- i. FIGURINE (= *Olynthus I*, Fig. 72, b): white marble. Olynthus.
- j. FIGURINE (= *Olynthus I*, Fig. 72, c): rounded section; white marble. Olynthus.
- k. LID (= Pl. X): central knob; three string-holes, one of which was a failure; whitish marble; thickness varying from 0.3 cm. at edge to 1.10 cm. in centre. Sérvia.
- l. ZOOMORPHIC LUG (= *Olynthus I*, Fig. 81, a): white marble with reddish stains. Olynthus.
- m. FRAGMENT OF BRACELET (= *Olynthus I*, Fig. 81, d): flat on one face; black stone polished; maximum diam. 2 cm. Olynthus.
- n. BEAD: barrel-shaped; perforated; white marble. Sérvia.
- o. FRAGMENT OF VASE-HANDLE(?): perforated; rounded section; white marble. Sérvia.



Fig. 35. Late Neolithic objects of bone, shell and clay.

Bone and shell

- a. PIN (= *Vardino*, Pl. XVI, 26). Várdina.
 b, c. PINS (= Pl. X). Sérvia.
 d. GOUGE (= Pl. X). Sérvia.
 e, f. COMBS (= Pl. X). Sérvia.
 g. COCKLE SHELL: perforated. Sérvia.
 h. SHELL BRACELET (= Pl. X). Sérvia.
 i. SHELL BRACELET (= *Olynthus I*, Fig. 93): perforated. Olynthus.
 j. PENDANT (= *Olynthus I*, Fig. 94, 3): dog's or boar's tooth. Olynthus.

Clay

- k. FIGURINE (neck and head): originally coated with buff lustrous paint, now worn off in front; eyes and mouth rendered by slits; down the front four wedge-shaped pits in a row, similar pits at the base of the neck; from one shoulder a grooved stripe bordered by similar pits descends towards the centre of the back; on the other only the grooved stripe is preserved. The top of the head is triangular; there is a grooved stripe (hair ?) down the back. Sérvia.
 l. FIGURINE (upper part) (= *Vardino*, Pl. XVI, 28): plastic eye and nose; mud-coloured. Várdina.
 m. FIGURINE (head and neck) (= Pl. X): eyes incised slits as in *k*; three faint vertical grooves may represent hair. Sérvia.
 n. FIGURINE (broken at extremities) (= *Olynthus I*, Fig. 74): incised ornament. Olynthus.
 o. FIGURINE, HEAD OF DOG (= Pl. X): grey clay buff surface, stripe of red lustrous paint on each side of the face, and a similar stripe round the neck. Sérvia.
 p. WHORL OR BUTTON (= *Olynthus I*, Fig. 91, a): incised lines and pricked dots. Olynthus.
 q. BEAD: spherical, mud-coloured. Sérvia.
 r. PINTADERA (= Pl. X): on the face lengthwise a central groove, on either side of which scratched strokes, not uniformly deep, irregularly spaced; pinkish brown. Sérvia.
 s. PINTADERA (= Pl. X): serrated edge; brownish clay. Sérvia.
 t, u. PHALLOI (= Pl. X): perforated lengthways. Sérvia.

EARLY BRONZE

CHALCIDICE¹

KRITSANÁ

162. BOWL (= Fig. 37*a*): heavy ware, grey mottled. Ht. 8 cm.



163. BOWL (= Fig. 37*d*): grey to reddish, mottled, slightly polished. Ht. 8 cm.

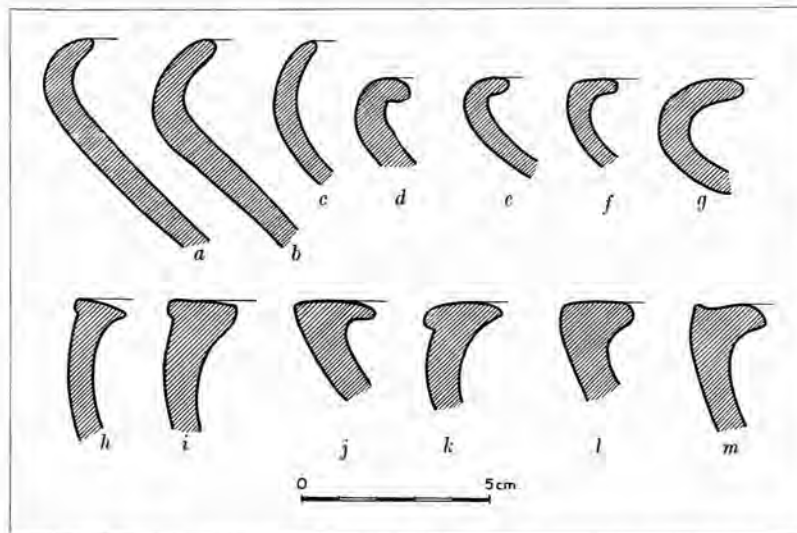


Fig. 36. Kritsaná. Examples of incurving rims of bowls: the flattened class are rare before Settlement 5: after which they predominate. The distribution of the examples is as follows: *Upper row*: *a, b* and *c* from Settlements 1 and 2; *d* from Settlement 3; *e* and *f* from Settlement 4; *g* from Settlement 6. *Lower row*: *h* and *i* from Settlement 3; *j* and *k* from Settlement 5; *l* and *m* from Settlement 6.

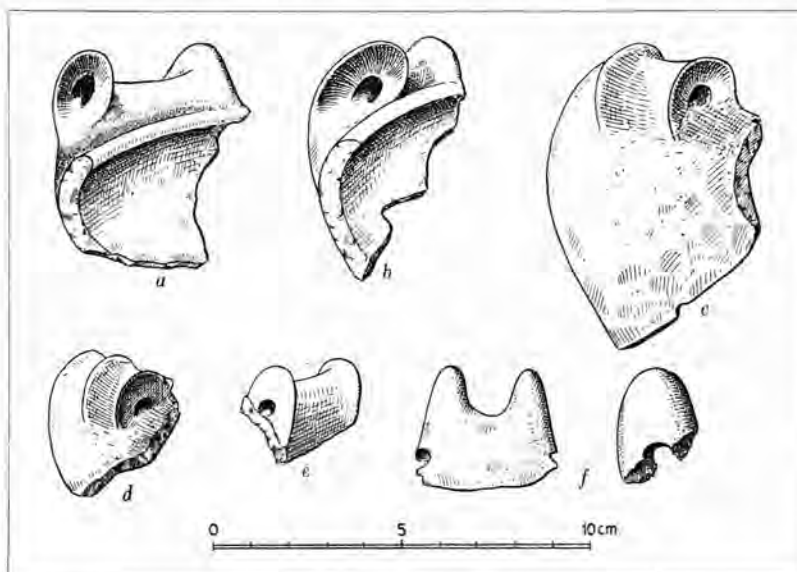


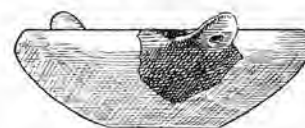
Fig. 37. Kritsaná. Bowls with incurving rims: examples of tubular lugs with upturned ends: *a* (=162), *b, c* and *d* (=163) are from the two earliest settlements; *e* is from the fourth; *f* is from the sixth; the latter are isolated examples, the form being by then almost extinct.

¹ For other sites in Chalcidice at which E.B. remains have been found, cf. List of Prehistoric Sites, p. xxiii.

164. BOWL (= Fig. 38*b*): part of the ledge-lug missing; light buff. Ht. 7.7 cm.



165. BOWL (= Fig. 38*c*): inside, marks of scraper and comb conspicuous.



166. BOWL: flattened rim; loop-handle with protracted¹ and perforated ends; mottled polished. Ht. 8 cm.

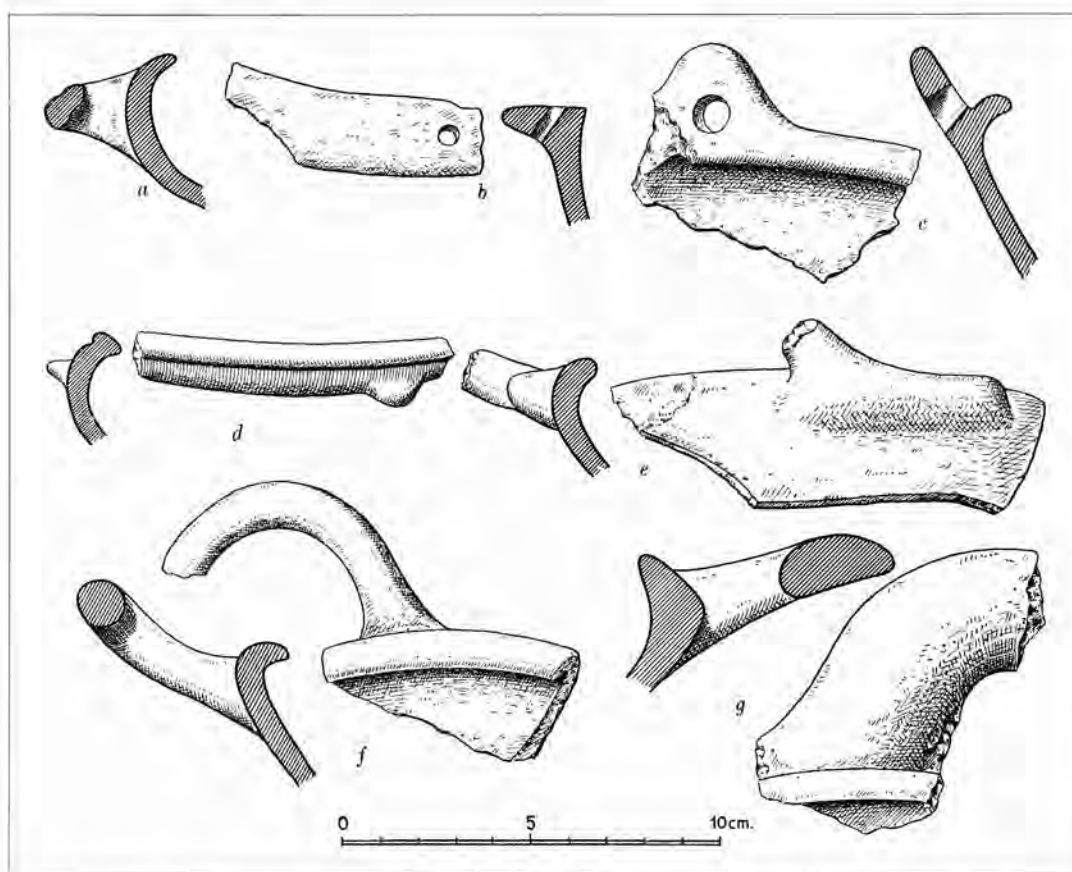


Fig. 38. Kritsaná. Bowls with incurving rims: examples illustrating the development of lugs and handles: *a*, *b* (= 164) and *c* (= 165) are from the two earliest settlements; *d* from the third; *e* and *f* from the fifth; *g* from the sixth. Note the terminal in *e*² and the flattened form of *g*.

167. BOWL: rim pinched out to form spout; grey, firing to red, polished, white filling. Ht. 6 cm.



168. CUP (= Pl. XI): brownish grey, unpolished. Ht. 4.7 cm.



¹ Cf. Fig. 38*e*, and note.

² Cf. 166, 311, 312 and Fig. 60.

169. CUP: reddish wash, which on the inside stops 1.5 cm. below rim.
Ht. 5.6 cm.



170. CUP: grey to black mottled, polished. Ht. 5.4 cm.



171. CUP: single incomplete perforation; slightly polished. Ht. 5.5 cm.



Fig. 39(i). Cup with pointed base; one handle; grey clay with pinkish surface, showing marks of paring tool, unpolished. Found in Settlement 1. Greatest length of fragment 10 cm.

172. JUG: traces of knob low down on the front; pinkish mottled surface.
Ht. 9 cm.?



173. JUG: the missing upper half was made separately; brown, slightly polished. Ht. 7.2 cm.



174. JUG: dentated lip; brown. Ht. 17.8 cm.?



175. JUG: at base of neck oblique incised strokes; reddish brown surface.
Ht. 18 cm.?



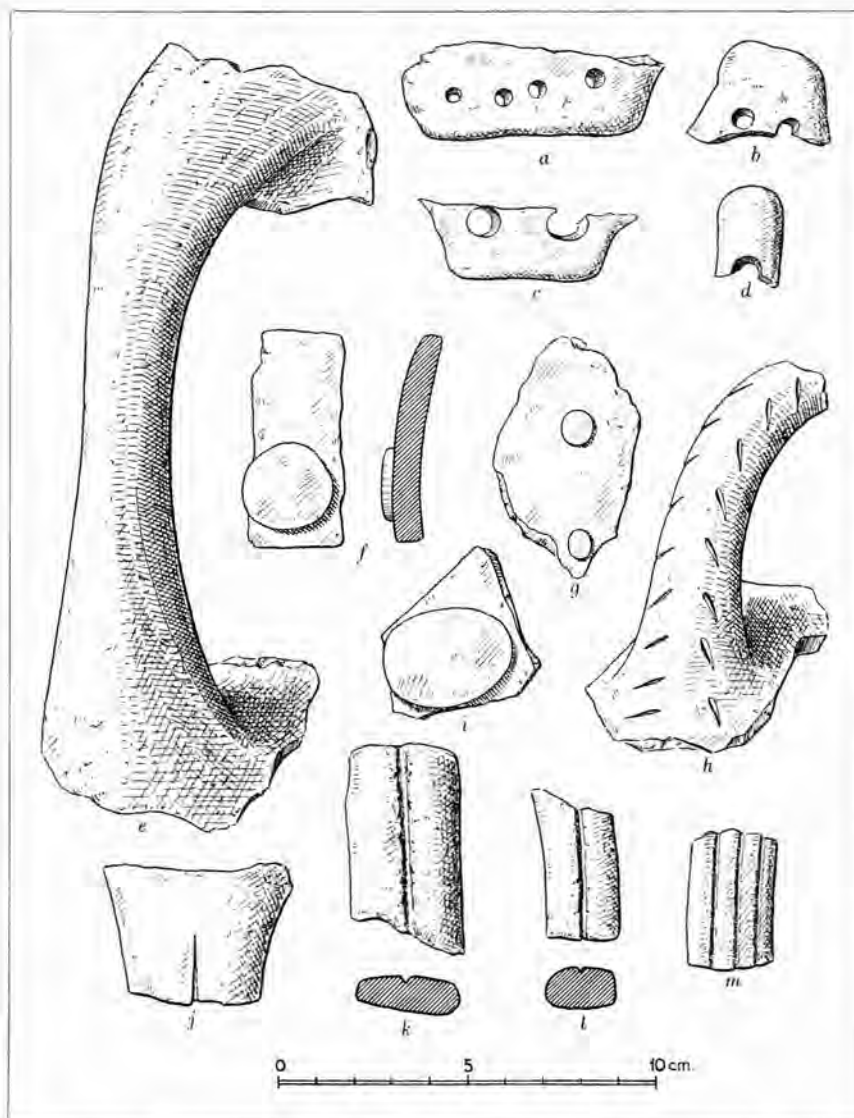


Fig. 39(ii). Kritsaná. *a-d*, perforated ledge-lugs; *e*, handle of askos(?); *h*, incised handle¹; *f*, *g* and *i*, fragments with flat plastic discs; *j-m*, grooved strap-handles.

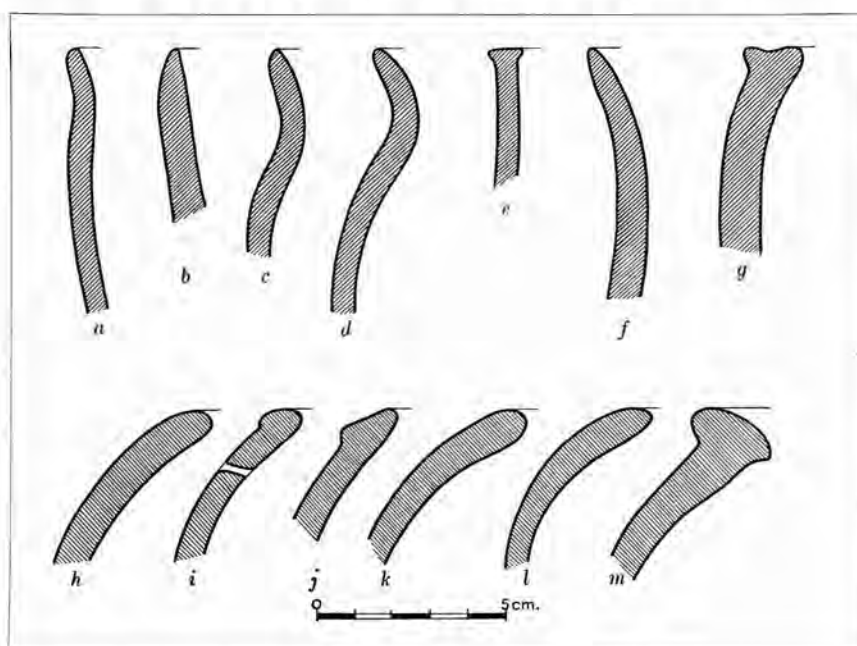


Fig. 40. Kritsaná. *a-g*, deep bowls with more or less upright sides: examples of rims; *a* and *b* from Settlements 1 and 2; *c*, *d* and *e* from Settlement 4; *f* from Settlement 5; *g* from Settlement 6; *h-m*, bowls with contracted mouths: examples of rims; *h* and *i* from Settlement 3; *j* and *k* from Settlement 4; *l* and *m* from Settlement 5.

¹ *a*, *e*, *f* and *g* from Settlement 1 or 2; *i*, *j* and *k* from Settlement 3; *h* and *d* from Settlement 5; *c*, *h*, *l* and *m* from Settlement 6.

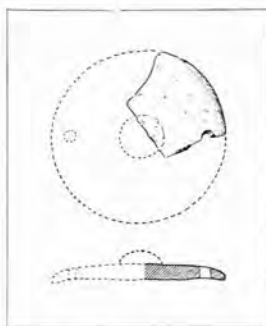


Fig. 41. Kritsaná. Lid: central knob and two(?) string-holes. Diam. 10 cm.



Fig. 42. Kritsaná. *a-f*, fragments of coarse ware with plastic ornament; *g*, strap-handle incised¹; *h*, incised.

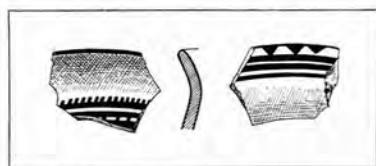


Fig. 43. Kritsaná. Rim of tankard(?): Early Helladic patterned ware; dark lustrous paint on white slip; Settlement 6.

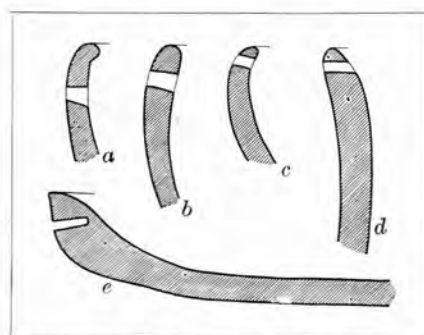
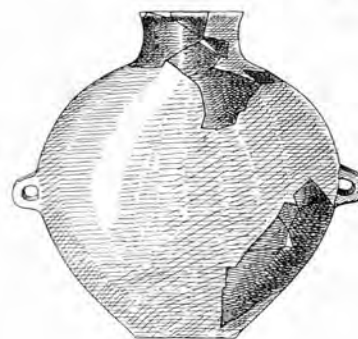


Fig. 44. Kritsaná. Examples of coarse pots with perforations below the rims²: *a-d*, from Settlement 1 or 2; *e* (from Vardaróphtsa) must have had a diameter of ca. 40 cm. and is perhaps a tray, or griddle.

¹ For crossed lines on similar handles, cf. Fig. 47*d*; Fig. 57*d*.

² Cf. Fig. 45*h*; Fig. 55; Fig. 62*b*.

176. WATER-JAR (= Pl. XIII): good fabric, grey-buff clay with well-smoothed surface. Ht. 39 cm.

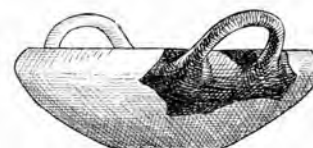


177. STORE-JAR (= Pl. XIII): coarse, red to grey. Ht. 21.9 cm.



HÁGIOS MÁMAS

178. BOWL: heavy ware, red clay, coated with brown slightly lustrous paint. Ht. 8 cm.



179. BOWL (= Pl. XII): rim pinched out to form small spout: light red with darker patches. Ht. 7.4 cm.



180. BOWL (= *Hagios Mamas*, Fig. 12, 7): dark grey polished; shallow grooves. Ht. 8 cm.

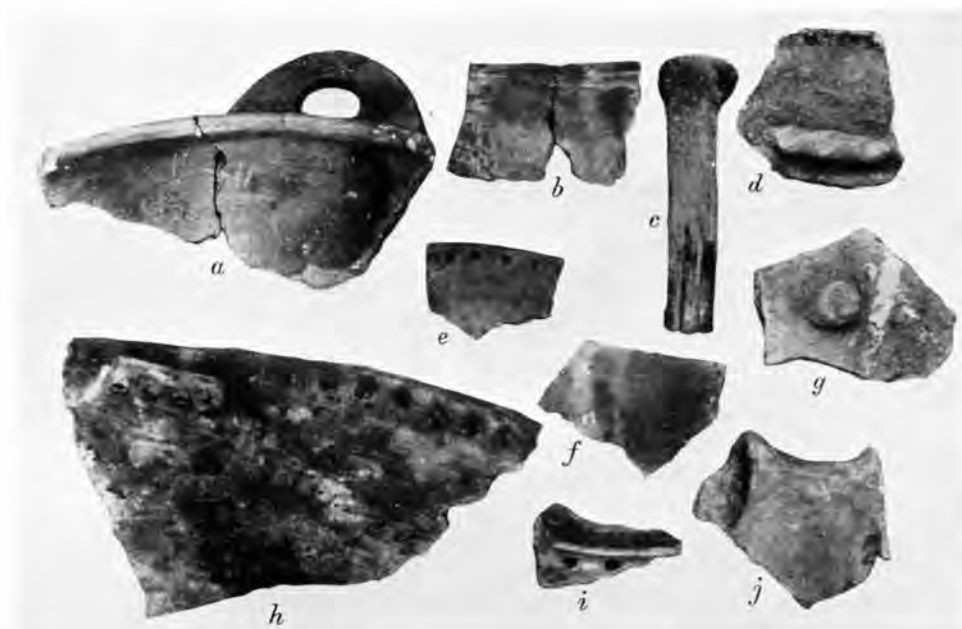


Fig 45¹. Hágios Mámas. Miscellaneous fragments: *a*, bowl with incurved rim, and loop-handle with flat section; *b*, bowl with flattened rim, mottled; *c*, grooved askos handle; *d*, jar-rim with dentated ledge-lug; *e*, jar-rim with incised wedges; *f*, mottled fragment with white crusted paint; *g*, thick red fragment, white crusted paint; *h*, dish with perforations below rim; *i*, ledge-lug with two perforations; *j*, tubular lug with upturned ends. Scale: ca. 1:4.

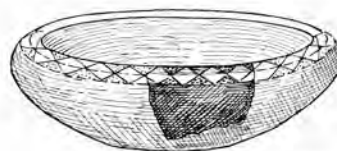
¹ Reproduced by permission of British School at Athens.

181. BOWL (= Fig. 46*b*): grey; shallow grooves. Ht. 8 cm.



Fig. 46. Hágios Mámas. *a*, incurving rim (*schnurkeramik* ?); *b* = 181; *c*, shoulder of bowl; *d*, loop-handle with stamped circles. Scale = 3 cm.

182. BOWL (= *Hagios Mamas*, Fig. 8, 4): moulded rim; brown polished slip, careful incision. Ht. 8 cm.



183. CUP (= Pl. XI): black with red patch. Ht. 4.5 cm.



184. CUP (= Pl. XI): red, firing to black base. Ht. 4.3 cm.



185. CUP (= Pl. XI): ashy grey; note the flattening of the rolled handle where it meets the rim. Ht. 6.6 cm.



186. CUP (= Pl. XI): grey, unpolished; note flattening of handle as in last. Ht. 8 cm.



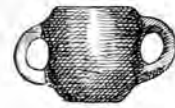
187. CUP or JUG (= *Hagios Mamas*, Fig. 10, 6): reddish mottled; note flattening of handle as in 185, 186. Ht. 8 cm.



188. CUP (= *Hagios Mamas*, Fig. 16, 2): the broad strap-handle widens where it springs from the rim; red-brown. Ht. 9 cm.



189. MUG (= Pl. XI): rolled handles; heavy ware, red with darker patches. Ht. 7.6 cm.



190. MUG (= Pl. XI): flattened rim, rolled handles; heavy ware, grey. Ht. 7.4 cm.



191. ASKOID JUG (= *Hágios Mámas*, Fig. 10, 11): the strap-handle has a low central rib; grey to black, slightly polished. Ht. 24 cm.



192. ASKOID JUG (= Pl. XII)¹: strap-handle narrowing in the centre; ashy grey; the incised zone does not run below the arch of the handle. Ht. 15.4 cm.



193. JUG (= Pl. XII)¹: ashy grey with brown mottled patch. Ht. 15.6 cm.



194. JUG (= Pl. XI): pinched-out spout; uneven lumpy surface, grey; on the front of the body four parallel vertical strokes on a horizontal stroke. Ht. 10.6 cm.



195. JUG (= Pl. XII): end of strap-handle inserted through oblong slit in the wall; reddish clay and surface, unslipped². Ht. 14 cm.



196. JUG (= *Hágios Mámas*, Fig. 16, 3): perforation just below rim; grey. Ht. 14.8 cm.



¹ White filling not original.

² Found in the kiln.

197. JUG: grey-black. Ht. 12 cm.



198. JUG: gritty red clay, black-brown slip. Ht. 10.2 cm.



199. JUG (= Pl. XII): fabric as 195; the reddish surface is combed, and there is a grooved zone at the base of the neck¹. Ht. 31.6 cm.



200. TWO-HANDLED JAR (= Pl. XII): red clay; surface coated with brown slightly lustrous paint. Ht. 16.5 cm.



201. JAR (= Pl. XII): on the shoulder pair of knobs in front and one at each side; exceptionally heavy ware, poorly baked. Ht. 12 cm.



202. CUP (= Fig. 47*k*): one (?) short rolled handle; black clay and surface; plastic ornament in high relief. Ht. 12 cm.

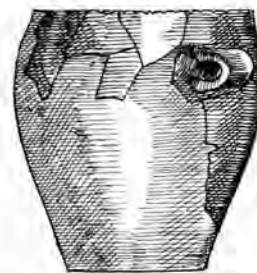


203. STORE-JAR (= Pl. XIII): brick-red cracked surface with black stains¹. Ht. 31 cm.

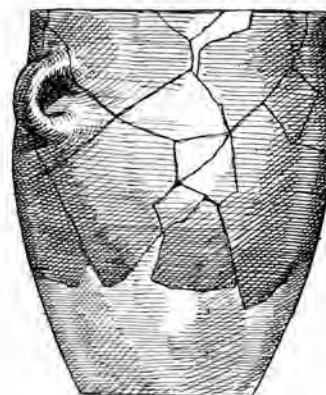


¹ Found in the kiln.

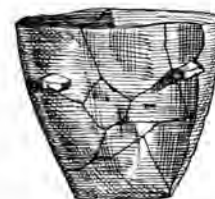
204. STORE-JAR (= *Hagios Mamas*, Fig. 15, 1): dentated rim; fabric as last, but better baked, red to brown surface¹. Ht. 31 cm.



205. STORE-JAR (= *Hagios Mamas*, Fig. 15, 3): fabric as 203. Ht. 45.5 cm.



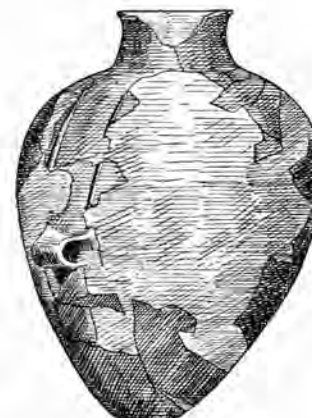
206. STORE-JAR (= *Hagios Mamas*, Fig. 15, 4): elliptical; same fabric as 203; much cracked surface¹. Ht. 21 cm.



207. STORE-JAR (= *Hagios Mamas*, Fig. 15, 2): same fabric as last¹. Ht. 30 cm.



208. WATER-JAR (= *Hagios Mamas*, Fig. 17c): elliptical; two lugs (one missing), from above which two parallel plastic strips run upwards to the neck; reddish clay and surface¹. Ht. 49.5 cm.



¹ Found in the kiln.



Fig. 47. Hágios Mámas. Examples of plastic and incised ornament; *b-d*, strap-handles; *e*, broad flat handle with upturned end (broken); *h*, base scored to receive upper part of vase; *j*, impressed plastic strip on either side of a vertical lug; *k*=202. Scale=2.5 cm.

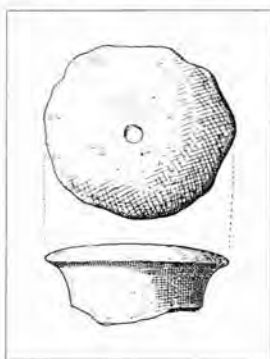


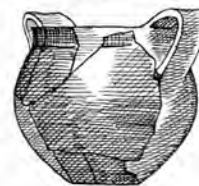
Fig. 48. Hágios Mámas. Lid (= *Hagios Mamas*, Fig. 18, 4): perforated; plain heavy ware, pinkish surface. Diam. 11 cm.

MOLYVÓPYRGO

209. BOWL (= *Molyvopyrgo*, Fig. 37, 1): brown clay coated with deeper brown lustrous paint, which has flaked off in places. Ht. 6.6 cm.



210. MUG (= *Molyvopyrgo*, Fig. 37, 11): two (?) strap-handles; reddish brown, blackened below; slightly moulded ridge at base of neck. Ht. 12.6 cm.



211. JUG (= *Molyvopyrgo*, Fig. 37, 6): brown slip, highly polished; incised line round base of neck. Ht. 16 cm.?



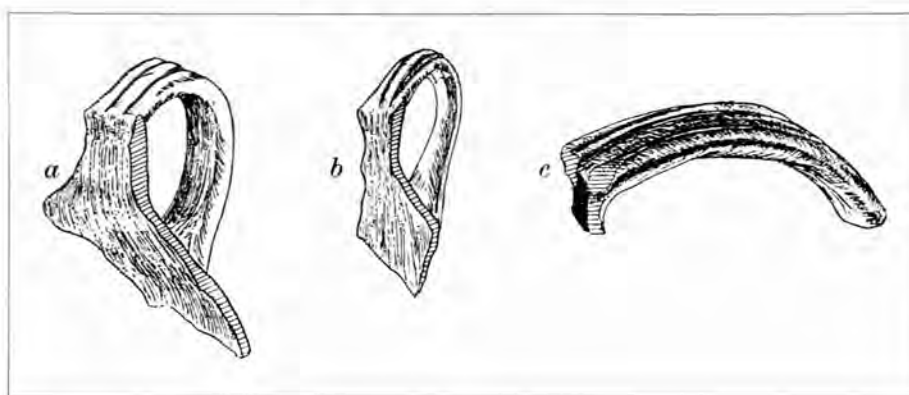


Fig. 49. Molyvópyrgo. Grooved handles: slipped and polished ware; *a* and *b* from two(?) -handled mugs; *c* from an askos(?). Scale: 1:4.

212. PYXIS (= Pl. XII): two loop-lugs on the shoulder, and two ledge-lugs with twin perforations on the body; red clay with coat of brown slightly lustrous paint. Ht. 11.4 cm.



213. CUP (?) of uncertain form (= *Molyvopyrgo*, Fig. 37, 10): at least three rows of knobs; heavy ware, red clay, thin coat of brown to red paint, slightly lustrous. Ht. 12.5 cm. (?).

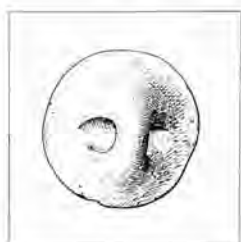


Fig. 50. Molyvópyrgo. Lid (= *Molyvopyrgo*, Fig. 51, 10); black polished. Diam. 9 cm.



Fig. 51. Molyvópyrgo. Fragment of large vase with plastic coil. Scale: 1:4.

UNASCERTAINED SITES

214. JUG (= Pl. XI): heavy ware, brown surface slightly polished; two shallow vertical grooves on the handle. Found in a well (?) near Sykiá. Ht. 15.4 cm.



215. JUG (= Pl. XI): slightly cupped base; same fabric and provenance as last. Ht. 12.2 cm.



CENTRAL MACEDONIA—AXIÓS VALLEY¹

VARDARÓPHTSA

216. BOWL (= *Vardaroftsa*, Pl. IV, 17): reddish brown, inside combed. Ht. 12.6 cm.



217. BOWL (= *Vardaroftsa*, Pl. II (b), 1): smooth grey surface. Ht. 18.2 cm.



218. BOWL (= *Vardaroftsa*, Pl. VIII (b), 1): grey. Ht. 6.2 cm.



219. BOWL (= *Vardaroftsa*, Pl. IV, 9): flat rim; well baked, grey. Ht. 8 cm.



220. BOWL: rough ware, mud-coloured. Ht. 9.4 cm.



221. CUP (= Pl. XIV): mottled red to black, polished. Ht. 4.4 cm.



222. CUP (= Pl. XIV): fine black surface, polished. Ht. 5.6 cm.



223. CUP (= Pl. XIV): mottled black to brown, slightly polished. Ht. 5.5 cm.



224. STEMMED CUP (= Pl. XIV): smooth buff surface, slightly polished. Ht. 8.8 cm.



225. CUP (= *Vardaroftsa*, Pl. IV, 14): bevelled rim, flat handle, three (?) knobs; heavy ware, grey mottled surface. Ht. 8.4 cm.



¹ Cf. also List of Prehistoric Sites, p. xxii.

226. CUP: fabric as last, ashy grey. Ht. 8.2 cm.



227. CUP (= *Vardaroftsa*, Pl. IV, 11): as last. Ht. 6.4 cm.



228. CUP or JUG (= Pl. XIV): rolled handle; finer fabric than preceding, grey all through with mottled patch, unpolished. Ht. 8 cm.



229. MUG (= *Vardaroftsa*, Pl. IV, 12): grey, well-smoothed, slightly polished. Ht. 9.2 cm.



230. JUG (= Pl. XIV): groove round base of neck; grey-black. Ht. 7 cm.



231. JUG (= Pl. XIV): red to buff surface, polished. Ht. 9.2 cm.



232. JUG (= Pl. XIV): fine fabric, grey-black mottled surface, well polished. Ht. 9 cm.



233. JUG (= *Vardaroftsa*, Pl. IV, 18): traces of discontinuous parallel grooves round neck; mottled surface, well smoothed and slightly polished. Ht. 8.8 cm.



234. JUG (= *Vardaroftsa*, Pl. IV, 10): pinched-out spout close to handle; grey, unpolished. Ht. 8.6 cm.



235. JUG (= *Vardaroftsa*, Pl. IV, 13): grey. Ht. 9.8 cm.



Fig. 52(i)¹. *Vardaróftsa*. Split and grooved handles; *g-i* are M.B.

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Fig. 52(ii)¹. Vardarôphtsa. 'Wish-bone' and related handles.

236. VASE (= *Vardaroftsa*, Pl. IV, 16): opening in side opposite handle, and double row of perforations above; heavy ware, red all through. Ht. 10.6 cm.



237. MINIATURE VASE (handle restored): grey. Ht. 5 cm.



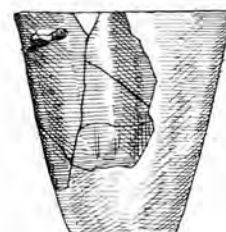
238. MINIATURE VASE: five lugs, one missing; one perforation in the front, one at the back between the lugs; very rough ware, grey. Ht. 4.2 cm.



239. MINIATURE VASE (= *Vardaroftsa*, Pl. IV, 15): half missing; heavy ware. Ht. 5.4 cm.



240. STORE-JAR: coarse, grey-black. Ht. 27 cm.



AMÁTOVO

Cf. Rey, II, Pl. II, 2.

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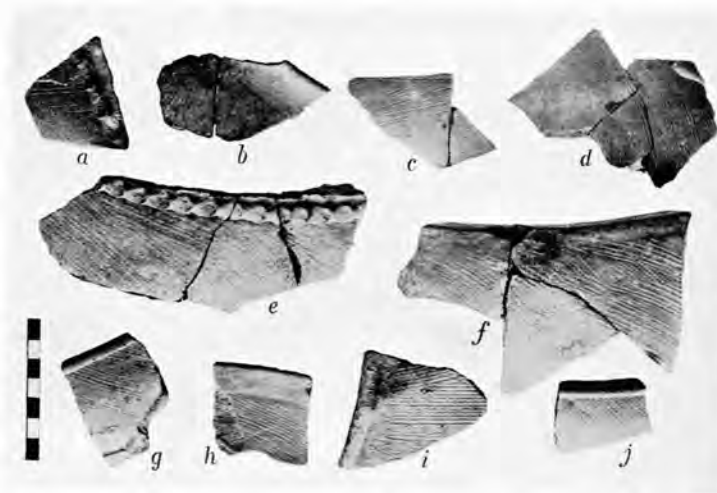


Fig. 53¹. Vardaróphtsa. Striated fragments: *a*, *b* and *f-j*, rims.



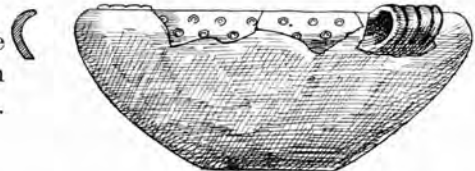
Fig. 54¹. Vardaróphtsa. Examples of indented ledge-lugs: in *a* the rim appears.



Fig. 55¹. Vardaróphtsa. Fragments of perforated dishes: *a* and *b*, rims.

KILINDÍR

241. BOWL: brown slip, circles chalk-filled; the three pieces including the grooved handle have been assembled, but do not actually join. Ht. 12.6 cm.



242. BOWL (= *Kilindir*, Pl. IX, Figs. 1, 6): brownish black slip, polished. Ht. 5.4 cm.



243. STRAP-HANDLED CUP (= Pl. XIV): two small projections on either side of the handle, at its upper end; black, fired to red below. Ht. 6.2 cm.



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244. ASKOID JUG (=Pl. XIV): split handle; black and buff mottled surface. Ht. 5.8 cm.



DOURMOÚSLI¹

245. BOWL (=Rey, Pl. III, 1): rim pinched out to form spout, flat loop-handle on rim; grey-black with light patch; polished. Ht. 6.8 cm.



246. BOWL: rim pinched out to form spout; grey-black, slightly polished. Ht. 6 cm.



247. BOWL WITH SIDE-SPOUT (=Rey, Fig. 3): very heavy ware, grey-black. Ht. 10 cm.



GALLIKÓ VALLEY²

SALAMANLÉ³

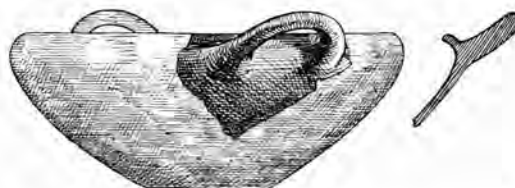
248. JUG (=Rey, II, Fig. 19): incised line round neck below rim and another round base of neck; grey to black polished. Ht. 26 cm.



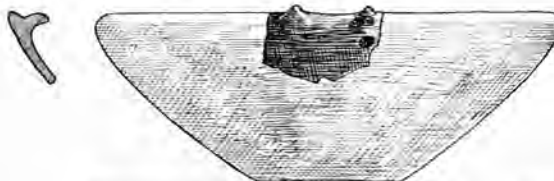
LANKADÁS BASIN²

SARATSE

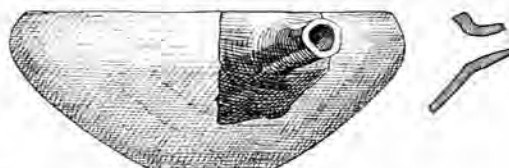
249. BOWL (=Saratse, Fig. 6, 4): heavy ware, grey and red mottled. Ht. 12.1 cm.



250. BOWL (=Saratse, Fig. 6, 3): grey. Ht. 13.2 cm.



251. SPOUTED BOWL (=Saratse, Fig. 6, 1): heavy ware, thick reddish buff slip, slightly polished. Ht. 12.4 cm.



¹ Cf. also Rey, II, Pl. II, 4, 5; Pl. III, 5; Pl. XXXVII, 3.

² Cf. also List of Prehistoric Sites, p. xxiii.

³ Cf. also Rey, II, Pl. II, 3.

252. BOWL (=Fig. 56*d*): grey and buff mottled, slightly polished. Ht. 5 cm.

253*a*. 'SAUCE-BOAT' (= *Saratse*, Fig. 8*b*): grey, blackened round the spout. Ht. 6 cm.

253*b*. 'SAUCE-BOAT': ashy grey. Ht. 3.8 cm.

254. CUP OR LADLE (=Pl. XIV): light grey, unpolished. Ht. 6.2 cm.

255. CUP (=Pl. XIV): light grey, unpolished. Ht. 8.2 cm.

256. CUP: heavy ware, grey. Ht. 5 cm.

257. TWO-HANDLED MUG (=Pl. XIV): grey, well-smoothed surface. Ht. 11 cm.

258. TWO-HANDLED CUP (=Fig. 56*a*): grey, well-smoothed surface. Ht. 10.8 cm.

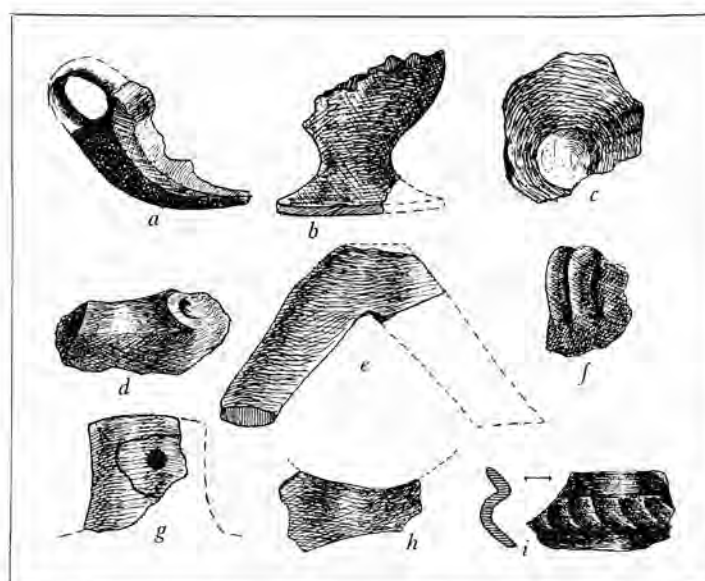
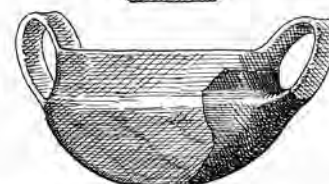


Fig. 56'. Saratsé. Various fragments: *a*=258; *b*, stemmed vase; *c*, cupped base; *d*=252; *e*, 'wish-bone' handle, black-polished; *f*, split handle; *g*, neck of jug with hole for handle, grey-polished; *h*, rim of 'sauce-boat' (?); *i*, vase with fluted shoulder, black-polished. Scale: *a*, *b*, 1:4; *c*, 1:2; *h*, 1:3; remainder, 2:5.

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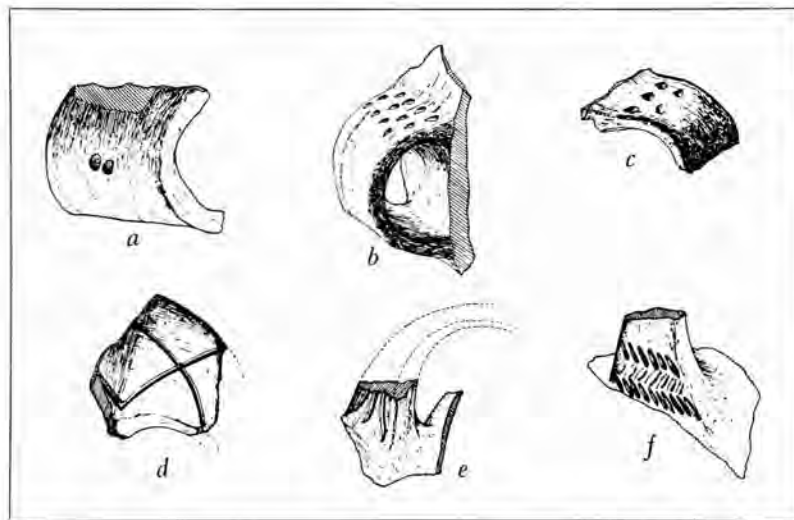


Fig. 57¹. *Saratsé*. *a-d*, tubular handles of large jars with pitted or incised ornament²; *e* and *f*, loop-handles with grooved ornament. Scale: *ca.* 1:4.

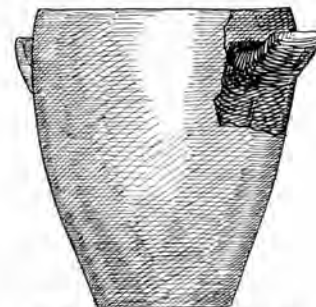
259. LADLE (= *Saratsé*, Fig. 9, 3): ashy grey. Ht. 3.4 cm.



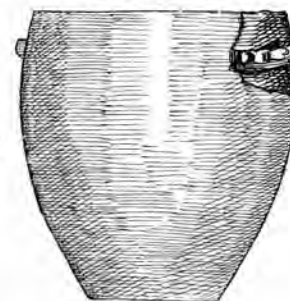
260. STORE-JAR: heavy ware, buff to grey, mottled. Ht. 34.5 cm.



261. STORE-JAR: same fabric as last. Ht. 36 cm.



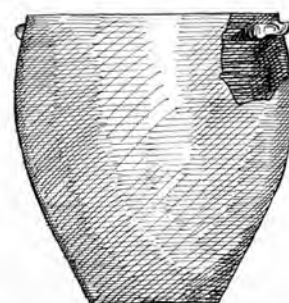
262. STORE-JAR: the scalloped lug has six impressions; grey clay, greyish brown surface. Ht. 34.5 cm.



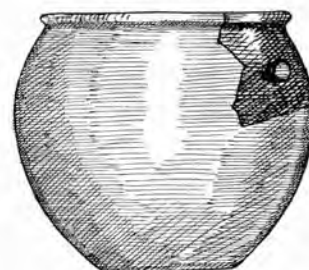
¹ Reproduced by permission of British School at Athens.

² *b* and *c* may be compared with Rey, II, Pl. VI, 3 (Góna); *d* with Fig. 42*g*.

263. STORE-JAR: ashy grey clay and surface. Ht. 34.5 cm.



264. STORE-JAR: buff. Ht. 31 cm.



265. STORE-JAR: with two (?) tubular handles, grey clay, reddish buff surface well finished, with striations. Ht. 33 cm.



Fig. 58. Saratsé. Coarse ware, rims from jars like **177** and **205** in form but each ornamented with a series of stabs¹.

¹ The stratification at Kritsaná shows that this form of ornament hardly occurs after the fifth settlement there; on analogy, the earliest occupation of Saratsé must have taken place at least by the middle of the E.B. Age.

BÁLTZA

- 266¹. CUP (= *B.M.C.*, A 86, Pl. III): 'laterally arched handle; light red with pated surface; heavy ware.' Ht. 8 cm.

SALONICA PLAIN²

LÉMBET

267. JUG (= *B.M.C.*, A 81, Pl. III): 'dark grey clay; evenly fired.'

VASILIKÁ VALLEY²GÓNA³

268. MUG (= Rey, II, Pl. IV, 2): one handle missing; red surface slightly polished. Ht. 8 cm.



269. MUG (= Pl. XIV and Rey, II, Pl. IV, 3): grey-brown, slightly polished. Ht. 9 cm.



270. MUG (= Rey, II, Pl. IV, 1): well-smoothed surface, lower part black stains. Ht. 10.2 cm.



271. JAR (= Pl. XIV and Rey, II, Pl. V, 1): heavy ware, grey with slight polish. Ht. 11.2 cm.



272. JAR (= Rey, II, Pl. V, 4): neck and part of shoulder missing; ashy grey. Ht. 9 cm.



273. JUG (= Rey, II, Fig. 18): black-polished. Ht. 17 cm.



¹ I have little doubt that Nos. 266-306 belong to the E.B. Age, but, since their precise stratified position is not known, the reader need not accept them as such. Nos. 268-278, Fig. 59 and Nos. 279-281 are definitely classed by Rey as pre-Mycenaean, and consequently belong to the E.B. or M.B. Age, or, which is unlikely, to that short period of the L.B. Age which precedes the appearance of Mycenaean.

² Cf. also List of Prehistoric Sites, p. xxiii.

³ Cf. also Rey, II, Pl. II, 1; Pl. V, 4; Pl. VI, 1-3; Pl. IX, 2; and probably Pl. XII, 2, 3; Pl. XXXVII, 2.

274. JUG (= Rey, II, Pl. V, 2): gritless clay, mottled surface, slightly polished. Ht. 9 cm.



275. JUG (= Rey, II, Fig. 17): grey clay, reddish surface. Ht. 12.6 cm.



276. JUG (= Rey, II, Pl. IV, 4): slightly cupped base; shallow groove round base of neck. Ht. 8 cm.



277. JUG (= Pl. XIV, and Rey, II, Fig. 31): mottled black and buff surface, well polished; incised. Ht. 10 cm.



278. JUG (= Rey, II, Fig. 29): same fabric as last, but more highly polished; 'incised after firing'. Ht. 10 cm.

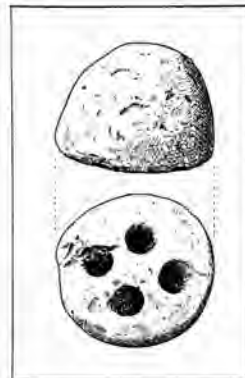


Fig. 59. Góna. Stopper of large jar (= Rey, II, Pl. XXXVII, 1): heavy ware¹. Diam. 9 cm.

SÉDES

279. CUP: rim slightly pinched out to form side-spout; heavy ware, grey. Ht. 7.2 cm.



280. CUP (= Rey, II, Fig. 21): good fabric, smooth red surface. Ht. 6.8 cm.



281. CUP (= Rey, II, Fig. 22): pinched-out rim. Ht. 6.9 cm. Cf. also Rey, II, Pl. V, 3.



¹ Cf. Rey, II, Pl. XXXVII, 2, 3; S.S.S. 7703a.

SITES NOT ASCERTAINED

282. BOWL: heavy ware; three parallel encircling grooves end to the left of the handle, and there are traces of a groove to the right of it. Ht. 10.2 cm.



283. CUP: heavy ware, grey. Ht. 5.8 cm.



284. CUP or JUG: heavy ware. Ht. 5.8 cm.



285. MUG: well-finished surface, grey-black. Ht. 9 cm.



286. MUG: well finished, grey with light patch. Ht. 8.4 cm.



287. MUG: second handle not certain; poorly baked, mud-coloured. Ht. 8 cm.



288. MUG: grey-black, polished. Ht. 8.2 cm.



289. MUG: same fabric as 303. Ht. 6.7 cm.



290. MUG: low base-ring; red clay and surface. Ht. 6.4 cm.



291. JUG: ashy grey. Ht. 8 cm.



292. JUG: good fabric, buff all through. Ht. 9.4 cm.



293. JUG: slightly cupped base; grey-buff. Ht. 8.2 cm.



294. JUG: grey. Ht. 9.2 cm.



295. JUG: good fabric; grey to black. Ht. 7 cm.



296. JUG: handle-end stuck through wall; grey clay, pinkish brown surface. Ht. 9.8 cm.



297. JUG: buff with grey patches. Ht. 10.2 cm.



298. PYXIS (= Pl. XIII): four knobs; smooth buff surface. Ht. 6 cm.



299. PYXIS (= Pl. XIII): two pierced lugs and two knobs, to the pierced lugs correspond string-holes in the rim; coated with reddish brown lustrous paint. Ht. 12 cm.



300. PYXIS (= Pl. XIII): two lugs pierced for attachment of lid; rough ware. Ht. 10.5 cm.



301. JAR (= *B.M.C.*, A 79, Pl. III): 'dark brown clay, fired to red and black. Heavy ware.' Ht. 10 cm.



302. JUG (= *B.M.C.*, A 80, Pl. III): three bosses; 'dark red clay fired black in places; rough heavy modelling.' Ht. 14.4 cm.



303. JUG (= *B.M.C.*, A 82, Fig. 25): flat handle; 'dark grey clay with remains of black polished surface.' Ht. 6.1 cm.



304. JUG (= *B.M.C.*, A 83, Pl. III): fabric similar to last, but rougher. Ht. 5 cm.



305. CUP (= *B.M.C.*, A 84, Pl. III): 'dark brown clay, black in fracture, very coarse ware.' Ht. 6.6 cm.



306. CUP (= *B.M.C.*, A 85, Pl. III): 'clear red clay with smooth but stony surface; thin ware.' Ht. 5.8 cm.



WESTERN MACEDONIA—HALIÁKMON VALLEY¹

SÉRVIA

307. BOWL with ledge-lugs: fine grey ware, wheel-made (?), slightly polished. Ht. 10 cm.



308. BOWL with ledge-lugs with twin projections; much cracked slip, red at rim, mottled below. Ht. 10 cm.



309. BOWL: fine grey ware, wheel-made (?), slightly polished. Ht. 10 cm.



310. BOWL: dark grey, slightly polished. Ht. 10 cm.



311. BOWL: light brown outside, black inside: note the terminal projections of the handles². Ht. 4 cm.



312. SAUCE-BOAT (?): heavy grey ware unslipped and unpolished; note terminal projections of handle². Ht. 12.2 cm.

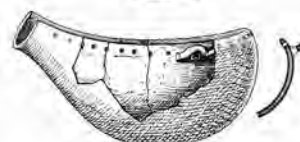


Fig. 60. Sérvia. Horizontal loop-handles, with plastic ends²: *a*, light brown; *b*, black lustrous paint; *c*, coarse grey ware. Scale: *ca.* 1:5.

313. CUP: rope-handle, dark polished surface. Ht. 7 cm.



¹ Cf. also List of Prehistoric Sites, p. xxiii.

² Cf. Fig. 38c and note.



Fig. 61. Sérvia. *a*, rope-handle; *b*, split handle; *c*, loop-handle with stamped circles; *d*, fragment of large jar: heavy ware, grooved and incised, grey; *e*, part of lid: thick dark slip, incised; technique resembles that of 59-60; both *d* and *e* are probably Late Neolithic.

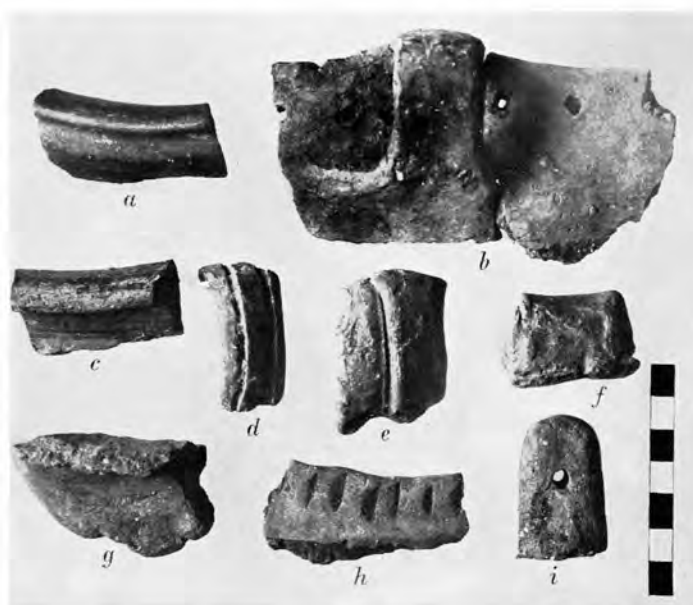


Fig. 62. Sérvia. *a*, flattened incurving rim of bowl; *b*, wide bowl or basin with perforated rim: heavy ware; *c*, flattened and projecting rim of bowl; *d* and *e*, grooved strap-handles; *f*, tubular lug; *g*, ledge-lug with dentated edge; *h*, rim with incised strokes; *i*, part of 'anchor ornament'.

TSERNA VALLEY¹

ARMENOCHÓRI

314. BOWL (= Pl. XV): four lugs; poorly baked, dark grey gritty clay, slightly polished surface. This fabric is typical of Armenochóri. Ht. 15.9 cm.



315. BOWL with two (?) double-pointed lugs: buff mottled slip, slightly polished. Ht. 12 cm.



316. BOWL: black, unpolished. Ht. 10.2 cm.



317. BOWL: grey clay, buff to grey slip, with slight polish. Ht. 13.8 cm.



318. BOWL: two (?) heavy strap-handles; grey-black, unpolished. Ht. 7.8 cm.



319. HIGH-HANDLED CUP (= Pl. XV): well-finished surface, buff; one fragment red. Ht. 4.5 cm.



320. MUG: ashy grey; with black stain. Ht. 7.5 cm.



321. MUG: note plastic lateral projections at base of handle; light grey, black stains, and one yellow patch. Ht. 6.7 cm.



322. MUG: ashy grey, black stains. Ht. 8 cm.



323. MUG (one handle missing): cracked surface, no slip. Ht. 7 cm.



324. MUG (both handles missing): grey to buff mottled surface. Ht. 5 cm.



325. MUG (one handle missing): black on one side, grey on the other. Ht. 6 cm.



326. MUG (one handle missing): light grey with yellow patch. Ht. 3 cm.



¹ Cf. also List of Prehistoric Sites, p. xxiii.

327. MUG: thick heavy handles, almost round in section. Ht. 5 cm.



328. MUG (one handle missing): ashy grey. Ht. 6 cm.



329. MUG: grey to black. Ht. 6 cm.



330. MUG: ashy grey with black stains. Ht. 7 cm.



331. MUG: black to grey, slightly polished. Ht. 8 cm.



332. MUG: note the plastic terminals at the base of the handles; ashy grey. Ht. 7 cm.



333. MUG (= Pl. XV): same fabric but lighter grey. Ht. 7.2 cm.



334. MUG (= Pl. XV): buff, slightly polished. Ht. 6.6 cm.



335. MUG (= Pl. XV): light grey. Ht. 6.8 cm.



336. MUG: ashy grey polished. Ht. 9 cm.



337. MUG: brownish grey. Ht. 8 cm.



338. MUG: light buff. Ht. 7 cm.



339. MUG: ashy grey. Ht. 8.3 cm.



340. MUG (= Pl. XV): light buff. Ht. 9 cm.



341. MUG (= Pl. XV): buff, wellsmoothed, slightly polished. Ht. 11.5 cm.



342. MUG (one handle missing) (= Pl. XV): dark buff with black patch. Ht. 10.5 cm.



343. MUG (= Pl. XV): buff, mottled on one face. Ht. 11.5 cm.



344. MUG (= Pl. XV): yellow-buff, black stain. Ht. 9.5 cm.



345. MUG (= Pl. XV): high-swung strap-handles, of which one has six, the other five round perforations¹; in the centre of each shoulder a small knob; fine ware, grey clay, warm buff slipped surface, polished. Ht. 8 cm.



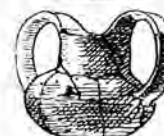
346. MUG (one handle missing) (= Pl. XV): same shape and fabric as last, but the remaining handle has four slits, and there is a plastic semicircular rib on each shoulder. Ht. 8 cm.



347. MUG (= Pl. XV): as last, but with three slits. Ht. 7.6 cm.



348. MUG (= Pl. XV): as last, but without slits. Ht. 7.9 cm.



349. MUG (one handle, part of neck and body missing) (= Pl. XV): as last, but without slits. Ht. 8.8 cm.



¹ Anticipated at Sérvia in the E.N. Age; cf. Fig. 2*b*.

- 350.** JAR: two ledge-lugs, each with double perforations; between the lugs two short plastic indented strips. Brown to buff slip, which has for the most part flaked off. Ht. 17.1 cm.



- 351.** JAR: double row of perforations round the middle; good fabric, grey-black with slight polish. Ht. 9 cm.

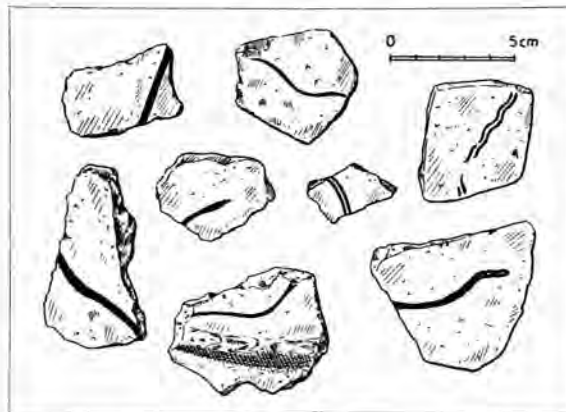
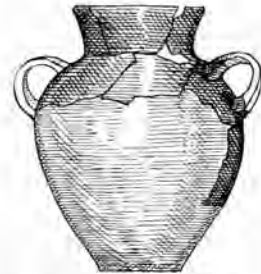


Fig. 63. Armenochóri. Painted fragments: thick ware with pale buff surface, slightly polished; purplish matt paint.

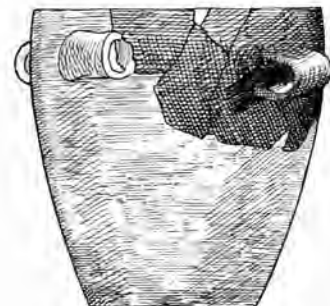
- 352.** JAR: similar fabric and colour to 314. Ht. 31.5 cm.



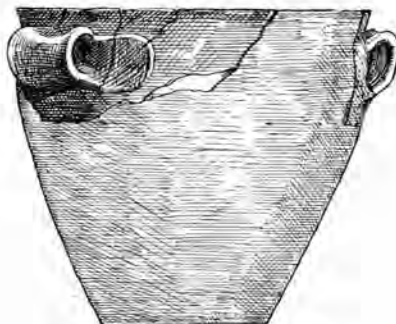
- 353.** JAR: same fabric as last, but the tone is reddish brown and there is a higher polish. The set of the handles is not absolutely certain. Ht. 33 cm.



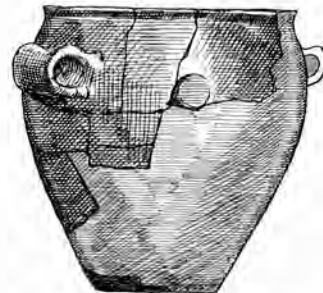
- 354.** STORE-JAR: very gritty clay, slipped but unpolished; reddish brown to grey. Ht. 36 cm.



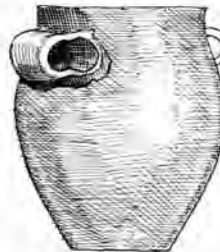
- 355.** STORE-JAR: fabric as last; much cracked surface. Note the terminal prolongation of the handle-ends, typical of Armenochóri. These handles were made in one separate piece and then plastered on. Ht. 37.5 cm.



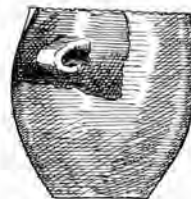
- 356.** STORE-JAR: fabric as last, but less heavy; the upper ends of the remaining lug have plastic projections; the intermediate discs were plastered on¹. Ht. 33 cm.



- 357.** STORE-JAR: fabric as last; lugs as in 355. Ht. 28.5 cm.



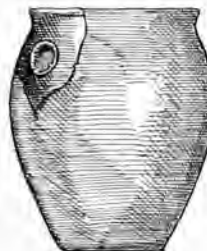
- 358.** STORE-JAR²: fabric as last; note the dentated rim. Ht. 22.5 cm.



- 359.** STORE-JAR: a zone of dents on the shoulder; gritty clay with smooth buff surface. Ht. 28.5 cm.



- 360.** STORE-JAR: on the shoulder plastic discs with sunk centre; fabric as last but darker surface¹. Ht. 28.5 cm.



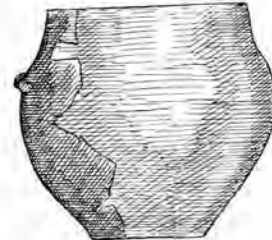
¹ For discs cf. Fig. 39 (ii) *f*, *i* (Kritsaná).

² For the form, rim and lugs, cf. **204** (Hágios Mámas).

361. STORE-JAR: fabric as last. Ht. 27 cm.



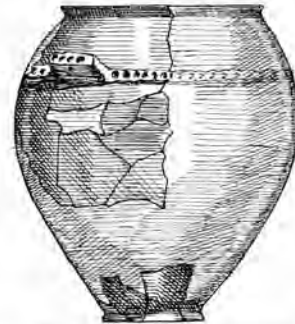
362. STORE-JAR: fabric as last. Ht. 27.6 cm.



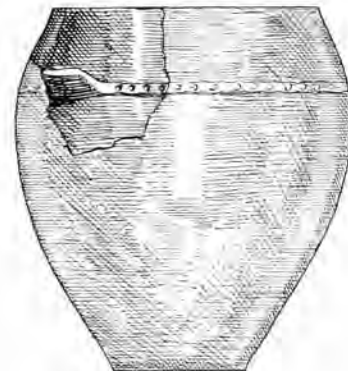
363. STORE-JAR (=Pl. XV): ledge-lugs; brown surface¹.
Ht. 16.5 cm.



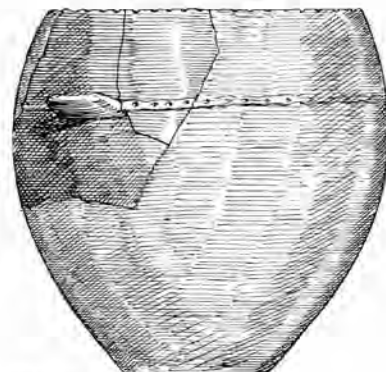
364. STORE-JAR: ledge-lugs; unevenly fired grey clay, and
much cracked surface. Ht. 37.5 cm.



365. STORE-JAR: ledge-lugs; brick red in the break, pinkish
surface. Ht. 43.2 cm.²



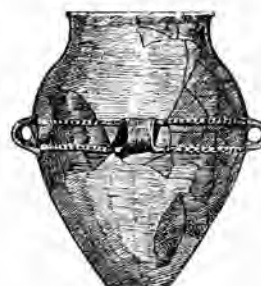
366. STORE-JAR: ledge-lugs; dentated rim; ashy grey with
red patch. Ht. 43.5 cm.



¹ For similar form and lugs, cf. 206 (Hágios Mámas).

² For form and lugs, cf. 261 (Saratsé).

367. STORE-JAR: bevelled rim; well-sifted clay, finished surface, dark brown. Ht. 60 cm.



368. BOAT-SHAPED VASE: a row of perforations below the rim; brick red poorly fired clay. Ht. 9 cm.



KARAMÁN

369. MUG (=Pl. XV): the broad strap-handle has horizontal plastic terminals; ashy grey clay with mottled unpolished surface. Ht. 15 cm.



370. JUG (=Pl. XV, and Rey, II, Pl. VII, 1): the ends of the ribbon-handle were pushed through the wall; buff clay with smooth polished buff surface; there is a shallow groove round the base of the neck. Ht. 12.3 cm.



371. JAR (=Rey, II, Fig. 23): terminal projections at base of lugs; well-baked clay, orange surface slightly polished. Ht. 22.5 cm.



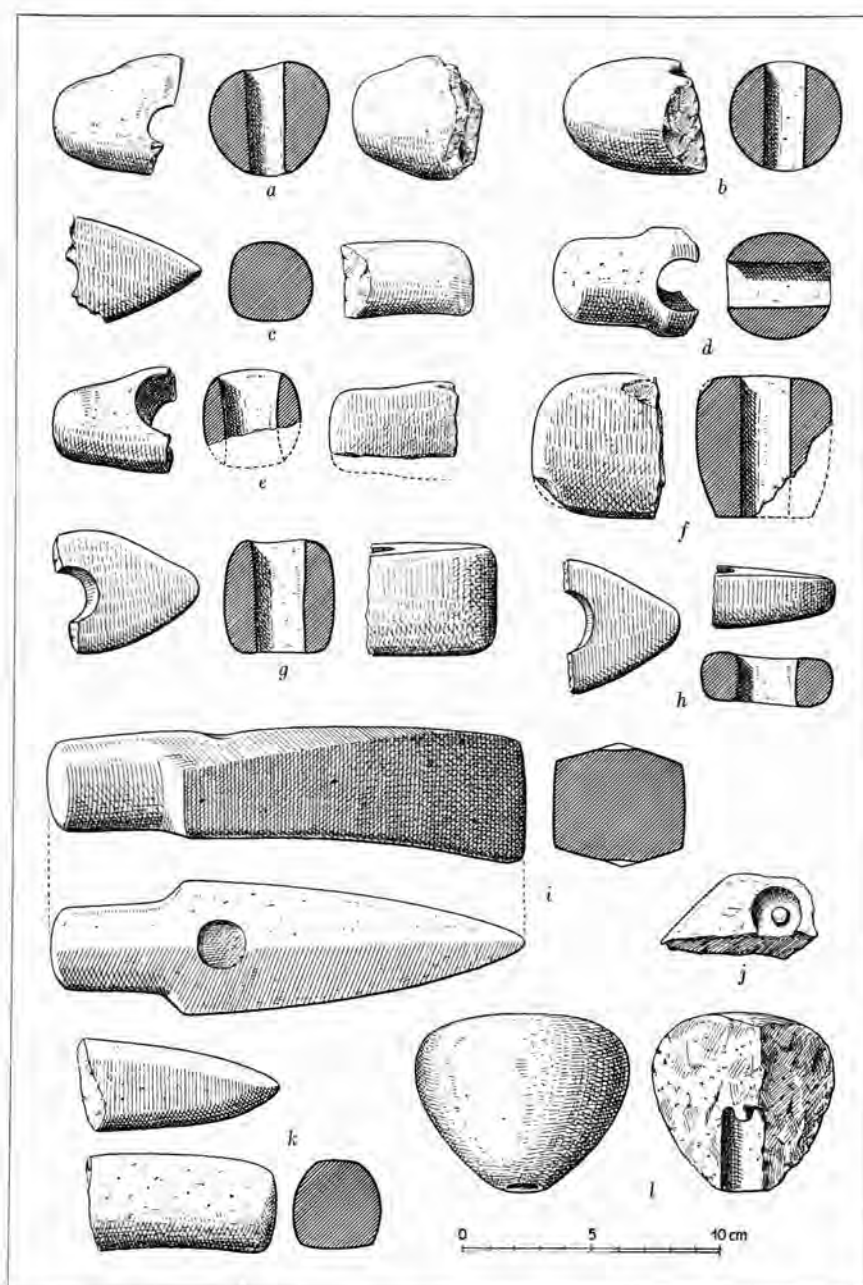


Fig. 64. Early Bronze stone objects.

- a. PERFORATED CELT, BUTT END: hard whitish stone, polished. Kritsaná.
- b. PERFORATED CELT, BUTT END (= *Saratse*, Fig. 30, 5): greenish grey stone. Saratsé.
- c. PERFORATED CELT (triangular?), BLADE END (= *Saratse*, Fig. 30, 2): greenish grey stone. Saratsé.
- d. PERFORATED CELT, BUTT END, PERFORATION MADE FROM BOTH FACES (*Hágios Mamas*, Fig. 26, 3): mottled greenish stone, polished. Hágios Mámas.
- e. PERFORATED CELT, BUTT END: grey stone. Kritsaná.
- f. PERFORATED CELT, BUTT END: black stone, polished. Kritsaná.
- g. PERFORATED CELT, BLADE END (= *Vardaróftsa*, Fig. 17, 2). Vardaróftsa.
- h. PERFORATED CELT, BLADE END (= *Vardaróftsa*, Fig. 17, 3). Vardaróftsa.
- i. CELT, BOREHOLE INDICATED BY A CIRCULAR DEPRESSION ON BOTH FACES (*Hágios Mamas*, Fig. 26, 4): black, polished. Hágios Mámas.
- j. FRAGMENT OF CELT, PERFORATION INCOMPLETE: greenish grey stone. Armenochóri.
- k. CELT (perforated?), BLADE END, FLATTENED BOTH FACES (*Hágios Mamas*, Fig. 26, 2): light green stone. Hágios Mámas.
- l. MACE-HEAD, PERFORATION INCOMPLETE (Rey, II, Pl. XLII, 2). Grádobor.

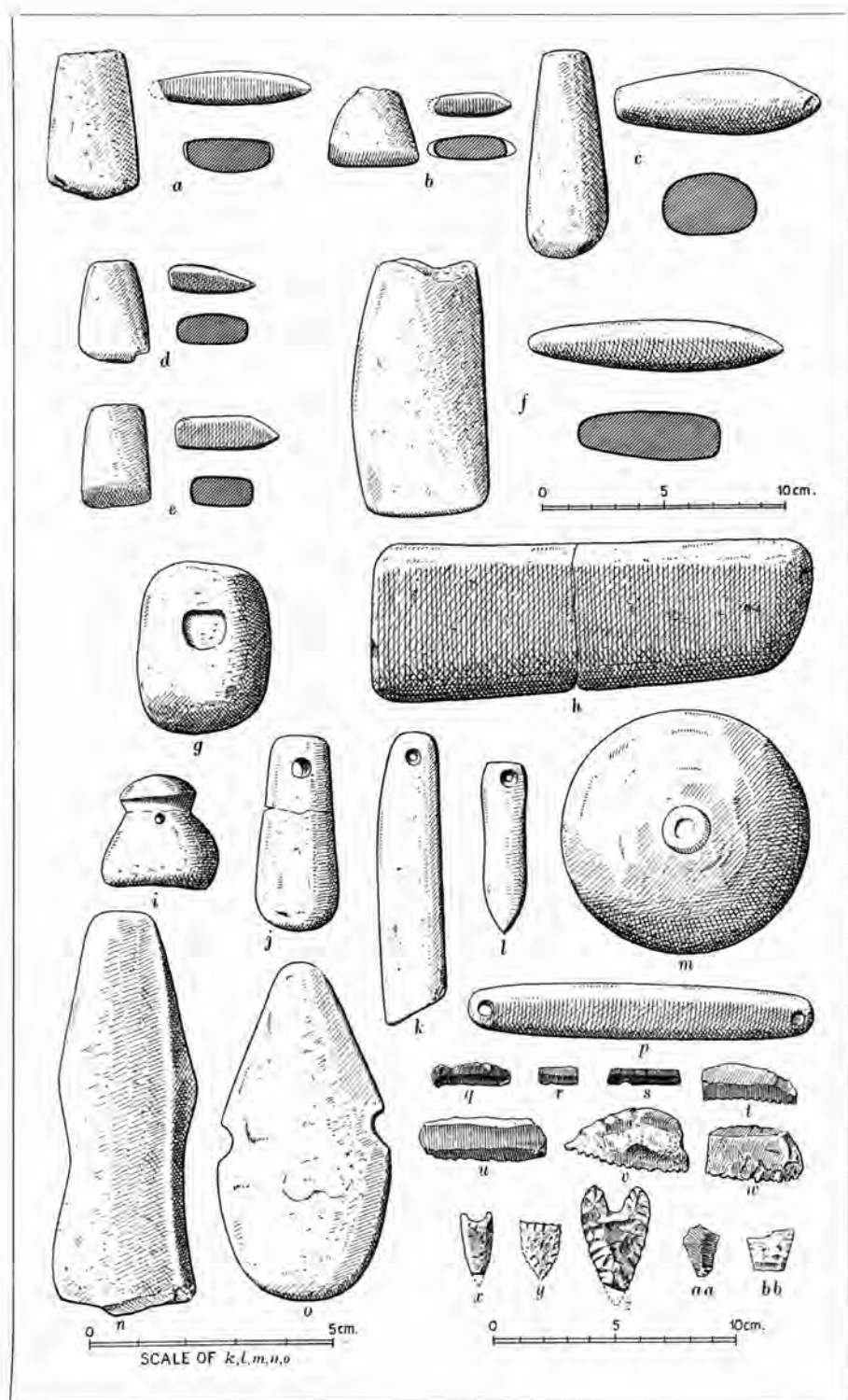


Fig. 65. Early Bronze stone objects.

- a.* CELT: soft white stone. Kritsaná.
- b.* CELT: green veined stone. Kritsaná.
- c.* CELT: grey stone. Kritsaná.
- d.* CELT (= *Vardaroftsa*, Fig. 17, 1): whitish stone. Vardaróphtsa.
- e.* CELT: black stone. Kritsaná.
- f.* CELT: dark stone. Saratsé.
- g.* GRINDER OR RUBBER: depression on either face for the finger and thumb; worn at ends. Kritsaná.
- h.* HONE (= *Vardaroftsa*, Fig. 16, 9): dark stone. Vardaróphtsa.
- i.* GRINDER (= *Vardaroftsa*, Fig. 16, 12): polished; perforated; under surface much worn. Vardaróphtsa.
- j.* WEIGHT (= *Vardaroftsa*, Fig. 24, 8): perforated. Vardaróphtsa.
- k.* HONE (= *Hágios Mamas*, Fig. 28, 2): perforated. Hágios Mámas.
- l.* PENDANT(?) (= *Hágios Mamas*, Fig. 28, 1). Hágios Mámas.
- m.* LID(?) (= *Hágios Mamas*, Fig. 28, 4): rounded lower and pointed upper face; white marble. Hágios Mámas.
- n.* FIGURINE (= *Molyvopyrgo*, Fig. 51, 1) (?): broken below; dark stone. Molyvópyrgo.
- o.* AXE(?) (= *Molyvopyrgo*, Fig. 51, 4): made from a waisted pebble. Molyvópyrgo.
- p.* HONE: perforated; green-grey stone. Armenochóri.
- q.* BLADE: obsidian, black. Kritsaná.
- r.* BLADE: obsidian, transparent, grey-black. Sérvia.
- s.* BLADE: obsidian, black. Sérvia.
- t.* PART OF SICKLE(?): grey-blue chert. Kritsaná.
- u.* KNIFE: both edges have a polish; yellow chert. Kritsaná.
- v.* PART OF SICKLE (= *Vardaroftsa*, Fig. 19, 3): serrated edge. Vardaróphtsa.
- w.* PART OF SICKLE(?): reddish chert.
- x.* ARROW-HEAD: serrated edges; reddish chert. Kritsaná.
- y.* ARROW-HEAD (= *Saratse*, Fig. 30, 7): whitish chert. Saratsé.
- z.* ARROW-HEAD: chert. Sédes.
- aa.* ARROW-HEAD: obsidian. Sérvia.
- bb.* ARROW-HEAD: fragment, serrated edges; chert. Sérvia.

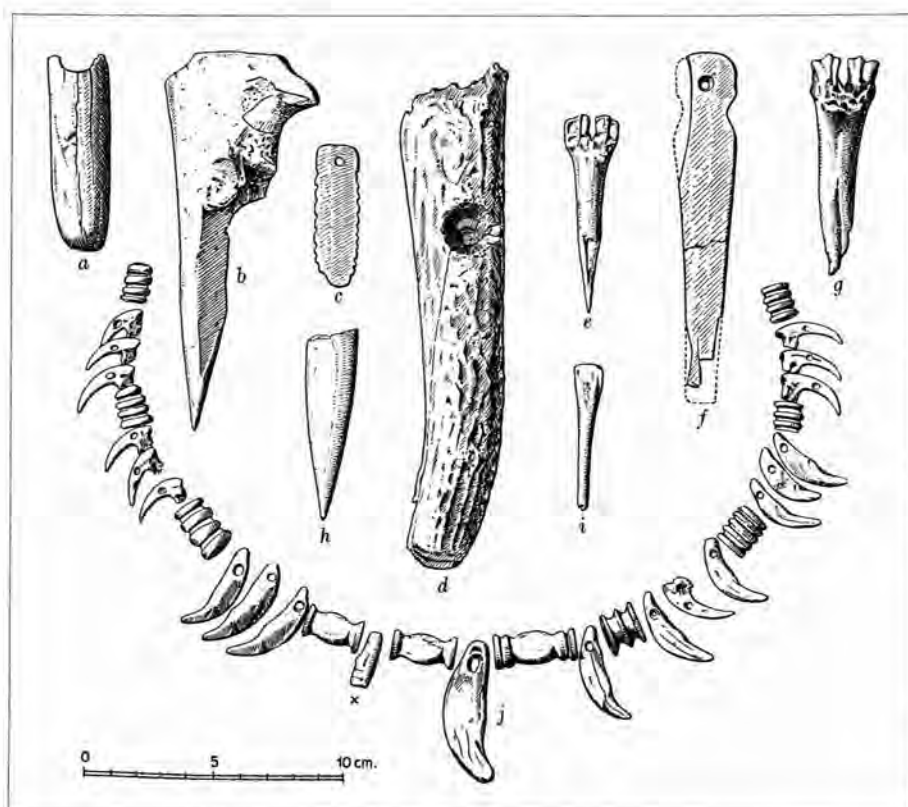


Fig. 66. Early Bronze bone and horn objects, etc.

- a. HORN OBJECT: perforated, broken. Kritsaná.
- b. BONE BORER (= *Saratse*, Fig. 33, 2). Saratsé.
- c. BONE OBJECT: flat, perforated with serrated worn edges. Kritsaná.
- d. HORN HAMMER(?) (= *Saratse*, Fig. 33, 1): perforated from both sides, for hafting. Saratsé.
- e. BONE BORER (= *Molyvopyrgo*, Fig. 51, 5). Molyvópyrgo.
- f. BONE OBJECT: perforated. Kritsaná.
- g. BONE BORER. Kritsaná.
- h. BONE BORER (= *Hágios Mamas*, Fig. 28, 6): (broken). Hágios Mámas.
- i. BONE SPATULA (= *Vardaróftsa*, Fig. 25, 1): (broken). Vardaróftsa.
- j. NECKLACE (= *Hágios Mamas*, Fig. 29): composed of dog's or wolf's teeth, claws, grooved bone beads and one paste bead (marked with a cross); all are perforated. Hágios Mámas.

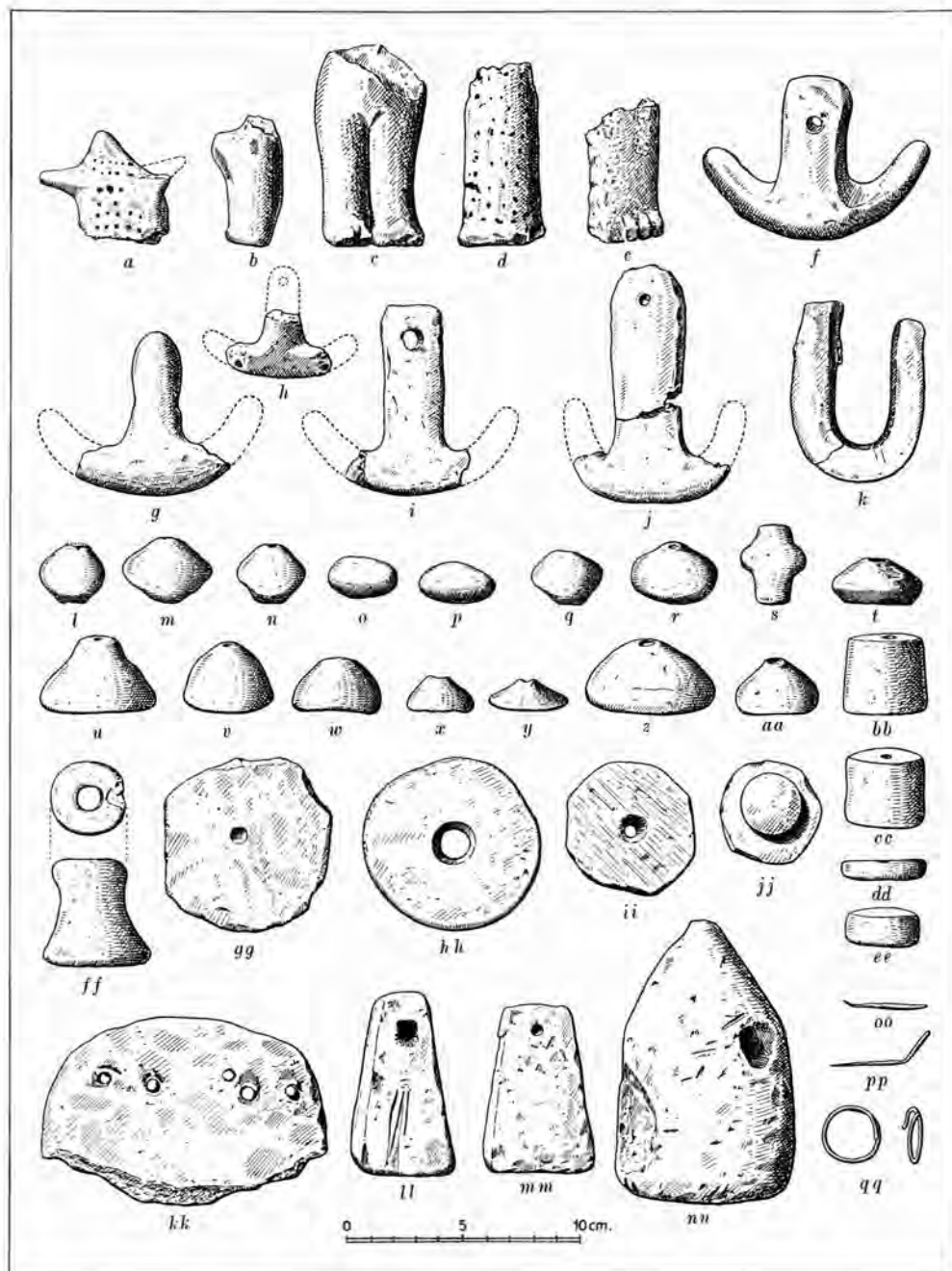


Fig. 67. Early Bronze clay, copper and gold objects.

Clay.

a. FIGURINE: upper half; on the front rows of pricked dots, on the back shallow grooves, representing hair; gritty grey clay, red surface. Armenochóri. *b.* FIGURINE: lower half, side view, the front resembles *c*; grey. Tsepikovo. *c.* FIGURINE (= Rey, II, Fig. 38): lower half; red, well polished. Gialatzik. *d.* FIGURINE(?): lower half; on the front rows of pricked dots; gritty clay, grey. Kritsaná. *e.* FIGURINE(?): lower half; roughly modelled feet, in front an oblong patch marks a plastic addition, now broken; buff. Sérvia. *f-j.* HOOKS: anchor-shaped; from various sites; coarse gritty clay. *f*, black—Sérvia; *g*, black (perforated laterally)—Kritsaná; *h*, black—Armenochóri; *i*, black—Kritsaná; *j*, black (= Saratse, Fig. 32, 1)—Saratse. *k.* HOOK (= Hagios Mamas, Fig. 28, 10): reddish. Hágios Mámas. *l-ee.* SPINDLE-WHORLS, BEADS OR BUTTONS: from various sites. *l-q*, *s*, *bb*, *ee*, Kritsaná; *r*, *u*, *v*, *cc*, *dd* (= Vardaroftsa, Fig. 21, 4, 1, 3, 2, 5), Vardaróphitsa; *t*, Sérvia; *w-aa*, Armenochóri. *ff.* SPINDLE-WHORL OR WEIGHT. Kritsaná. *gg-jj.* DISCS MADE BY CHIPPING POTSHERDS: *gg*, (half perforated) (= Vardaroftsa, Fig. 22, 1); *hh* (= Vardaroftsa, Fig. 22, 2), Vardaróphitsa; *ii*, (striated), *jj*, (knobbed), Kritsaná. *kk.* GRIDDLER(?): broken (= Vardaroftsa, Fig. 23, 2). Vardaróphitsa. *ll-nm.* WEIGHTS. Saratse.

Copper.

oo. COPPER(?) PIN. Kritsaná. *pp.* COPPER PIN (= Vardino, Pl. XVI, 29). Várdina.

Gold.

qq. GOLD HAIR-RING (= Saratse, Fig. 31). Saratse.

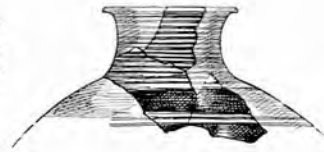
MIDDLE BRONZE

CENTRAL MACEDONIA—AXIÓS VALLEY¹

VARDARÓPHTSA

372. WATER-JAR (= *Vardaroftsa*, Pl. VIII (b), 2): grey clay, black inside, dark grey outside, polished; irregular shallow encircling grooves cover the neck and there is a group of three on the shoulder. Diam. at rim 10·8 cm.

Cf. also *Vardaroftsa*, Pl. IX (b), 3, 4.



373. MINIATURE VASE (= *Vardaroftsa*, Pl. VIII (b), 3): flat rim, the plastic ridge does not run completely round; mud-coloured to red; rough ware. Ht. 7·4 cm.

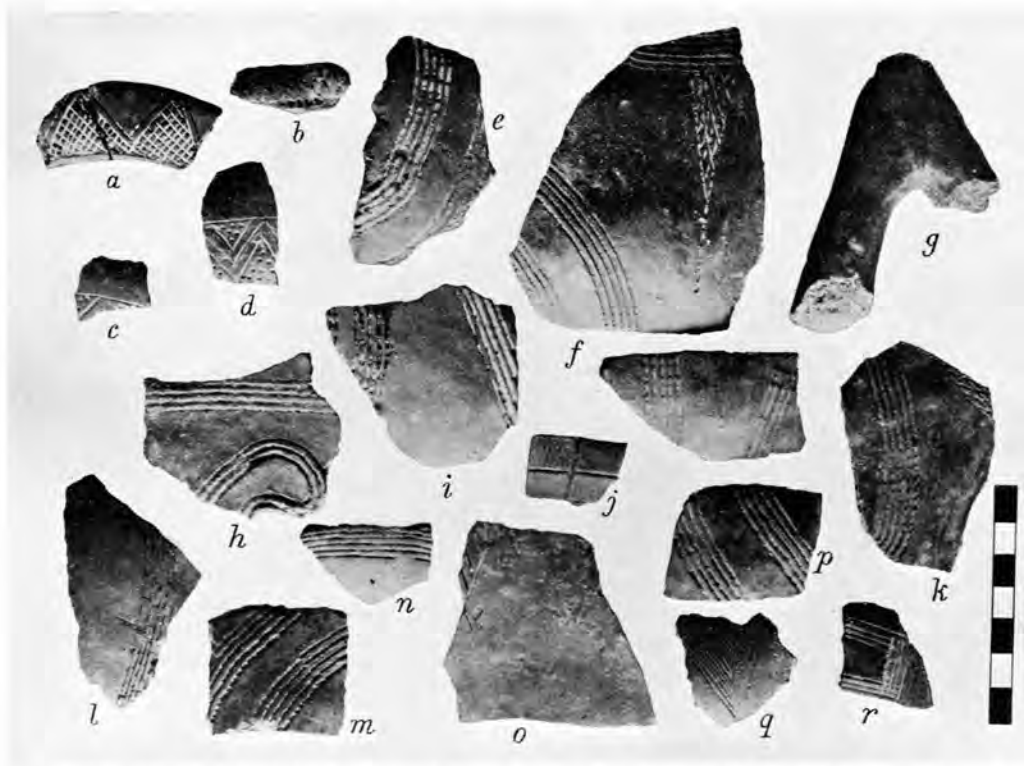


Fig. 68². Vardaróphtsa. Incised fragments: *a* and *b* are E.B.; *m* and *p* probably belong to same vase as *f*.

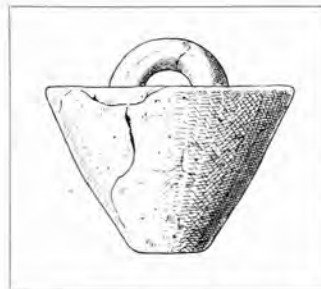


Fig. 69. Vardaróphtsa. Stopper of large jar (= *Vardaroftsa*, Pl. VIII (b), 4): heavy, poorly fired ware. Ht. 9·7 cm.

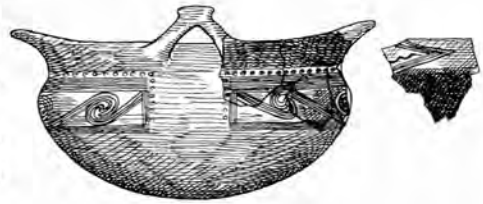
¹ Cf. also List of Prehistoric Sites, p. xxii.

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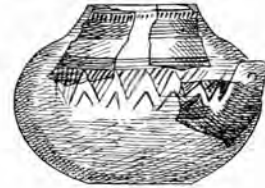
KILINDİR

374. BOWL (= *Kilindir*, Pl. XI, Fig. 2, 2): grey, well polished; white filling; the rim also has incised ornament on the inside; heavy ware. Ht. 12.3 cm.

[Should perhaps be restored as a footed vase like 381; conical trimmed bases were found in this stratum (*Kilindir*, Pl. XI, 3).]



375. JAR: gritty clay, grey surface; on the body reversed zigzag, formed by alternating hatched or cross-hatched triangles; careless incision; heavy ware. Ht. 14 cm.



376. JAR (= *Kilindir*, Pl. XI, Fig. 2, 1): similar in shape to last and probably with similar lugs; thin walls, grey surface; neat incision, white filling. Ht. 16.8 cm.

Cf. Fig. 72*b*.

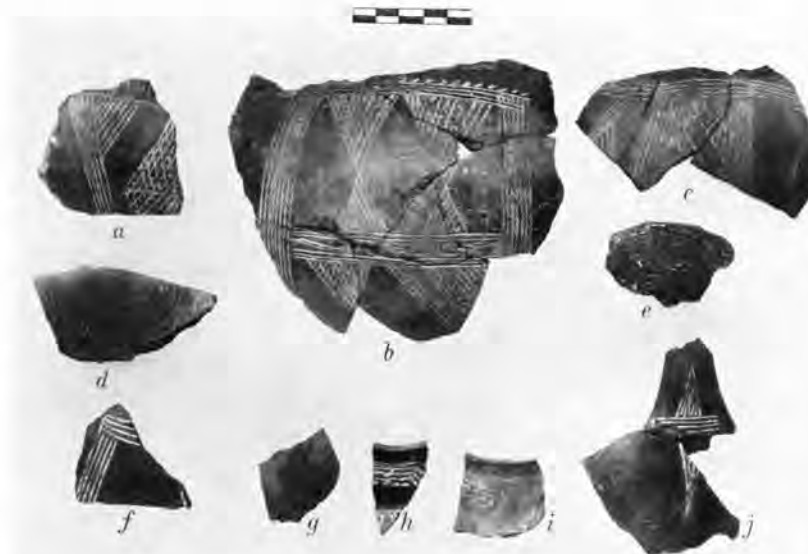
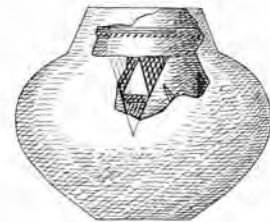


Fig. 70. Kilindir. Incised fragments: *a* from a jar with broken profile, like 375, 376; *d* from the inside of a flaring rim perhaps like 374; *e* is from the body of 376; *g*, fine grey ware, no filling; *h* and *i*, rims of well-polished ware; *j*, loop-handle.

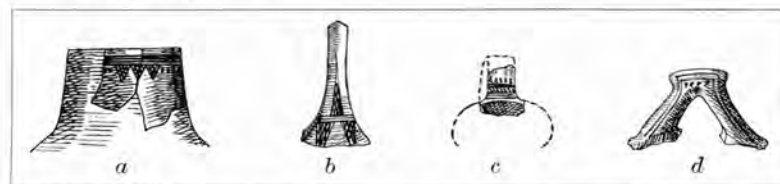


Fig. 71. Incised fragments. *a*, neck of jar, buff, no filling (*Kilindir*); *b*, loop-handle, triangular in section (*Kilindir*); *c*, strap-handle on rim of eup, wedge incisions (*Góna*)= Rey, II, Pl. XV, 8; *d*, 'wish-bone' handle, wedge incisions and incised lines (*Salamanlé*)= Rey, II, Pl. XVIII, 7. *c* and *d* are assigned to this period. Scale: ca. 1:2.

377. PAINT-CUP (= Pl. XVI): hollow foot; gritty clay, buff surface; inside, traces of purplish paint. Ht. 7.2 cm.



378. JUG (= *Kilindir*, Pl. XV, 1): mottled black and buff surface; the pits are filled with yellowish substance. Ht. 9.4 cm.



379. SAUCER OR LAMP (= Pl. XVI, and *Kilindir*, Pl. X, Fig. 1): small flat loop-handle; grey and brown mottled surface. Ht. 5.4 cm.



DOURMOÚSLI

Cf. Rey, II, Pl. XXI, 3.

GALLIKÓ VALLEY¹

SALAMANLÉ

Cf. Fig. 73d (= Rey, II, Pl. XVIII, 7).

LANKADÁS BASIN

SARATSE

380. JAR (= Fig. 73f): handle triangular in section; fine well-smoothed orange surface; careless incision. Ht. 11 cm.

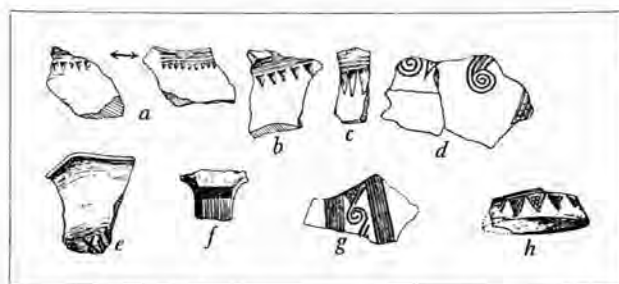


Fig. 72². Saratsé. Examples of Incised ware: the wedges, which are filled, occur in transitional levels between Early and Middle Bronze; *a-c* are light-faced; *d* and *g* are coal-black all through, of gritty clay, technically E.B. and *d* should perhaps be classed as E.B.; *e*, part of a bowl with 'wish-bone' handle (?) and pulled-out rim is black-polished; *f*, part of a ribbon-handle, is black; *h*, a conical foot, black, is assigned here but might be E.B. Scale: 1:4.

¹ Cf. also List of Prehistoric Sites, p. xxiii.

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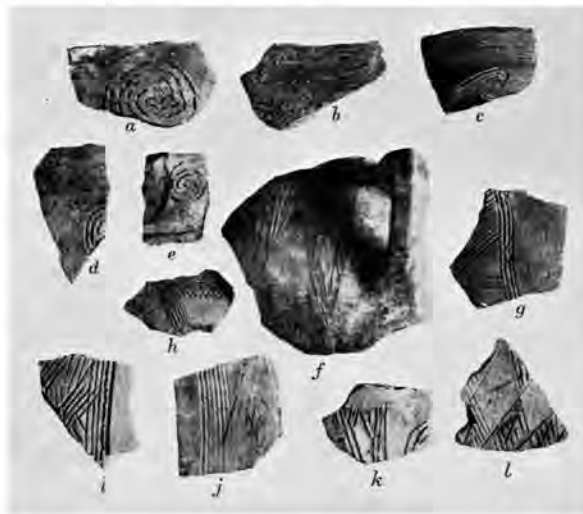


Fig. 73¹. Saratsé. Examples of Incised ware: *a* is from the top of the E.B. stratum; *b*, *c* and *e* (rims) are assigned to this period; in *e* note the spiral is close to the handle; *f*=380; all are light-faced except *b*, *c* and *e*. Scale: ca. 1:3.

SALONICA PLAIN²

LÉMBET

Cf. Rey, II, Pl. XV, 2, 7; Pl. XVI, 5, 8; Fig. 32.

KALAMÁRIA

Cf. Rey, II, Pl. XX, 1, 3, 4, 5, 9; Pl. XVI, 6(?); Pl. XVIII, 1, 3, 4.

VASILIKÁ VALLEY²

GÓNA

Cf. Rey, II, Pl. XV, 6, 8 (=Fig. 71 *c* here); Pl. XVI, 1, 2, 4, 7, 10; Pl. XIX, 1-6 (or E.B. ?).

SÉDES

Cf. *B.M.C.*, A 91, 10; Fig. 27.

SITES NOT ASCERTAINED

381. BOWL (= *B.M.C.*, Fig. 27, A 94, 3): assigned here on the analogy of 374. Ht. 18 cm.?

382. BOWL (= Pl. XVI)³: unpierced lugs; 'rather coarse red clay, blackened on the outside but well-baked and polished'; incisions originally white filled. Ht. 8.8 cm.



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² Cf. also List of Prehistoric Sites, p. xxiii.

³ Cf. Hutchinson in *A.A.A.* XIV, 117, from which the above description is taken.

CHALCIDICE¹

HÁGIOS MÁMAS

383. MUG (= Fig. 74 *e*): grey clay, surface is mottled grey, buff and red; grooving very irregular. Ht. 13.6 cm.



384. MUG (= Fig. 74 *d*): grey clay and surface. Ht. 9 cm.

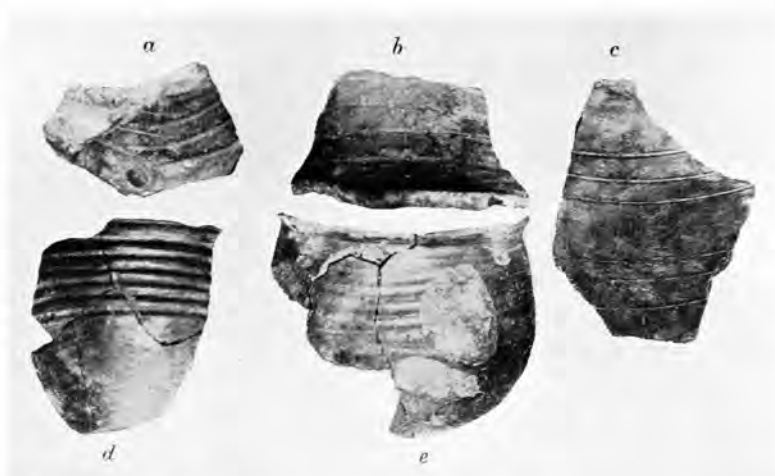


Fig. 74. Hágios Mámas. Examples of Minyan: *a* and *b* are from the necks of jugs; *a-c* illustrate the narrow widely spaced grooves; *d*=384; *e*=383. Scale: ca. 1:3.



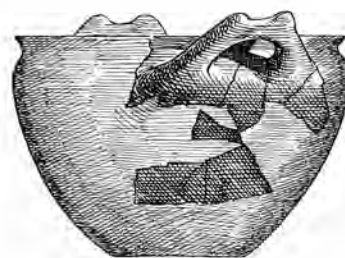
Fig. 75². Hágios Mámas. Fragments of groove-patterned grey Minyan; *j* and *l* are rims; *j* has a black-polished surface. Scale: ca. 1:3.

¹ Cf. also List of Prehistoric Sites, p. xxiii.

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MOLYVÓPYRGO

385. BOWL (= *Molyvopyrgo*, Fig. 38, 11¹): 'wish-bone' handles; completely coated with red lustrous paint. Ht. 17.3 cm.



386. BOWL (= *Molyvopyrgo*, Fig. 38, 10²): 'wish-bone' handles; grey clay with pinkish surface. Ht. 10.8 cm.



387. BOWL or CUP: 'wish-bone' handles set on the shoulder; buff clay and smooth buff slip. Ht. 9.2 cm.



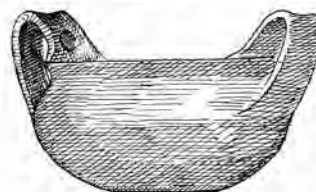
388. BOWL or CUP: 'wish-bone' handles; grey clay with grey polished slip. Ht. 10.8 cm.



389. CUP (= Fig. 76 f): reddish clay with brown firing to black-polished surface; inside black. Ht. 8.2 cm.



390. CUP (= Fig. 76 d): reddish clay, grey slip; plastic rivet-head. Ht. 10.4 cm.



391. MUG (= *Molyvopyrgo*, Fig. 38, 8): grey clay, buff surface. Ht. 11.4 cm.



392. CUP (= *Molyvopyrgo*, Fig. 38, 12): slightly hollowed base; yellow clay, warm buff well-finished surface. Ht. 6 cm.



393. CUP (= *Molyvopyrgo*, Fig. 38, 9): pale buff clay, with buff well-finished and polished surface. Ht. 3.6 cm.



¹ Unstratified.

² I originally classed this as E.B.; the pavements which elsewhere delimit the periods did not occur in this pit, and the fragment may have been out of place. All things considered, I now prefer to class it as M.B.



Fig. 761. Molyvópyrgo. Minyan fragments: *b*=400; *d*=390, *f*=389; *c*, *d*, *e* and *f* are black; *c* is part of the strap-handle of a cup; *g*, part of a jug with cut-away neck, light grey; *h* is reddish brown; *i* has a small plastic pellet; *j*=401. Scale: *ca.* 1:3.

394. JUG (= Pl. XVI): grey clay, reddish surface. Ht. 11.6 cm.



395. JUG (= *Molyvopyrgo*, Fig. 37, 2): black, marks of burnishing conspicuous. Ht. 12 cm.



396. CUP (wheel-made?) (= *Molyvopyrgo*, Fig. 38, 7): grey clay and surface. Ht. 7.6 cm.



397. CUP (= *Molyvopyrgo*, Fig. 38, 1): same fabric as last, but lighter grey. Ht. 9.2 cm.



398. STEMMED GOBLET (= *Molyvopyrgo*, Fig. 38, 2): wheel-made; clay and surface colour as last. Ht. 24 cm.?



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399. STEMMED GOBLET (= *Molyvopyrgo*, Fig. 38, 4): wheel-made; grey clay, thick buff slip. Ht. 16 cm.?



Fig. 77. *Molyvopyrgo*. *a-c*, stems of Minyan goblets, showing scoring of clay to receive the upper part; *d*, rim of a cup, showing space scored to receive the base of the handle. Scale = 2 cm.



Fig. 78¹. Sketch to illustrate methods of attaching stem and cup of Minyan goblets.

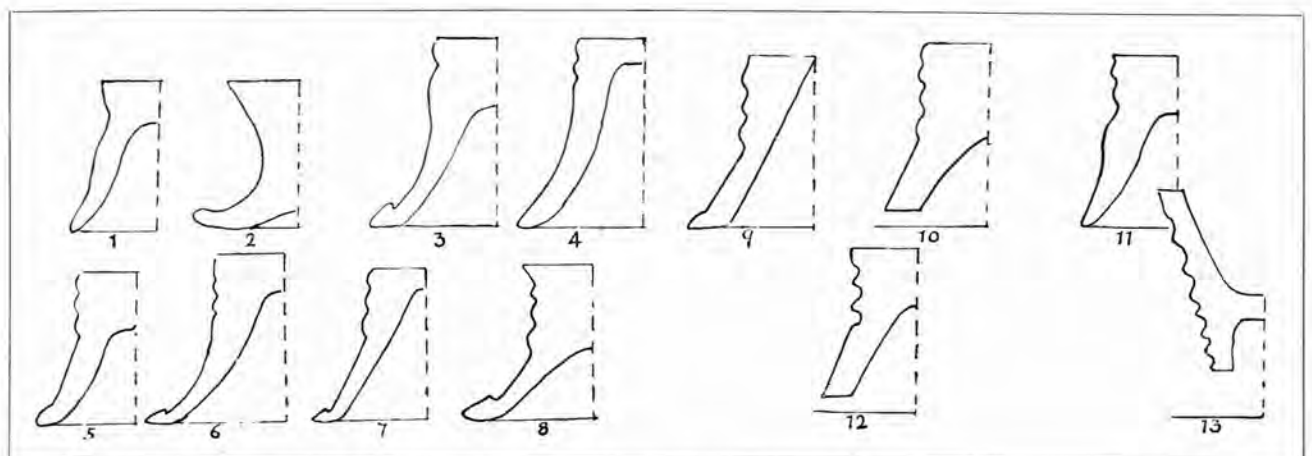


Fig. 79¹. *Molyvopyrgo*. Profiles of stems of grey Minyan goblets; 1 and 2 are from the E.B. stratum.

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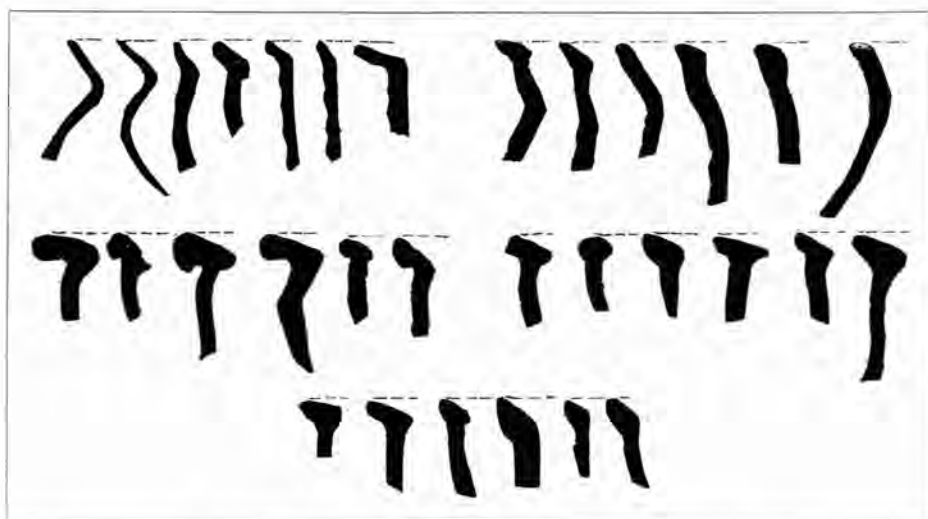


Fig. 80¹. Molyvópyrgo. Rims of grey Minyan vases.

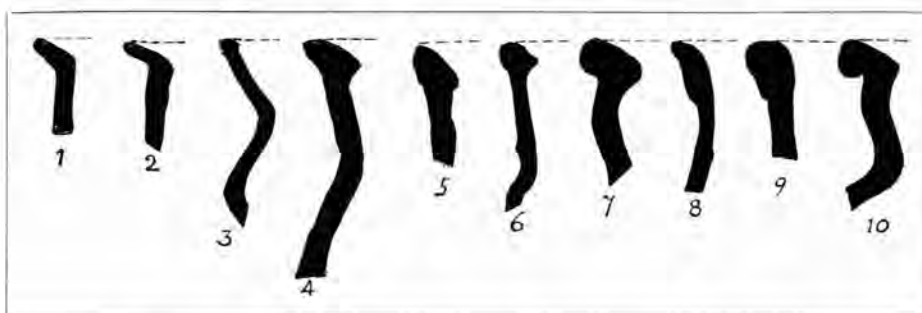


Fig. 81¹. Molyvópyrgo. Rims of red or yellow Minyan vases.

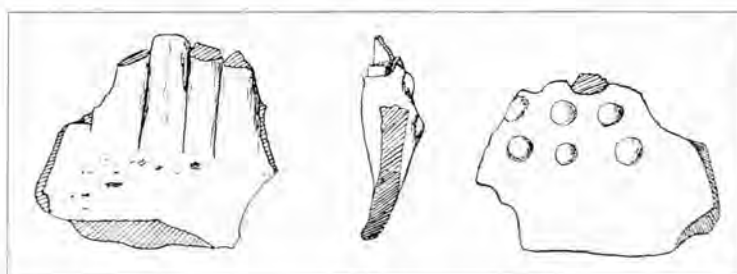


Fig. 82¹. Molyvópyrgo. Grey Minyan five-piece ribbon-handle set on rim of bowl (?); on the inner face two rows of pellets. Scale: *ca.* 1:3.

400. JUG (= Fig. 76 b): grey clay, reddish slip. Length of fragment 10 cm.



401. JUG (= Fig. 76 j): grey clay and surface; deep irregular grooves. Ht. 10.4 cm.?



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402. JAR (= Pl. XVI): probably made on a core; clay and surface grey.
Ht. 39 cm.



MISCELLANEOUS OBJECTS

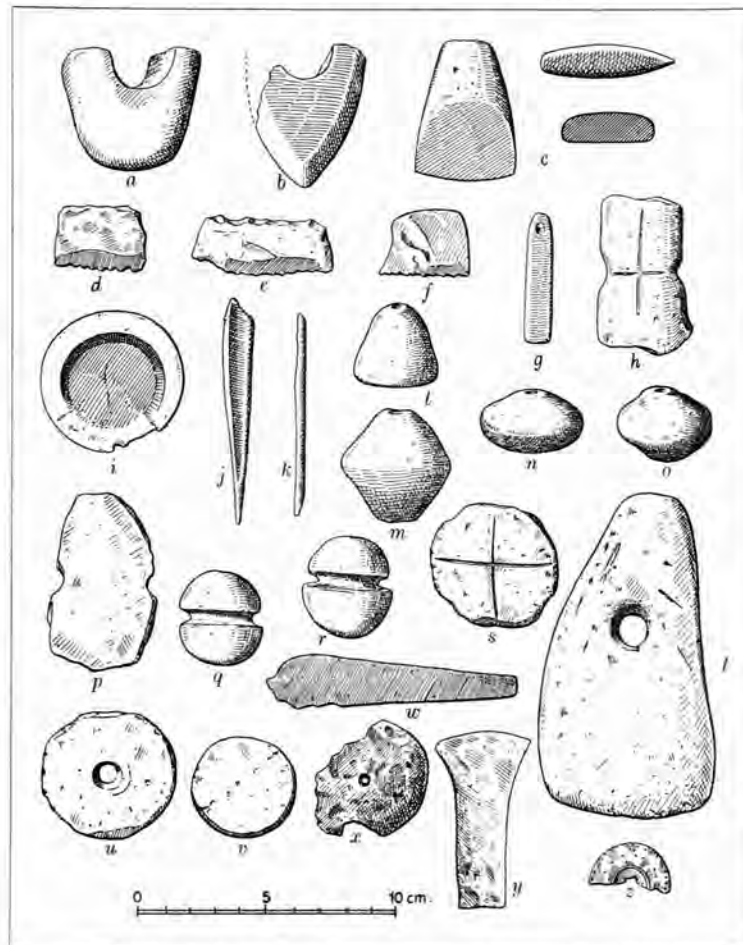


Fig. 83. Middle Bronze stone, bone, clay, bronze and gold objects.

Stone.

a. CELT (= *Vardaroftsa*, Fig. 16, 4): perforated, butt end; dark stone. Vardaróphitsa. *b.* CELT (= *Vardaroftsa*, Fig. 16, 5): perforated, blade end; dark stone. Vardaróphitsa. *c.* CELT (= *Saratse*, Fig. 30, 6): dark stone. Saratsé. *d.* PART OF SICKLE(?) (= *Vardaroftsa*, Fig. 19, 6): reddish chert. Vardaróphitsa. *e.* PART OF SICKLE(?). Saratsé. *f.* PART OF SICKLE(?) (= *Kilindir*, Pl. XI, Fig. 1, 5). Kilindir. *g.* HONE (= *Vardaroftsa*, Fig. 16, 14): perforated. Vardaróphitsa. *h.* FIGURINE(?) (= *Molyvopyrgo*, Fig. 51, 2): incised cross. Molyvópyrgo. *i.* CUPEL(?) (= *Molyvopyrgo*, Fig. 51, 9): dark stain inside which has permeated to the outside. Molyvópyrgo.

Bone.

j, k. PINS (= *Vardaroftsa*, Fig. 25, 8, 9). Vardaróphitsa.

Clay.

l-o. SPINDLE-WHORLS (= *Vardaroftsa*, Fig. 21, 6-9). Vardaróphitsa. *p.* FIGURINE(?) (= *Molyvopyrgo*, Fig. 51, 3): chipped sherd. Molyvópyrgo. *q, r.* BUTTONS (= *Hágios Mamas*, Fig. 28, 8, 9). Hágios Mámas. *s, u* and *v.* DISCS (= *Vardaroftsa*, Fig. 22, 5, 6, 8): made from chipped sherds; *s* has incised cross. Vardaróphitsa. *t.* LOOM WEIGHT(?) (= *Vardaroftsa*, Fig. 24, 12). Vardaróphitsa.

Bronze.

w. BLADE (= *Kilindir*, Pl. VIII, 3): thin, flat. Kilindir. *x.* DISC (= *Kilindir*, Pl. VIII, 3): central boss. Kilindir. *y.* AXE (= *Rey*, II, Fig. 43). Géna.

Gold.

z. DISC (= *Kilindir*, Pl. VIII, 3): thin, flat; two concentric rows of impressed dots. Kilindir.

LATE BRONZE
CENTRAL MACEDONIA—AXIÓS VALLEY¹
VARDARÓPHTSA²

403. BOWL (= *Vardaroftsa*, Pl. XII (b), 1): brownish buff; traces of pink filling. Ht. 17.6 cm.



404. JAR (= *Vardaroftsa*, Pl. XII (b), 2): pointed perforated lugs, corresponding string-holes on the rim; the ornament on the other half of the face should probably be completed to correspond with that on the existing half; black and buff mottled, well polished; traces of white filling. Ht. 15.6 cm.



405. BOWL (= *Vardaroftsa*, Pl. XII (a), 1): grey-black polished; reserved zigzag composed of the space left between interlocking triangles, filled with roughly incised lines and coated with thick white matter. Ht. 12.4 cm.



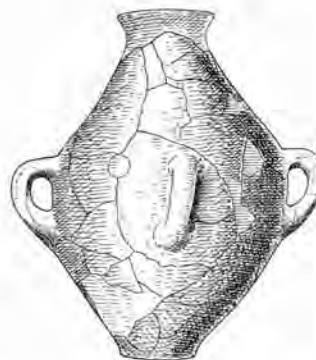
406. BOWL (= Pl. XVII): 'wish-bone' handles; brown, carefully finished slightly polished surface. Ht. 18.2 cm.



407. MUG (= Pl. XVII): grey-black, firing to red below on one face; shallow groove at base of neck. Ht. 9.2 cm.



408. JAR (= Pl. XVII): buff surface with streaky polish. Ht. 42 cm.



¹ Cf. also List of Prehistoric Sites, p. xxii.

² For matt-painted sherds from Vardaróftsa, cf. *Vardaroftsa*, Pl. XIV, a.



Fig. 84¹. Vardaróphtsa. Examples of jugs with cut-away or sloping necks: *b* is coated outside with maroon wash; *g* has a plastic knob; *i*, *l* and *m* are E.I.; *m* is black-polished and grooved.



Fig. 85¹. Vardaróphtsa. Incised (later style) fragments: *a* is M.B.; *m*, well-polished buff ware, anticipates the stamped circles of the E.I. Age.

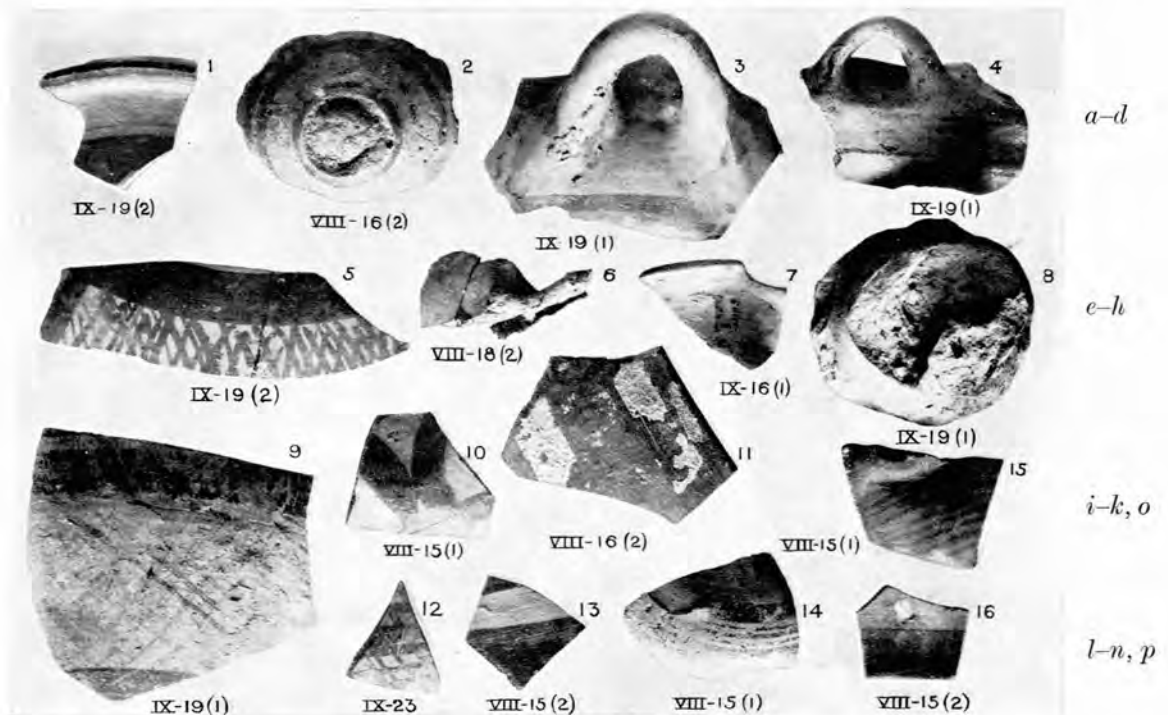


Fig. 86(i)¹. Vardaróphtsa². Mycenaean (L.H. III): *b*, stem of kylix; *c*, bowl; *d*, squat jar; *e*, dull brown paint on buff ground; *f*, fragment mended with lead rivet; *g*, jug with cut-away neck; *h*, stemmed krater(?); *i*, shoulder with cross-hatching; *k*, rim of bowl; *o*, shoulder of stirrup-vase; *p*, rim of bowl (upside down). Scale: 1: 2.

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² For other Mycenaean sherds, cf. *Vardaróphtsa*, Pl. XV (*b*), Pl. XVI (*a*).

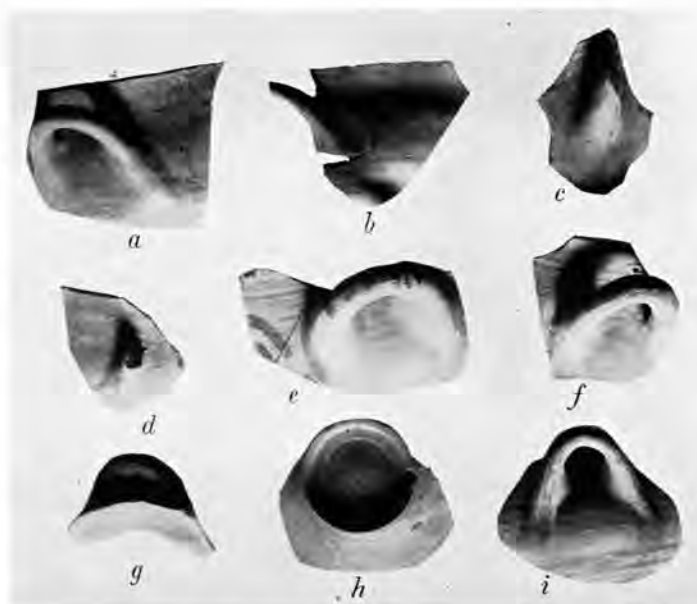


Fig. 86(ii)¹. Vardaróphtsa. Mycenaean (L.H. III) bowls in the burnt layer. Scale: *ca.* 1:4.

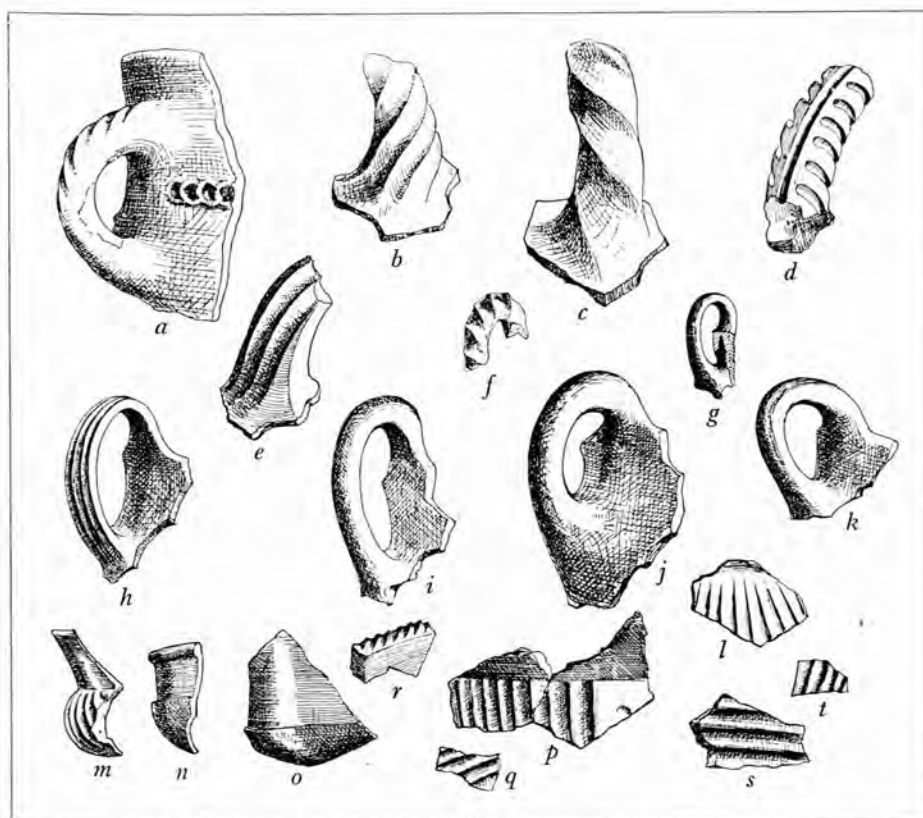
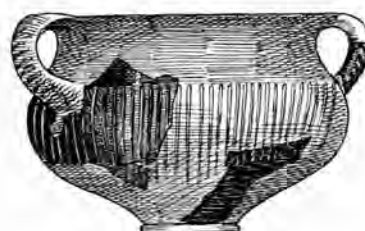


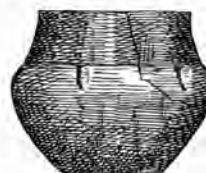
Fig. 87¹. Vardaróphtsa. Fragments from the burnt layer or from the stratum immediately above it; *a-f* and *h*, fluted or grooved handles; *g* and *i-k*, plain handles; *l-t*, fluted fragments except *n*, which is plain. Scale: *ca.* 1:3.

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409. KRATER (= Pl. XXI): black with buff mottling, polished; shallow vertical grooves or fluting on the body, fluted handles; below the existing handle a small knob. Ht. 17.4 cm.



410. BOWL (= Pl. XXI): grey-black, slightly polished. Ht. 11 cm.



411. CUP (= Pl. XXI): grey-brown. Ht. 9 cm.



412. CUP (= Pl. XXI): light brown. Ht. 8.7 cm.

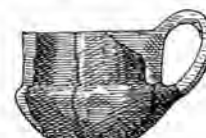


Fig. 88. Várdina. 'Wish-bone' handle (= *Vardino*, Pl. XVI, 3): incised spiral coil within a circle; grey¹ Diam. of disc 4.6 cm.

VÁRDINA

413. BOWL (= Fig. 89I): grey clay with very fine yellow polished surface; pale purple matt paint; on the rim ornament as in 433². Ht. 8 cm.



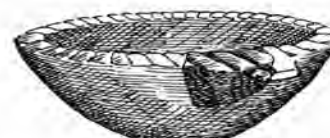
414. KYLIX (= *Vardino*, Pl. XII, 2): pinkish buff surface³. Ht. 20 cm.?



415. BOWL: grey, polished, fluted rim. Ht. 7 cm.



416. BOWL: traces of ledge-lug; same fabric as last. Ht. 7.5 cm.



¹ For other incised ware of this class from Várdina, cf. *Vardino*, Pl. XII, 12, 13.

² For another matt-painted fragment, cf. *Vardino*, Pl. XII, 9.

³ For other Mycenaean sherds from Várdina, cf. *Vardino*, Pl. XII, 1, 3-8.

417. BOWL: with two (?) ledge-lugs, formed by pulling out the rim; same fabric as 415. Ht. 7.5 cm.



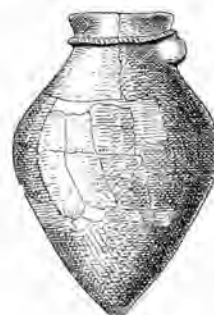
418. BOWL: with two (?) ledge-lugs; grey, firing to red polished. Ht. 6.7 cm.



419. JUG (?): light grey, well polished. Ht. 14 cm.

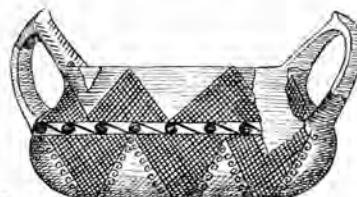


420. PITHOS (= Pl. XX): plastic rope and knot at base of neck. Ht. ca. 1.2 m.



KILINDÍR

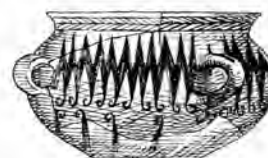
421. BOWL (= Pl. XVIII and *Kilindir*, Pl. XIV): buff surface, purple paint, both discoloured by smoke stains; on the base inside, rectangular ornament. Ht. 10.5 cm.



422. BOWL (= *Kilindir*, Pl. XVI, 2): fine well-finished buff surface, reddish purple paint; on the rim, vertical stripes as in next. Ht. 10.2 cm.



423. BOWL (= *Kilindir*, Pl. XVI, 1): light buff slightly polished surface, dark purple paint; on the inside of the rim stripes as in 433. Ht. 11.8 cm.



424. JUG (= Pl. XVIII and *Kilindir*, Pl. XV, 2): buff surface; paint varies in tone from light red to reddish brown or purple; careless decoration. Ht. 26 cm.



425. JAR (= Fig. 89*h*): bright red on rough buff ground. Ht. 17.6 cm.



426. JUG (= *Kilindir*, Pl. XV, 3): purple paint on a buff ground. Ht. 10 cm.

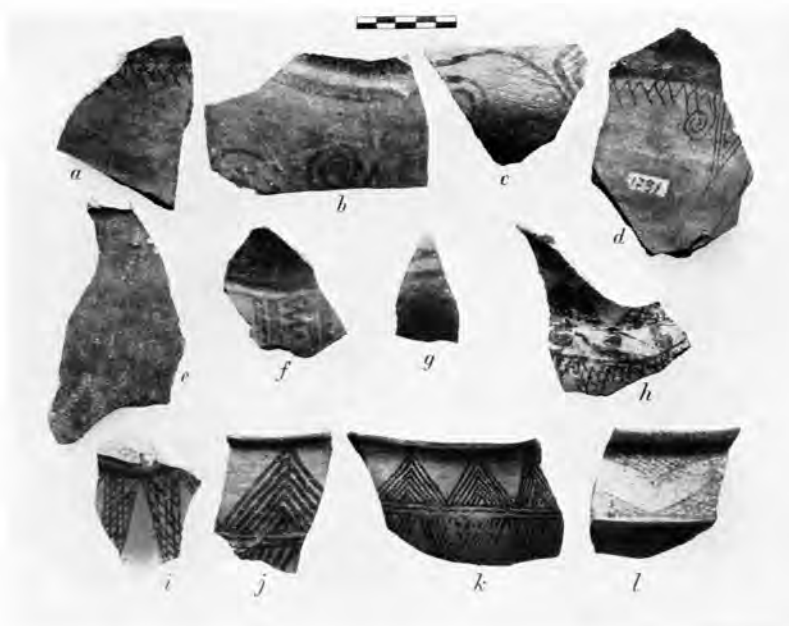


Fig. 89. Central Macedonia, various sites. Fragments of matt-painted ware: *a* and *d* (Góna=Rey, II, Pl. XXXII, 1), purple on buff; *b* (Góna=Rey, II, Pl. XXVIII, 10), purple on buff; *c* (Góna), purple on buff; *e* (Góna=Rey, II, Pl. XXVII, 2), black on red; *f* (Góna=Rey, II, Pl. XXVI, 4), black on red; *g* (Góna=Rey, II, Pl. XXVIII, 9), black on red; *h* (*Kilindir*)=425; *i* (*Kilindir*), red on buff; *j* (Tsaoutsítza), purple on buff; *k* (Tsaoutsítza)=434; *l* (Várdina)=413.



Fig. 90¹. Central Macedonia, various sites. Matt-painted fragments: *a* and *b* (Kalamária); *c* (Aiváte), bowl with 'thumb-grip' handle (the pot-hook spirals 'radiate from a circular pit'); *e* (Mikra (Mikrò Karabournóu(?))). Scale: ca. 1:2.

¹ (= *B.M.C.* Fig. 29). Reproduced by permission of the Trustees.

427. BOWL (= Pl. XVIII and *Kilindir*, Pl. XIII, 2): two pierced lugs and two corresponding string-holes in the rim; brown with black patch on left side, polished; similar but not identical ornament on reverse. Ht. 12 cm.

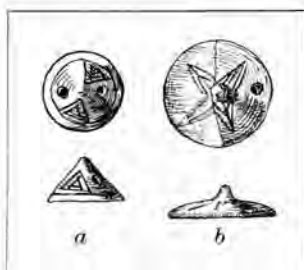


Fig. 91. Kilindir. Incised lids: *a*, black and buff mottled, polished; *b*, one perforation, brown, polished on the outside, black inside, pink filling. Diam.: (*a*) 6.3 cm.; (*b*) 8.6 cm.

428. BOWL (= Pl. XVIII): same shape and fabric as last. Ht. 10 cm.



429. CUP: black; plain ware. Ht. 8.2 cm.



430. JUG: plain ware. Ht. 7.2 cm.



431. JUG: plain ware. Ht. 7 cm.



432. JUG: perforation at rim below handle; plain ware. Ht. 7.2 cm.

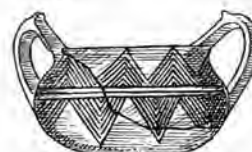


TSAOUTSÍTZA¹

433. BOWL (= *M.T.I.* Fig. 34): same fabric as 421, polished surface; purple-brown paint, neat technique. Ht. 4.8 cm.



434. BOWL (= Fig. 89*k*): whitish slip, dark purple paint; on the rim stripes as in 433. Ht. 8.6 cm.



¹ For Tsaoutsitza, cf. also *Archaeologia*, LXXIV, Plates XXVI and XXVII.

435. BOWL (= Pl. XVIII and *M.T.I.* Fig. 36): grey-black; reserved zigzag as in 405 and discs; grey-black, white filling. Ht. 21.3 cm.

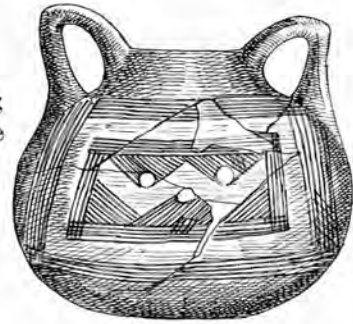


Fig. 92. Central Macedonia, various sites. Incised fragments: *a* (Tsaoutsítza), pink filling; *b* (Kilindir), no filling; *c* (Várdina), white filling; *d* and *e* (Kilindir), white filling; *f* (Várdina), white filling; *g* (= *Kilindir*, Pl. XII, 1), pink filling; *h* (Várdina), white filling.

DOURMOÚSLI

Cf. Rey, II, Pl. XXX, 1.

GALLIKÓ VALLEY¹

SALAMANLÉ²

436. JUG (= Rey, II, Pl. XVIII, 2): brown polished surface; incised ornament. Ht. 9.4 cm.



¹ Cf. also List of Prehistoric Sites, p. xxiii.

² Cf. also Rey, II, Pl. XVII, 2.

LANKADÁS BASIN¹

SARATSÉ

437. BOWL (= Pl. XVII): brown surface, thin scratched lines; not filled. Ht. 9.2 cm.



438. JUG (= Pl. XVII): dull red mottled surface; white filling. Ht. 17.4 cm.

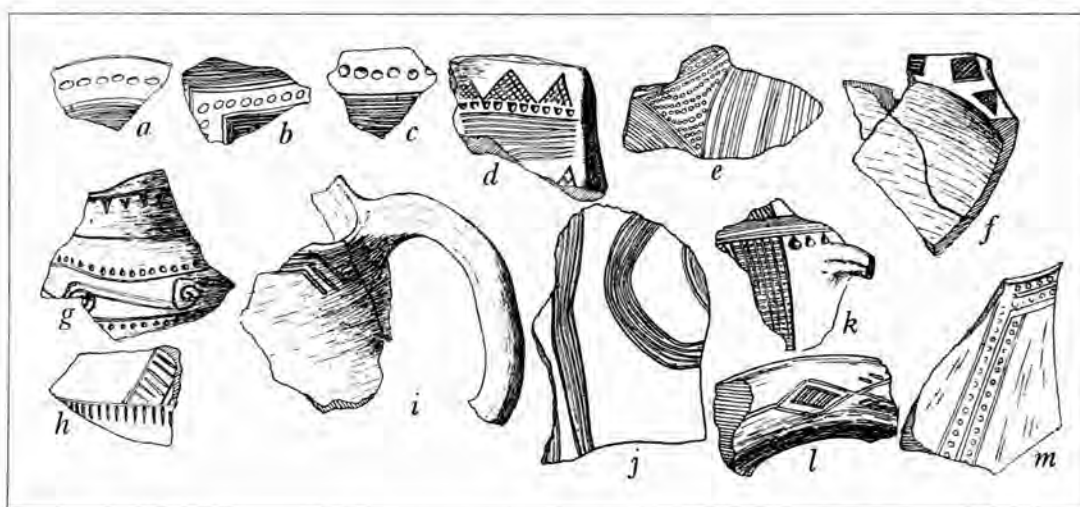


Fig. 932. Saratsé. Incised fragments: *a-c*, black, perhaps from one vase; *d*, ledge-handle; *f*, bowl with 'wish-bone' handles; *g*, light buff; *i*, brick-red; *j*, black; *l*, loop-handle; *m*, neck of jug, white filling. Scale: ca. 1:3.

439. BOWL (= Pl. XXI): two (?) handles; reddish surface. Ht. 9 cm.



440. JAR (= Pl. XVI): perforated oblique lugs; well-smoothed neutral surface. Ht. 23.5 cm.



441. BOWL (= Pl. XIX): good red lustrous paint on a yellow slip. Ht. 11.3 cm.



¹ Cf. also List of Prehistoric Sites, p. xxiii.

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442. KYLIX (= Pl. XIX): same fabric as last. Ht. 16 cm.



443. JUG (= Pl. XIX): zones of lustrous paint on buff ground, discoloured by fire. Ht. 13.6 cm.



444. JUG (= Pl. XIX): as last; wavy band on shoulder just visible. Ht. 12 cm.



445. JUG (= Pl. XIX): as last. Ht. 12.5 cm.



446. JUG (= Pl. XIX): plain. Ht. 12.3 cm.



447. JAR (= Pl. XIX): three loop-handles; fabric as preceding and similar discoloration; the exact number of zones is uncertain; running quirks between handles. Ht. 20 cm.



448. STEMMED JAR (= Pl. XIX): three loop-handles; a row of vertical strokes on the shoulder. Ht. 11 cm.



AIVÁTE

Cf. Fig. 90 c.

GIOUVÉSNA

Cf. Rey, II, Pl. XXXIII, 1.

SALONICA PLAIN¹

AKBOUNÁR

449. BOWL (=Pl. XVIII and =*B.M.C.* A 76). Ht. 12 cm.

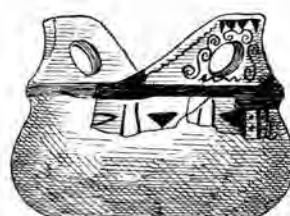


LÉMBET

Cf. Rey, II, Pl. XXXIII, 3; *B.M.C.*, A 92, 1, A 93, 3.

VASILIKÁ VALLEY¹GÓNA²

450. BOWL (=Rey): heavy ware, buff polished surface, purple paint. Ht. 10·7 cm.



451. BOWL (=Rey, II, Fig. 46): red to brown paint on buff ground. Ht. 10 cm.

SÉDES³

452. BOWL (=Pl. XVII and Rey, II, Pl. VII): 'wish-bone' handles, low ring-base; buff polished surface. Ht. 12·6 cm.



453. JUG (=Pl. XVII and Rey, II, Fig. 20): sloping neck and flat handle; black-polished, incised chevrons in front. Ht. 17·6 cm.



454. BOWL (=Rey, II, Pl. XLVIII): pinkish surface, dark paint; local make. Ht. 15 cm.



¹ Cf. also List of Prehistoric Sites, p. xxiii.

² For other examples from Góna, cf. Rey, II, Pl. XIII, 2; Pls. XXIV–XXXII. For incised from Góna, cf. Rey, II, Pl. XVII, 1, 3. For other Mycenaean from Góna, cf. Rey, II, Pl. XLVII.

³ Cf. also Rey, II, Pl. XLVIII.

KALAMÁRIA

455. BOWL: well-finished buff surface, brown paint. Ht. 8.6 cm.



Also, Fig. 90*a, b*; Rey, II, Pl. XXVII, 4; Pl. XXX, 3; Pl. XXXIII, 4, 5.

MIKRÓ KARABOURNOÚ

Cf. Fig. 90*e*.

CHALCIDICE¹

HÁGIOS MÁMAS

456. BOWL: with 'wish-bone' handles; grey clay with carefully finished orange surface. Ht. 7.8 cm.



457. DISH (= *Hagios Mamas*, Fig. 20, 1): with 'wish-bone' handles; same fabric as last, but the surface colour is buff. Ht. 5.6 cm.

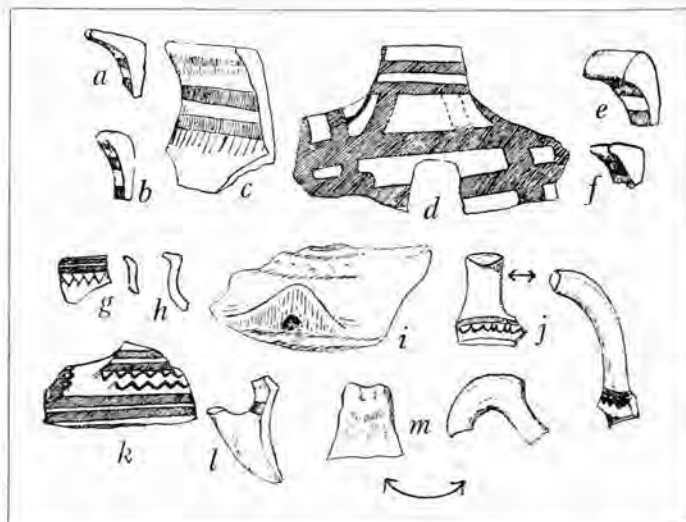


Fig. 94². Hágios Mámas. Matt-painted: *a-f*, jars; *g, h, l* and *m*, bowls; *i*, bowl with sloping neck (cf. 404), red on grey; *k*, black on orange; *m*, plain. Scale: 1:3.

¹ Cf. also List of Prehistoric Sites, p. xxiii and *B.S.A.* xxvi, pp. 30-34.

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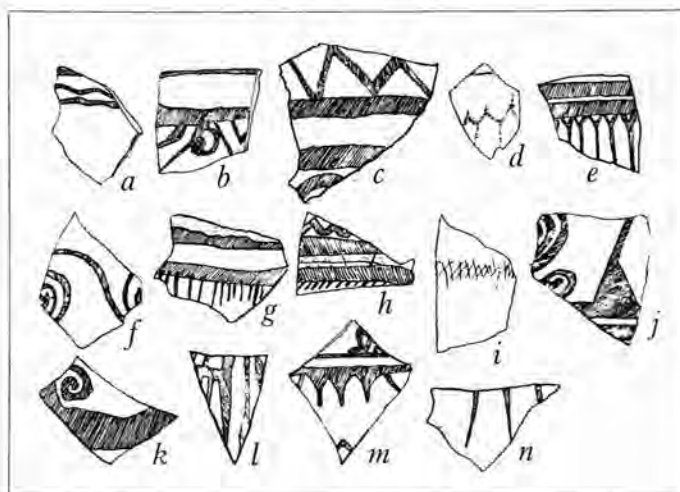


Fig. 95¹. Hágios Mámas. Matt-painted; *d* and *n*, black on red. Scale: 1:4.

458. JAR (= Pl. XIX): two handles; much worn buff surface, the usual painted zones, vertical stripes can be distinguished on the shoulder. Ht. 11 cm.

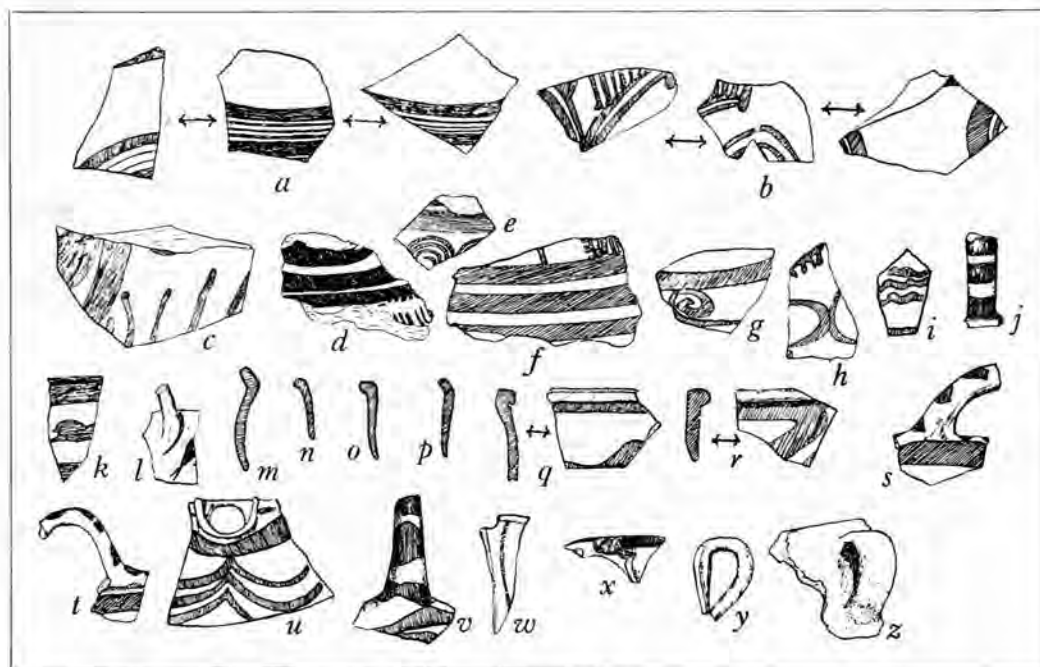


Fig. 96¹. Hágios Mámas. Mycenaean: *a* and *b*, imported; *j*, kylix; *k*–*p*, bowls; *q* and *r*, bowls (kraters ?) with moulded rims; *s* and *t*, bowls (or basket-shaped vases) with handles on the rim; *u*, bridge-spouted bowl; *v*, side-spouted jug; *w*, jug with cut-away neck; *x* and *y*, jugs; *z*, (?). Scale: 1:5.

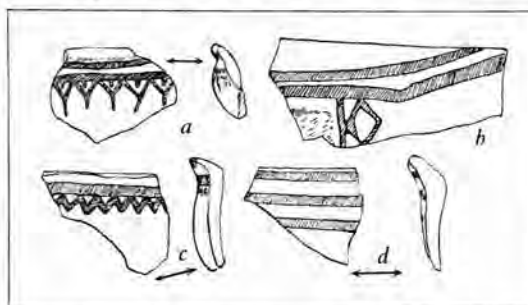


Fig. 97¹. Molyvópyrgo. Matt-painted: *a*, loops inside the rim; *d*, red paint on grey; on the rest the paint is the usual purple. Scale: ca. 1:4.

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WESTERN MACEDONIA—HALIÁKMON VALLEY

BOUBOÛSTI

459. BOWL (= *Boubousti*, Fig. 20, 2): buff and brown mottled; red purplish dull paint. Ht. 10.6 cm.



460. BOWL (= *Boubousti*, Fig. 20, 3): light buff; red purplish paint. Ht. 8.4 cm.



461. MUG (= *Boubousti*, Fig. 20, 4): surface red to buff, inside grey; dark paint, neutral tone. Ht. 15 cm.?



462. MUG (handles restored) (= *Boubousti*, Fig. 20, 1): warm red surface, dark almost black paint; between the last ray on the left and the handle a group of five vertical stripes. Ht. 14.5 cm.



463. JUG (= *Boubousti*, Fig. 25, 1): yellow surface, brown paint; careful technique. Length of fragment 14 cm.



464. JUG (= *Boubousti*, Fig. 25, 2): buff surface, paint purplish, but discoloured in front; on the back of the handle, where it joins the rim, three bars. Length of fragment 15 cm.



465. JUG (= Pl. XVIII): buff, firing to grey; reddish purple paint; on the handles bars in four groups of three; between each of the upper and lower groups a horizontal wavy stripe. Ht. 19.8 cm.

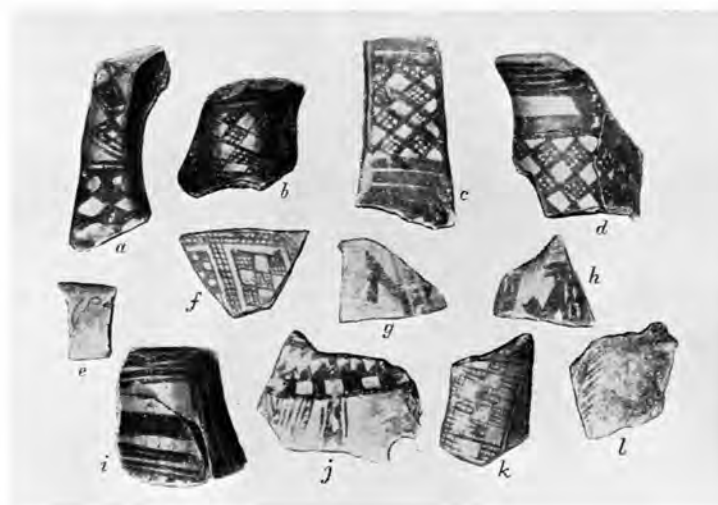
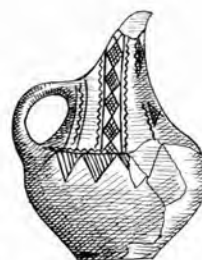


Fig. 98¹. Bouboústi. Painted fragments: *a*, bowl with pulled-out rim; *b*, jug with sloping neck; *c*, loop-handle, flat; *d*, jug with sloping neck; *e*, rim, careless curvilinear ornament; *i*, jug with cut-away neck; *j*, jar with broken profile like 424(?). Scale: 1:4.



Fig. 99. Bouboústi (= *Boubousti*, Fig. 28, 3). Lid with central boss (broken): dark purple paint on warm red ground. Diam. 11 cm.

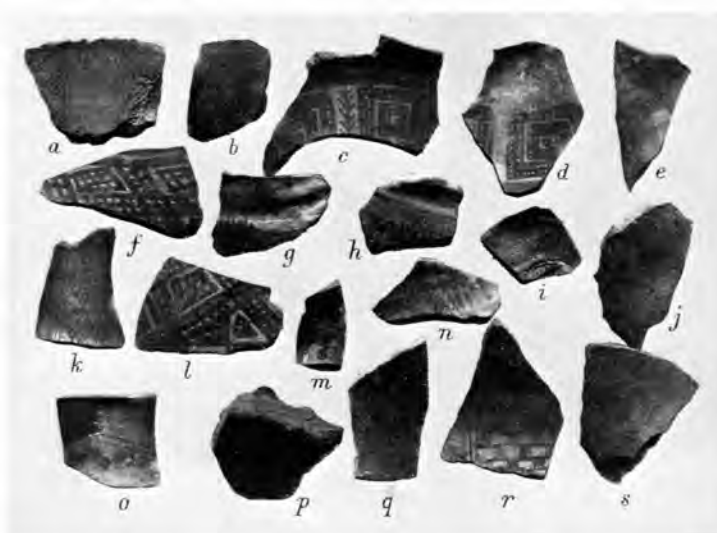


Fig. 100. Bouboústi. Painted fragments: *a*, shoulder(?) of jug, grey ware incised; *b*, inside of flaring rim; *c* and *d*, inside of rims of bowls; *e*, loop-handle; *f*, inside of rim of bowl; *g*, neck of jug, wheel-made(?), grey with purple paint; *h*, inside of rim of bowl; *j*, neck of jug, wheel-made(?), purple paint on grey. Scale: 1:4.

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Fig. 101¹. Bouboústi. Painted and plain fragments: *a* and *b*, necks of jars; *c*, inside of rim of bowl; *d*, rim of bowl, inside; *f*, flat loop-handle; *h*, white slip; *i*, neck of jar; *l*, loop-handle; *m* and *n*, split handles.

466. BOWL (= Pl. XVIII): grey clay, buff well-smoothed and slightly polished surface. Ht. 5 cm.



467. BOWL: fabric as last. Ht. 12 cm.



Fig. 102. Bouboústi. 'Wish-bone' handle with terminal disc; buff. Scale: 1:5.

TSERNA VALLEY

FLÓRINA

Sherds of Bouboústi style, and stone celts were found by Keramopoulos. Cf. *Ἀρχ. Ἐφημ.* 1932, p. 73.

OCHRID BASIN²

Sherds of Bouboústi style were found by Miss S. Benton. Now in collection of British School at Athens. For undecorated 'thumb-grip' handles in a fabric resembling that of Bouboústi, cf. p. 94, note 2.

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² I do not know the precise find-spots.

MISCELLANEOUS OBJECTS

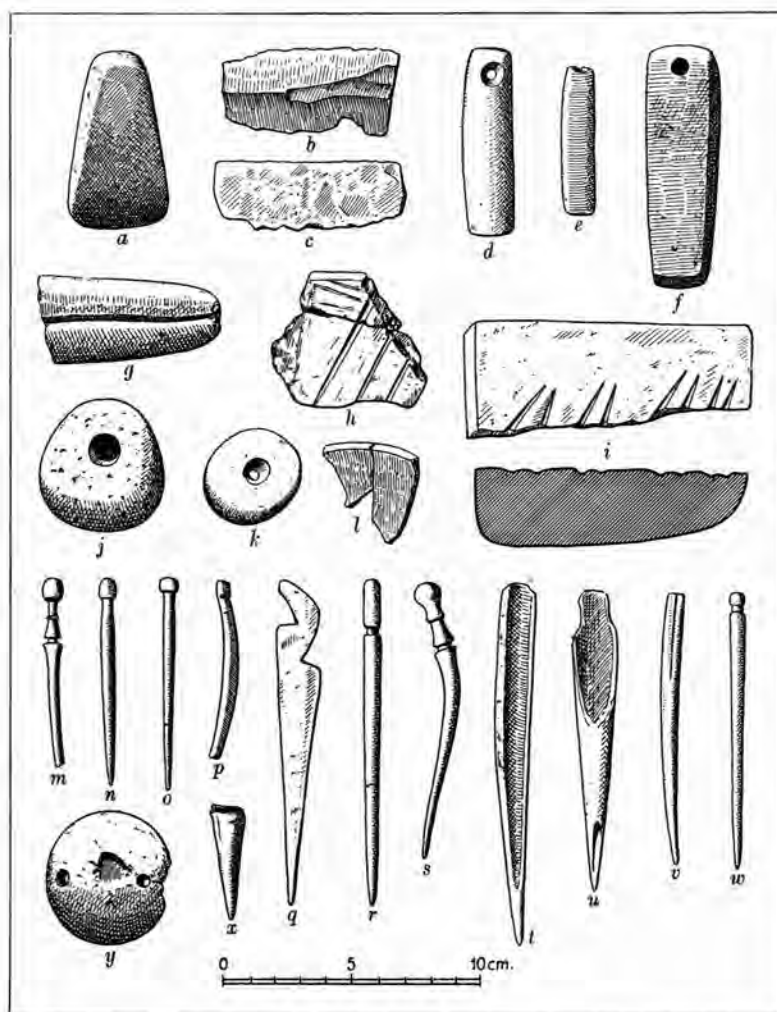


Fig. 103. Late Bronze stone and bone objects.

Stone.

- a. CELT (= *Vardaroftsa*, Fig. 16, 8): dark stone. Vardaróphtsa.
 b. BLADE (= *Vardaroftsa*, Fig. 19, 7): yellow chert. Vardaróphtsa.
 c. PART OF SICKLE (?) (= *Kilindir*, Pl. XI, Fig. 1, 1): chert. Kilindir.
 d. HONE (= *Saratse*, Fig. 32, 7). Saratsé.
 e. HONE (= *Vardaroftsa*, Fig. 16, 15). Vardaróphtsa.
 f. HONE (= *Vardaroftsa*, Fig. 16, 19). Vardaróphtsa.
 g. STONE (broken) (= *Vardaroftsa*, Fig. 16, 13): central groove on each face. Vardaróphtsa.
 h. STONE (broken) (= *Vardaroftsa*, Fig. 16, 10): parallel grooves, surface much scratched; micaceous schist. Vardaróphtsa.
 i. STONE (broken) (= *Vardino*, Pl. XVI, 21): rough grooves; micaceous schist. Várdina.
 j. PEBBLE (= *Vardaroftsa*, Fig. 16, 18): half bored. Vardaróphtsa.
 k. PEBBLE (= *Vardaroftsa*, Fig. 16, 17): perforated. Vardaróphtsa.
 l. PART OF VASE (= *Vardaroftsa*, Fig. 16, 16): out-turned rim; white marble. Vardaróphtsa.

Bone.

- m-w and x. PINS AND AWLS: m-r and x (= *Vardaroftsa*, Fig. 25, 2, 3, 5, 4, 6, 7, 15). Vardaróphtsa;
 s (= *Saratse*, Fig. 33, 7). Saratsé; t-w (= *Vardino*, Pl. XIX, 9, 1, 10, 11).
 y. POMMEL (= *Boubousti*, Fig. 29, 2): two perforations and central depression. Boubousti.

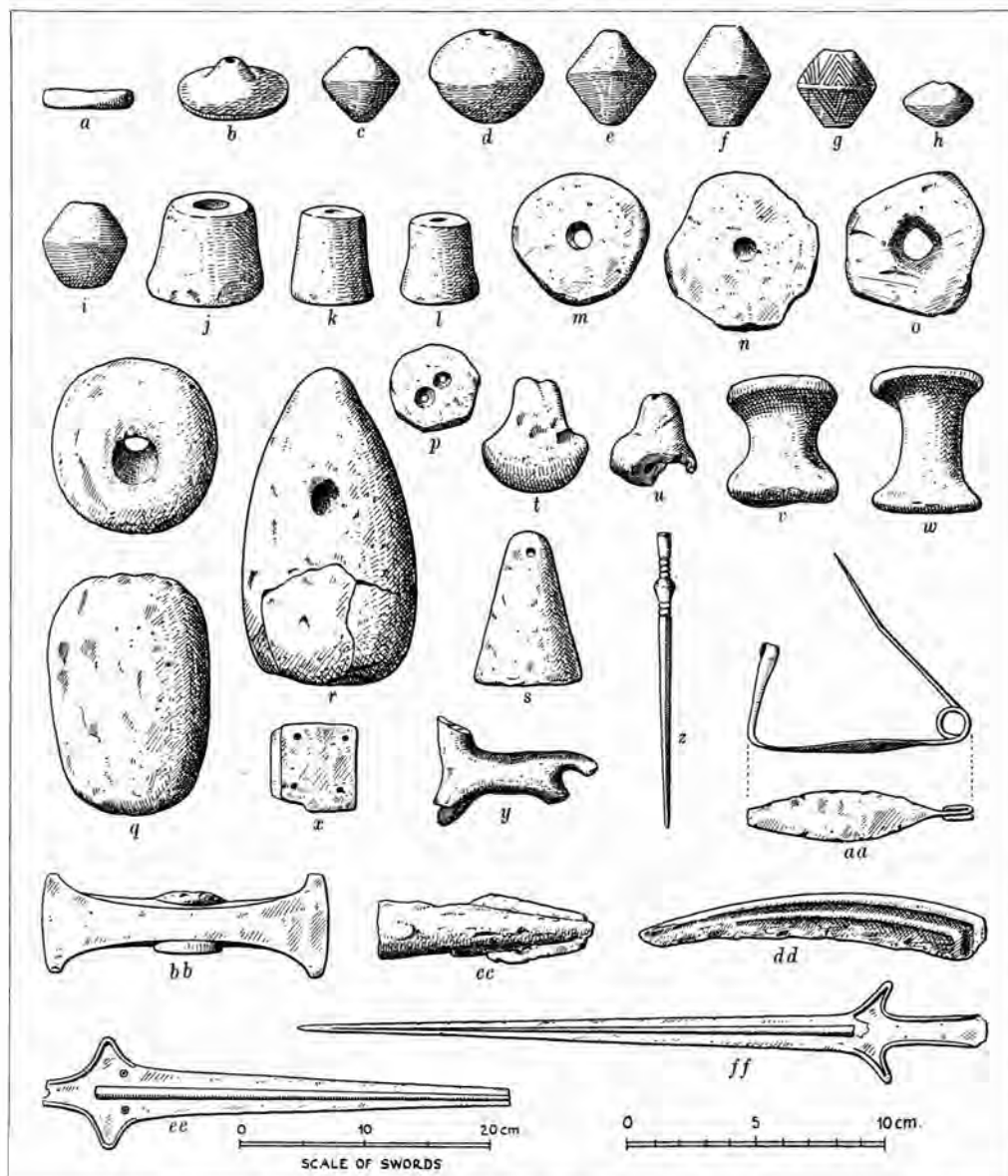


Fig. 104. Late Bronze clay and bronze objects.

Clay.

- a-l.* SPINDLE-WHORLS, BEADS OR BUTTONS: *a-e* and *j-l* (= *Vardaroftsa*, Fig. 21, 10-14; Fig. 24, 11; Fig. 21, 15, 16). *Vardaróphtsa*; *f-i* (*g* has chalk-filled incisions) (= *Várdino*, Pl. XIX, 7, 6, 5, 8).
m-p. DISCS MADE FROM CHIPPED SHERDS: *m, n* and *p* (= *Vardaroftsa*, Fig. 22, 9, 10, 7). *Vardaróphtsa*; *o* (= *Boubousti*, Fig. 31, 7). *Boubousti*.
q-s. LOOM WEIGHTS(?) (= *Vardaroftsa*, Fig. 24, 3, 2, 4). *Vardaróphtsa*.
t and *u.* AMULETS(?) (= *Boubousti*, Fig. 31, 8, 9): *t* is perforated at the head; *u* at each extremity. *Boubousti*.
v and *w.* REELS(?) (= *Boubousti*, Fig. 31, 2, 1): not perforated. *Boubousti*.
x. CUBE (= *Boubousti*, Fig. 31, 10): perforated at each corner. *Boubousti*.
y. FIGURINE OF HORSE (= *Hágios Mamas*, Fig. 30): reddish brown lustrous paint on buff surface (*My cenaeon*). *Hágios Mámas*.

Bronze.

- z.* PIN (broken head ?) (= *Boubousti*, Fig. 29, 4). *Boubousti*.
aa. FIBULA (= *Várdino*, Pl. XIX, 12). *Várdino*.
bb. AXE (= *Kilindir*, Pl. XVII, 2, 1). *Kilindir*.
cc. SPEAR-HEAD (= *Várdino*, Pl. XIX, 2). *Várdino*.
dd. SICKLE (= *Kilindir*, Pl. XVII, Fig. 2, 2). *Kilindir*.
ee. SWORD¹. *Grevená*.
ff. SWORD² (for comparison). *Karaglári* (Bulgaria).

¹ Cf. *Man*, 1923, p. 170, Fig. 2.² Cf. *Ibid.*, Fig. 3.

EARLY IRON
CENTRAL MACEDONIA
AXIÓS VALLEY
VARDARÓPHTSA

468. BOWL (= Fig. 105*d*): incised rim, grey. Ht. 15 cm.

469. BOWL (= Pl. XXI): dark grey. Ht. 9 cm.

470. JUG (= Fig. 106*d*): twisted handle; polished yellow surface. Ht. ?

471. KANTHAROS (= Pl. XXI): wheel-made; horizontal grooves in two groups; grey. Ht. 10 cm.



Fig. 105¹. Vardaróphtsa. Incised ware: *a-g* and *i*, flat rims of large bowls (*d*=468); *h*, narrow slanting rim (inside); *j-p* from shoulders(?) of jugs(?); *q*, neck of jug; *r*, handle, round in section, broken at left end. Scale: ca. 3:4.

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Fig. 106¹. Vardaróphitsa. Handles and rims: *a-e* (*d*=470) illustrate the genesis of the twisted handle, *d* and *e* are polished yellow; *f-k*, handles of bowls; *l-r*, fluted Lausitz rims and their successors. Scale: 1:3.

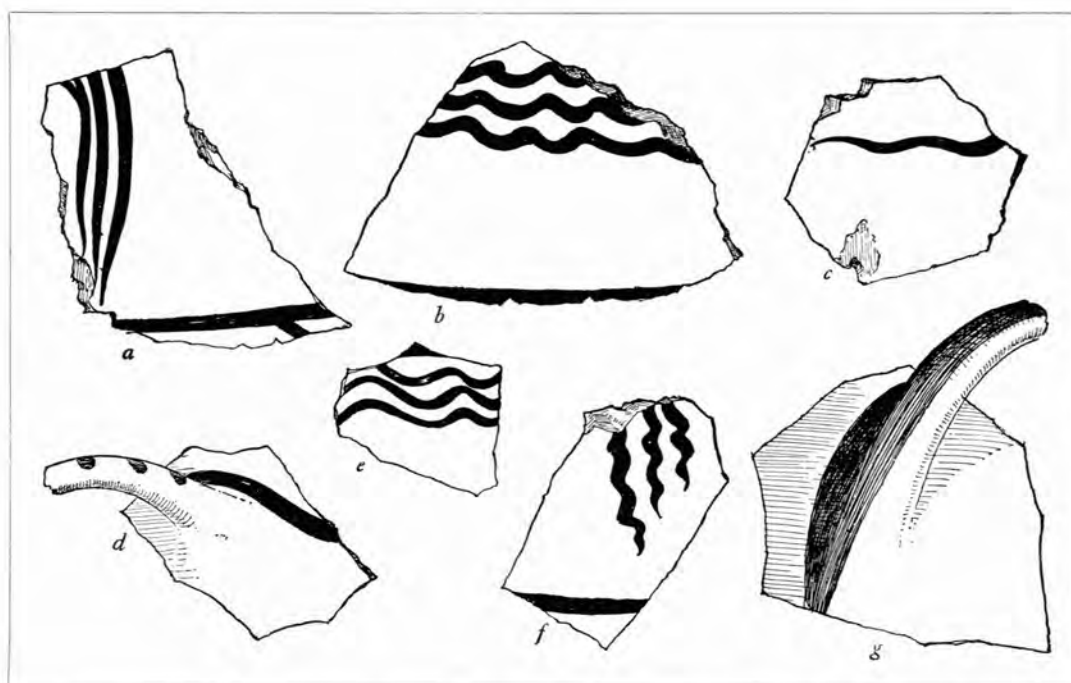


Fig. 107¹. Vardaróphitsa. Late Mycenaean—Proto-Geometric: fragments immediately overlying or just within the burnt layer. Scale: *ca.* 1:2.

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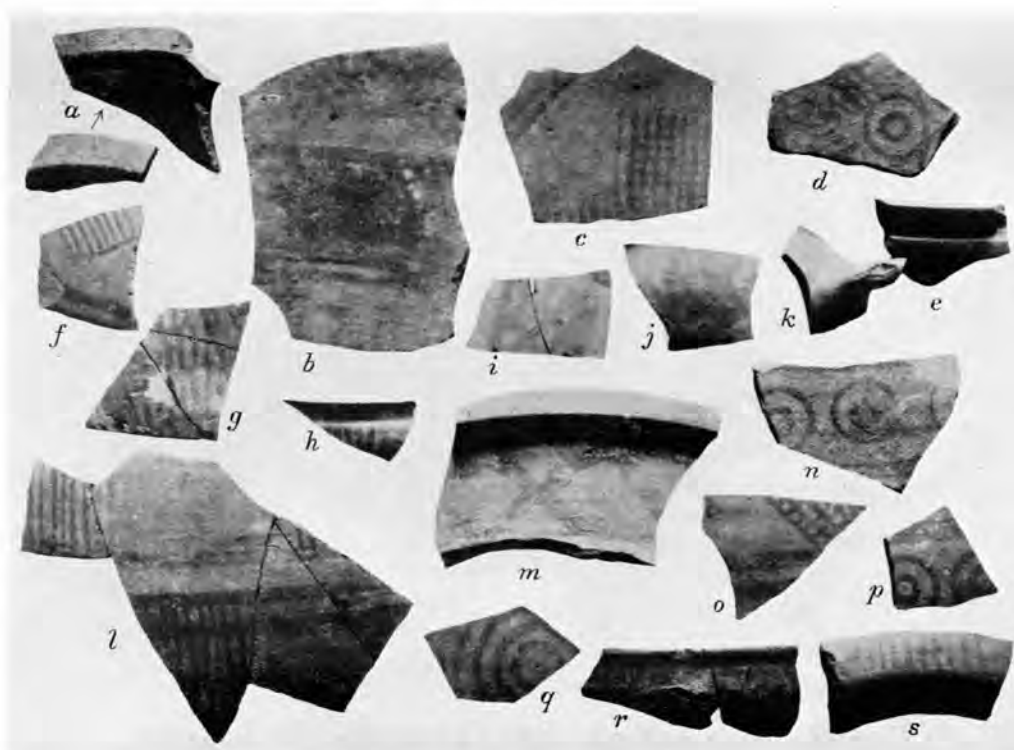


Fig. 108¹. Vardaróphtsa. Proto-Geometric, mostly matt-painted class, derived partly from the local matt-painted ware of the L.B. Age and partly from the Mycenaean. Scale: 1:4.

472. COOKING-POT (=Pl. XXII): coarse ware, walls are however thin; mottled red and grey surface. Ht. 29 cm.



473. COOKING-POT (=Pl. XXII): fabric as last. Ht. 19 cm.



VÁRDINA

474. COOKING-POT (=Pl. XXII): coarse gritty ware, red above, blackened below. Ht. 34 cm.



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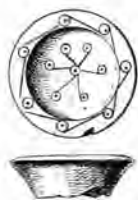
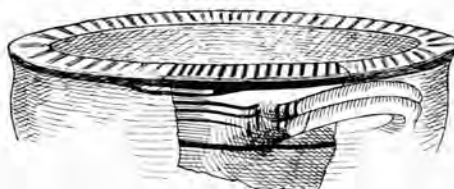


Fig. 109. Várdina. Stopper(?): broken below, the central stamped circle is perforated; grey ware. Diam. 9 cm.

TOPTSÍN¹

475. BOWL (= Rey, II, Pl. XLIX, 3): double loop-handles; wheel-made; buff, matt purplish paint, dark or light according to consistency. Ht. of fragment 10 cm.

TSAOUTSÍTZA²

476. CUP (= Pl. XXII and *Chauchitza II*, Fig. 3g): heavy ware; mud-coloured. Ht. 6.5 cm.

Cf. also *B.M.C.*, A, 78.

477. CUP (= Pl. XXII and *Chauchitza I*, Fig. 13): same fabric as last. Ht. 7 cm.



478. JUG (= *Chauchitza I*, Fig. 14): incised ornament on shoulder; reddish brown. Ht. 10.5 cm.



479. JUG (= *Chauchitza I*, Fig. 14): same fabric as last. Ht. 15 cm.



480. BOWL (= Pl. XXII and *Chauchitza II*, Fig. 3c): low ring-base; wheel-made; pinkish buff surface, dark lustrous paint; paint and surface in bad condition; no semicircles on reverse. Ht. 10 cm.



481. BOWL (= *Chauchitza II*, Fig. 3d): low ring-base; coated with lustrous paint carelessly applied in dark and light zones. Ht. 7.5 cm.



482. BOWL (= *Chauchitza II*, Pl. I, d): triple handles; ornamented with zones of red glaze paint; thin well-made ware. Ht. 12.5 cm.



483. BOWL (= Pl. XXII and *Chauchitza II*, Fig. 6e): wheel-made; oblique ribbon-handle; horizontal groove below rim; same fabric as last. Ht. 5.5 cm.



484. KANTHAROS (= Pl. XXI and *Chauchitza I*, Fig. 20): wheel-made; grey ware; shallow grooves. Ht. 13.6 cm.



¹ Cf. also Rey, II, Pl. XLIX, 1, 4; Pl. L, 6.

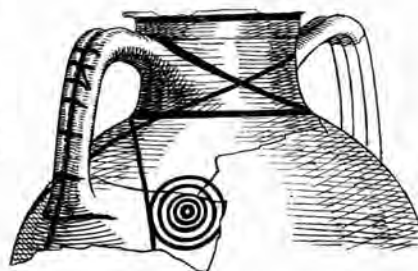
² Cf. also *Chauchitza I*, Figs. 13-21; *Chauchitza II*, Figs. 6-9.

GALLIKÓ VALLEY

SARÉ OMÉR

485. AMPHORA (= Rey, II, Fig. 48): wheel-made; handles have a central groove on the outside and two on the inside; buff, dark or light brown lustrous paint. Ht. of fragment 20.8 cm.

Cf. also Rey, II, Fig. 52.



LANKADÁS BASIN

SARATSÉ

486. CUP (= *Saratse*, Fig. 6, 7): brown, polished. Ht. 11 cm.?



487. CUP (= *Saratse*, Fig. 6, 6): same fabric as last. Ht. 10.5 cm.?

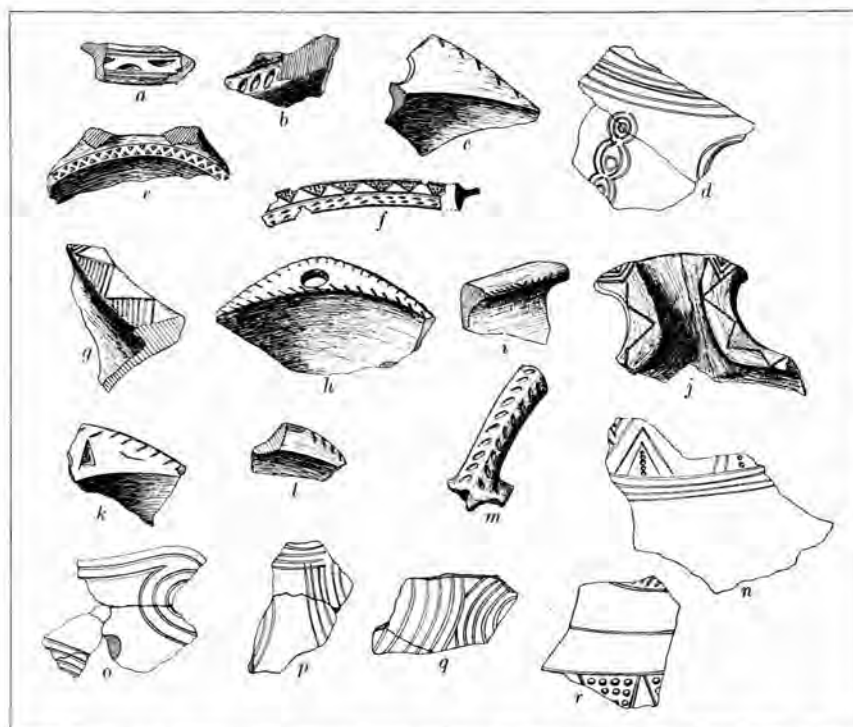


Fig. 110¹. Saratsé. Incised fragments: *a-c* and *e-l*, rims of bowls like 468, 469, *j* has a flanged spout; *d* and *n*, shoulders of jugs(?); *m*, loop-handle, round in section; *d* and *o-q* belong to a different tradition, they are polished and have chalk-filled curvilinear ornament (in *p* and *q* the filling is pink). Scale: 1:4.

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488. JUG (= *Saratse*, Fig. 25c): grey, heavy ware. Ht. 8.5 cm.



489. JUG (= *Saratse*, Fig. 25b): same fabric as last. Ht. 6 cm.



490. BOWL (= Fig. 111a): wheel-made; thin whitish slip, on which the ornaments are drawn in thin brown matt paint; the rim also is painted and there is a thin red slip on the inside. Ht. 11.4 cm.



491. BOWL (= Fig. 111b): two (?) 'wish-bone' handles wheel-made; grey clay, light buff well-finished surface; matt paint, dark or light brown according to consistency. Ht. 8 cm.



492. BOWL (= *Saratse*, Fig. 27): horizontal loop-handles; fabric and paint as last. Ht. 13.5 cm.



493. SPOUTED BOWL: two (?) 'wish-bone' (as in 491) or loop- (as in 492) handles; wheel-made; fabric as 491, but the paint is lustrous. Ht. 10.2 cm.



494. JAR (= Pl. XXI): wheel-made; grey. Ht. 11.6 cm.

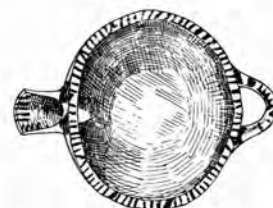


495. BOWL: wheel-made; brownish surface, ornamented with stamped circles, arranged as a zigzag between encircling lines; on the rim incised bars. Ht. 10 cm.

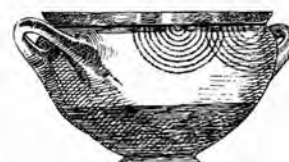


CATALOGUE
SALONICA PLAIN¹
KALAMÁRIA

496. BOWL: same shape as 493; decoration as in 491. Ht. 6.5 cm.



497. BOWL: shape and decoration as 480. Ht. 12 cm.



MIKRÓ KARABOURNOÚ

Cf. Rey, II, Fig. 50.

LÉMBET

Cf. Rey, II, Pl. L, 5; *B.M.C.*, 1129.

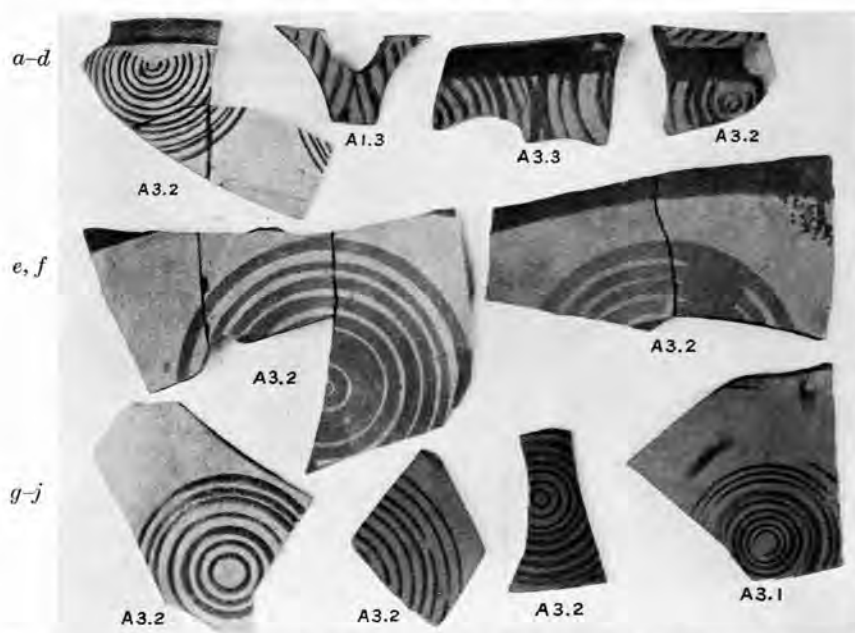


Fig. 111². Saratsé. Proto-Geometric: *a*=490; *b*=491; *c* and *d*, rims of similar bowl; *e*, *f* and *j* are matt-painted; in the remainder the paint is slightly lustrous. Scale: 1:3.

VASILIKÁ VALLEY

GÓNA

Cf. Rey, II, Figs. 49, 51; Pl. XLIX, 2; Pl. L, 1-4.

SITES NOT ASCERTAINED

Cf. *B.M.C.*, A77, A95, 2-7, A1127, A1128, 1-4, A1129, 2, A1131.

¹ *B.M.C.*, A95, 1 is from Akbounár. Cf. also List of Prehistoric Sites, p. xxiii.

² Reproduced by permission of British School at Athens. For similar fragments from Macedonia, cf. *B.M.C.*, A1128.

CHALCIDICE¹OLYNTHUS²

498. JUG (= *Olynthus* V, Pl. XX, P17): twisted (?) handle; reddish buff slipped surface; hand-made. Ht. 20·7 cm.



499. BOWL (= *Olynthus* V, Pl. XXIII, P25): buff-red; hand-made. Ht. 8 cm.?



500. CUP (= *Olynthus* V, Pl. XXIV, P26b): brown-buff; hand-made. Ht. 10 cm.?



501. JUG (= *Olynthus* V, Pl. XIX, P4): brick-red surface, with black patches; wheel-made. Ht. 7·5 cm.



502. JUG (= *Olynthus* V, Pl. XIX, P11): buff-red with black patches; hand-made. Ht. 6 cm.



503. JUG (= *Olynthus* V, Pl. XIX, P10): coarse reddish clay; wheel-made. Ht. 8 cm.



504. JUG (= *Olynthus* V, Pl. XXI, P21): brownish grey with large black patches; surface covered with vertical and slanting lines made by the scraping tool. Ht. 17 cm.

WESTERN MACEDONIA
HALIÁKMON VALLEY³

PÁTELE

Cf. pp. 104, 105 and Pl. XXIII; *Boubousti*, Fig. 30; *M.T.I.*, Fig. 63.

PALAIOGRÁTSIANO

Fragments of jugs with twisted handles; bowls with high-swung handles. (Surface finds, now in the collection of the British School at Athens. Cf. *B.S.A.* xxxi, p. 44.)

¹ Cf. also List of Prehistoric Sites, p. xxiii, and *B.S.A.* xxvi, pp. 30–34.

² Cf. *Olynthus* V, Groups I and II, pp. 17–25, and Plates XVIII–XXIV.

³ Cf. also List of Prehistoric Sites, p. xxiii. For Grevená, cf. *M.T.I.*, p. 172.

MISCELLANEOUS OBJECTS

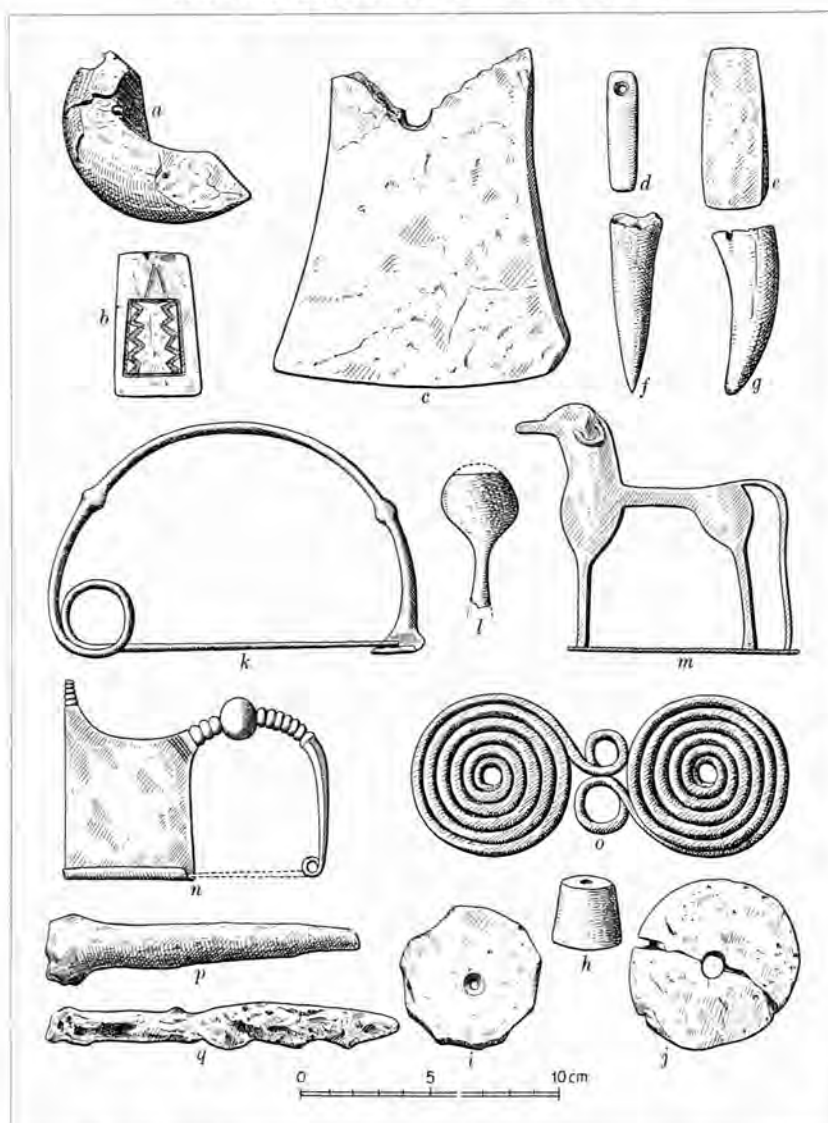


Fig. 112. Early Iron stone, bone, clay, bronze and iron objects.

Stone.

- a. MACE-HEAD (= *Vardaroftsa*, Fig. 20, 5): perforated; bronzite. Vardaróphtsa.
 b. MOULD FOR BRONZE ORNAMENT (= *Saratse*, Fig. 32, 11): rounded back; schist(?). Saratsé.
 c. AXE, CEREMONIAL(?) (= *Saratse*, Fig. 29, 6): small central perforation; micaceous schist. Saratsé.
 d. HONE (= *Saratse*, Fig. 32, 8). Saratsé.
 e. HONE (= *Saratse*, Fig. 32, 9). Saratsé.

Bone.

- f. GOUGE (= *Saratse*, Fig. 33, 8). Saratsé.
 g. TIP OF ANTLER (broken) (= *Saratse*, Fig. 33, 6): perforated, the break occurred at the perforation; the broken end was then worked to an even surface and polished. Saratsé.

Clay.

- h. WHORL OR BUTTON (= *Vardaroftsa*, Fig. 21, 19): flattened cone. Vardaróphtsa.
 i and j. DISCS MADE FROM CHIPPED POTSHERDS (= *Vardaroftsa*, Fig. 22, 12, 11). Vardaróphtsa.

Bronze.¹

- k. FIBULA (= *Albania*, IV, Fig. 10). Pátele.
 l. FRAGMENT OF TWEEZERS(?) (= *Vardaroftsa*, Fig. 20, 1). Vardaróphtsa.
 m. HORSE ON STAND (= *Albania*, IV, Fig. 10). Pátele.
 n. PLATE-FIBULA (= *Albania*, IV, Fig. 10). Pátele.
 o. SPECTACLE-FIBULA (= *Albania*, IV, Fig. 10). Pátele.

Iron.

- p. SOCKETED SPEAR-HEAD (= *Vardaroftsa*, Fig. 20, 7). Vardaróphtsa.
 q. SOCKETED SPEAR-HEAD (= *Boubousti*, Fig. 29, 9). Bouboústi.

¹ Cf. p. 108, note 2, which explains the omission of Tsaoutsitza bronzes.



Pl. I. Early Neolithic. Western Macedonia (Sérvia).



Pl. II. Early Neolithic. Western Macedonia (Sérvia).

Plate III



4



2

Pl. III. Early Neolithic. Western Macedonia (Sérvia).

Plates IV and V



Pl. IV. Early Neolithic. Western Macedonia (Sérvia).

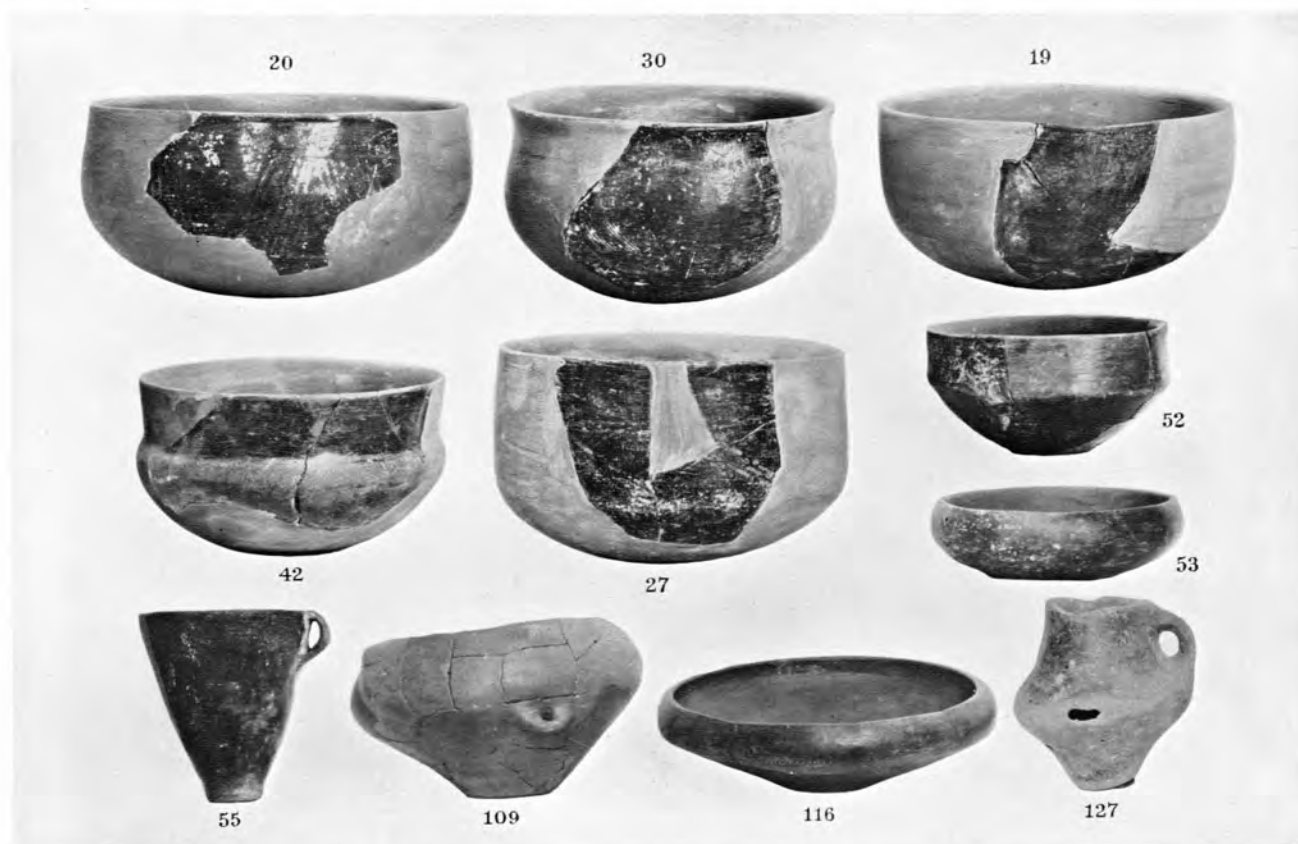


Pl. V. Early Neolithic. Western Macedonia (Sérvia).

Plates VI and VII



Pl. VI. Late Neolithic. Western Macedonia (Sérvia).



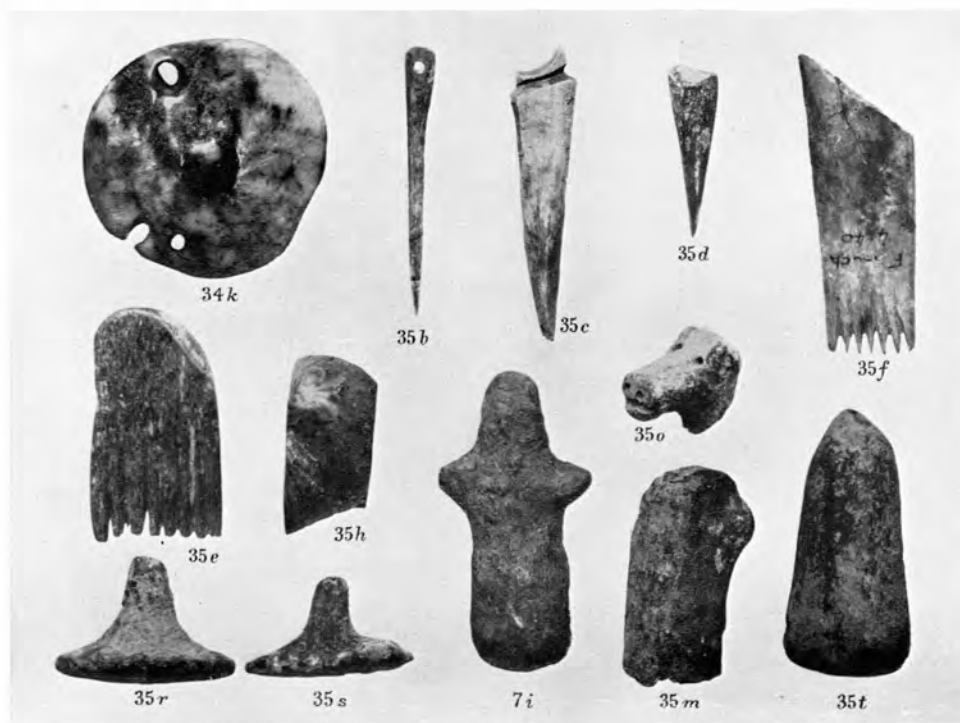
Pl. VII. Late Neolithic. Western Macedonia (116, 127, Central Macedonia).



Pl. VIII. Late Neolithic. Western Macedonia.

Pl. IX¹. Late Neolithic. Western Macedonia (Sérvia).¹ Numerals refer to Figs. in Part III.

Plates X and XI

Pl. X¹. Late Neolithic (7*i*, Early Neolithic). Western Macedonia (Sérvia).

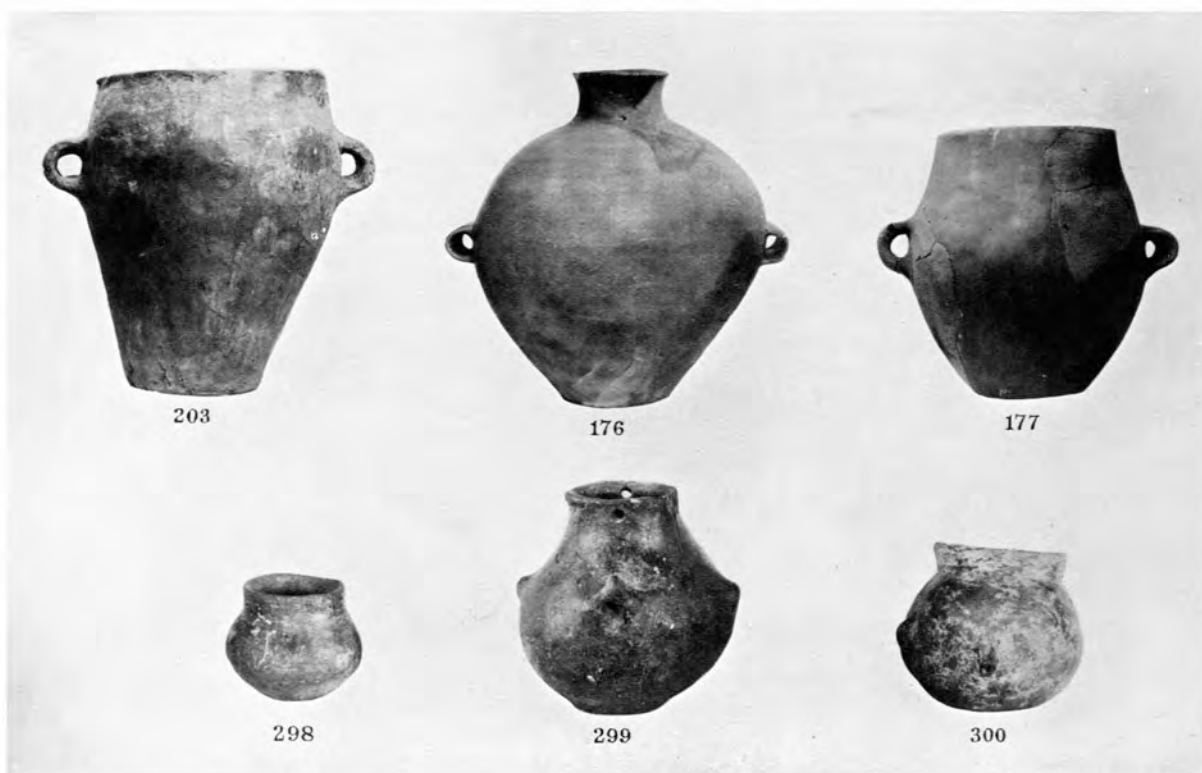
Pl. XI. Early Bronze. Chalcidice.

¹ Numerals refer to Figs. in Part III.

Plates XII and XIII

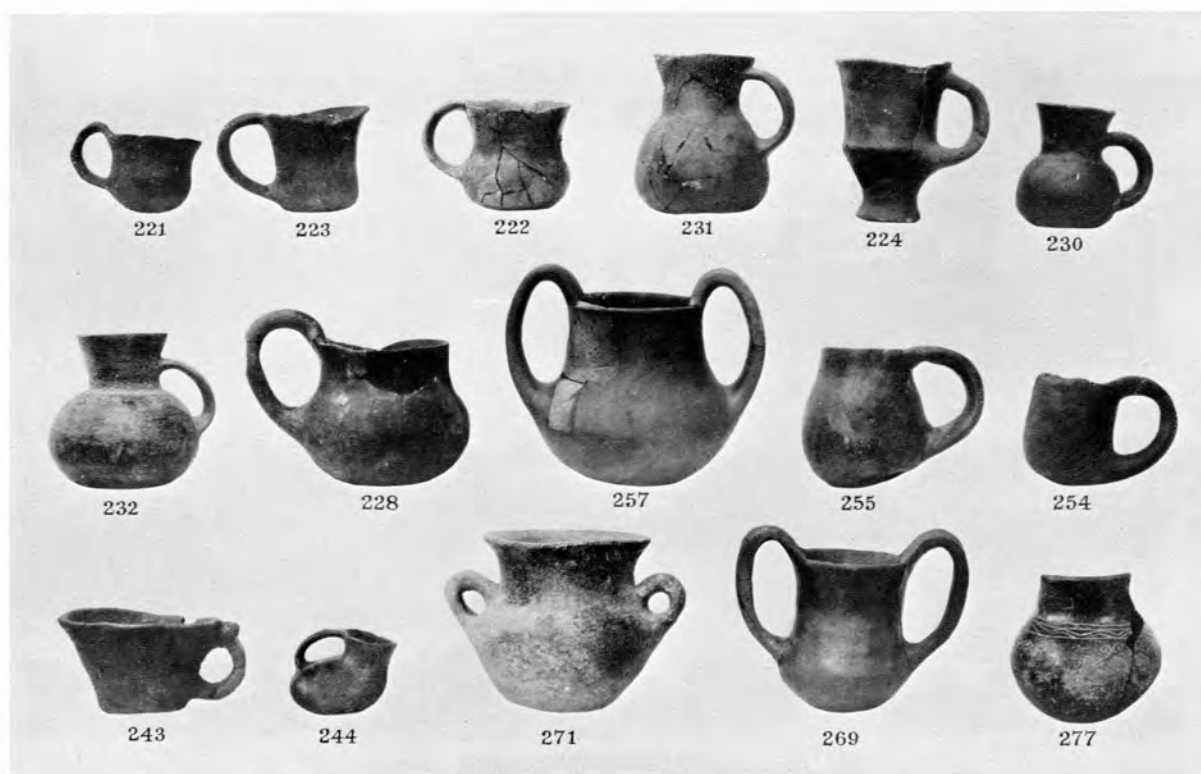


Pl. XII. Early Bronze. Chalcidice.



Pl. XIII. Early Bronze. Chalcidice (upper row); unknown provenance (lower row).

Plates XIV and XV



Pl. XIV. Early Bronze. Central Macedonia.

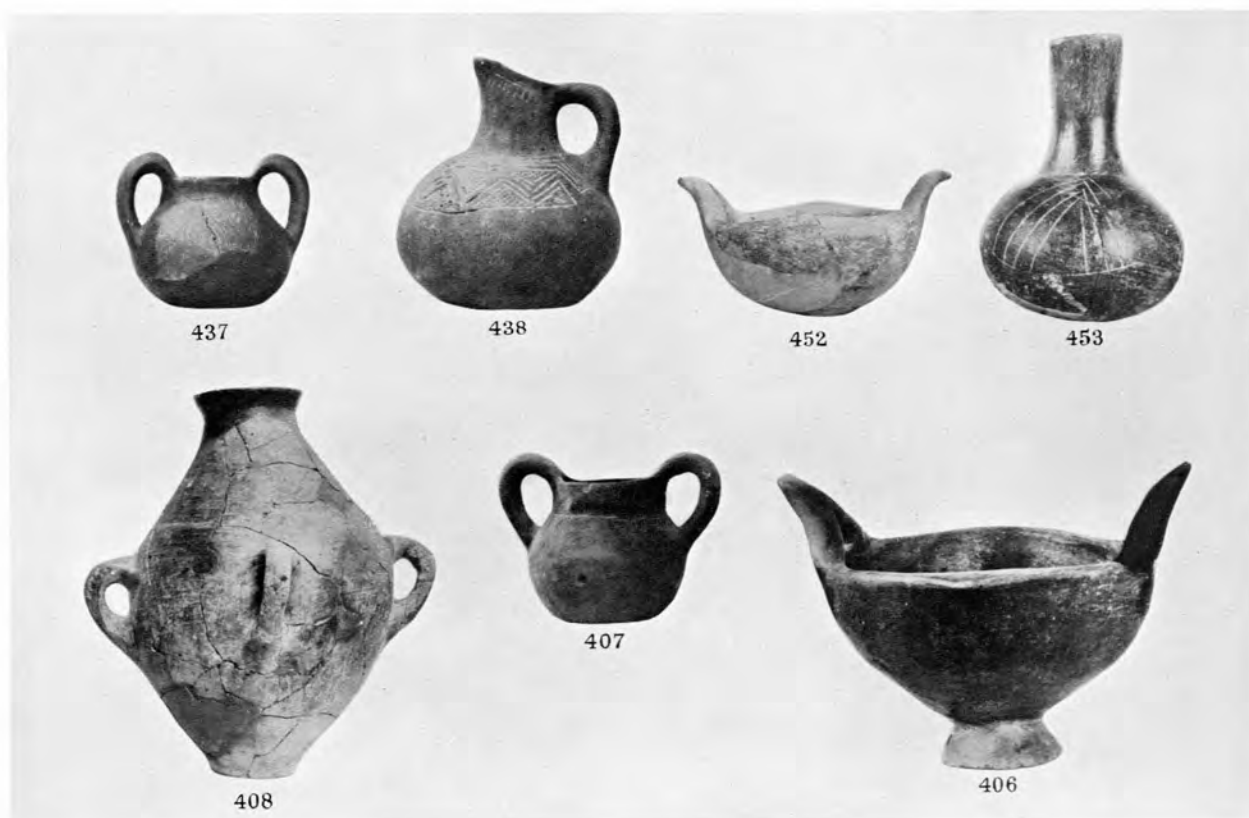


Pl. XV. Early Bronze. Western Macedonia (Tserna Valley).

Plates XVI and XVII



Pl. XVI. Middle Bronze. Central Macedonia (394, 401, Chalcidice). 440, Late Bronze. 382 reproduced by permission of the Archaeological Institute of the University of Liverpool.



Pl. XVII. Late Bronze. Central Macedonia.

Plates XVIII and XIX

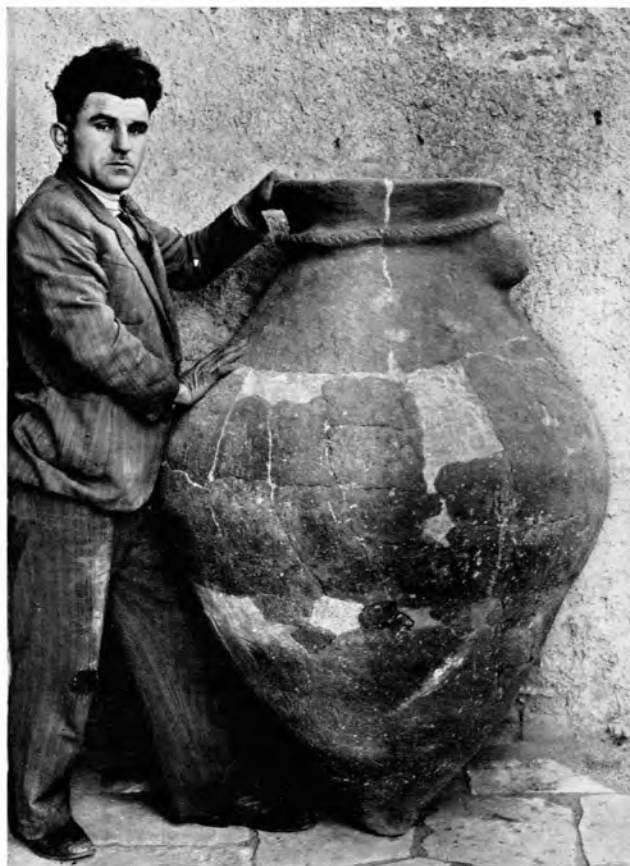


Pl. XVIII. Late Bronze. Central Macedonia (465, 466, Western Macedonia).



Pl. XIX. Late Bronze (Mycenaean). Central Macedonia (458, Chalcidice).

Plates XX and XXI



420

Pl. XX. Late Bronze. Central Macedonia (Várdina).

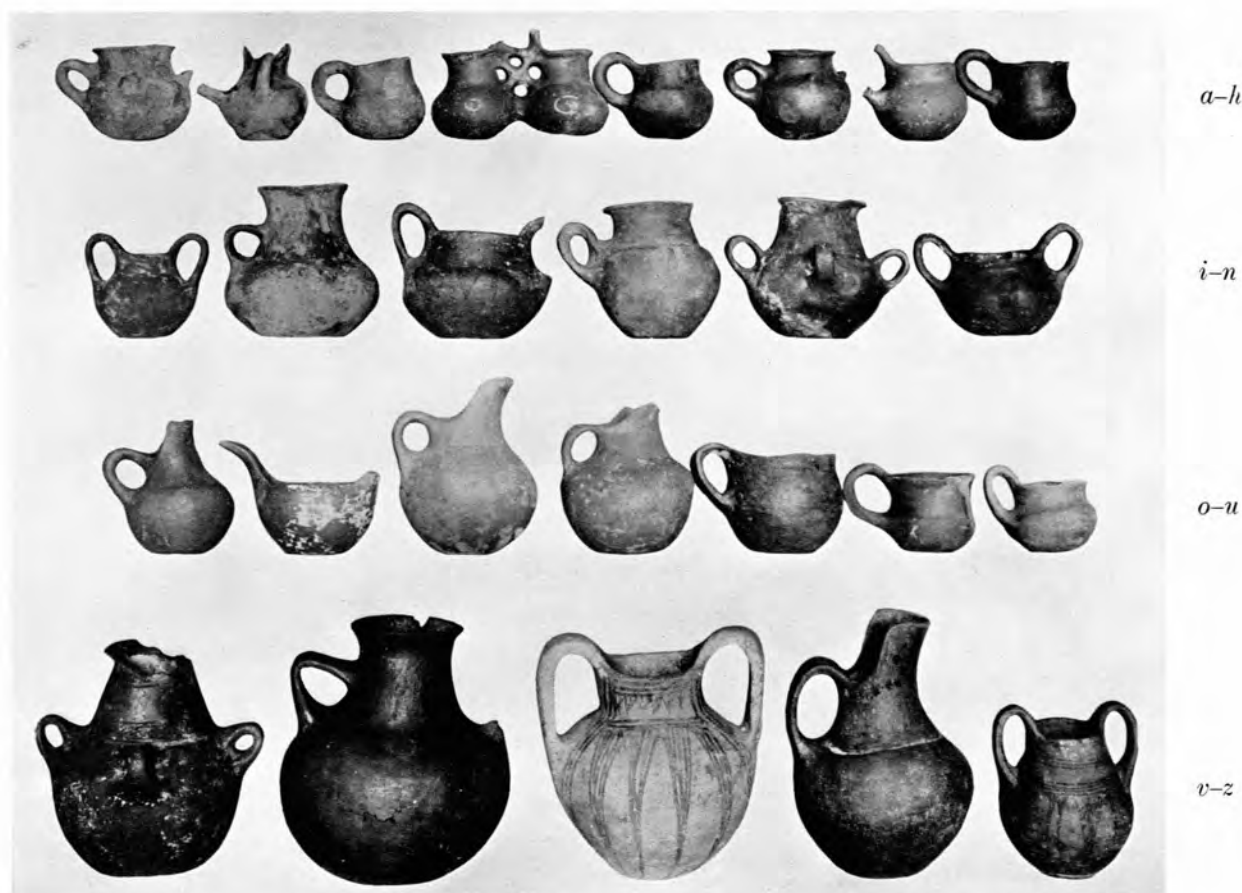


Pl. XXI. Early Iron. Central Macedonia (439, L.B.—E.I.).

Plates XXII and XXIII



Pl. XXII. Early Iron. Central Macedonia.



Pl. XXIII. Early Iron. Western Macedonia (Pátele).

Appendix I

NOTES ON MINING IN MACEDONIA¹

BY O. DAVIES

There is a certain amount of evidence from the prehistoric settlements in Macedonia that the inhabitants were interested in mining in a small way. Gold slags have been found at Vardar-óphtha and at Saratsé in the Early Bronze Age strata, at the former also of Late Bronze Age and Early Iron Age dates; they are probably to be designated as scums, which come to the surface as the gold, after having been inefficiently washed, was melted². The gold was obtained native in the Gallikó and Axiós, near Salonica and elsewhere; the first of these localities has been the most productive, considerable remains of placers having been found near Gramátina. These, however, were discovered by Alexander of Macedon in the fifth century; or if Dysoron is rather to be located at the reefs near Fanarlé, the placers cannot have been opened at a much earlier date. There are few prehistoric settlements on the Gallikó, and the placers then worked were those on the Axiós and perhaps in the Lankadás Valley. Their production must, however, have been small. Only two gold objects of early date have been found in Macedonia, an Early Bronze Age hair ring from Saratsé and a Middle Bronze Age disc from Kilindir, though cemeteries, where gold objects more commonly occur, have not yet been examined. Nor are the connections of Macedonia with the outside world in prehistoric times sufficiently intense for us to assume that much gold was exported. Macedonia did not become an Eldorado to the Greeks until the sixth century B.C.

Though Macedonia has sulphide ores containing precious metals, and the deposits of Fanarlé and Madenochóri were accessible to the districts most densely populated in the Bronze Age, it is doubtful if the processes of extraction were so early understood. The former area was explored by the inhabitants of Kilindir; but its mineral wealth was unknown as late as 480 B.C. The mines of Madenochóri were not discovered before 360 B.C. In Western Macedonia old workings are known on the fringe of the area of prehistoric settlement; but whereas Damastium or Gümüş Çesme, between Lakes Prespa and Ochrid, cannot be proved to have been opened before Hellenistic times, the mines behind Flórina seem, from the evidence of place-names, to have been exploited by the Saxons brought south probably by Stephen Dušan.

Some of the Early Bronze Age specimens from Macedonia are pure copper, with only a trace of tin (A-B)³, of which (A) is the earliest; others seem to have an intentional admixture of tin, but were so rusted that its proportion to the copper could not be accurately determined (C-D). An axe (E) from the Middle Bronze Age is still copper; but in this and the next period poor tin-bronze is usual, which suggests that the Macedonians did not have easy access to the sources of tin; the highest reliable figure is 5 per cent in a specimen from Saratsé which unfortunately was unstratified (L). Even specimen (M) from the Iron Age contains comparatively little tin, though it is dangerous to argue from one analysis, and an alloy with 10 per cent tin would be unsuitable for objects which were manufactured by hammering.

¹ This account is intended to supplement a paper by the author in *Journal of the Royal Anthropological Institute*, LXII, 1932, p. 145, where the Macedonian mines of all periods are described.

² Doubts have been expressed whether it would be necessary to melt the gold after washing and so form scums. But Hippocrates (*De Diaeta*, I, 20 = Kuhn, I, 644κ) says that gold-workers crush and wash the ore and melt the metal, which forms a nugget at a low temperature. This notice refers to reef-mining, but the washing and heating processes are similar in placers; it proves that the gold was heated to make the fine grains coagulate and not to purify it from silver.

³ Letters refer to diagram on next page (266).

		Cu	Sn	Pb	Zn	Bi	Sb	Fe	Ni	As	Ag	Co	Au	S
Early Bronze Age														
Kritsaná	A	81.79	Trace	—	—	0.06	0.23	0.37	—	—	—	—	—	
Saratsé	B	92.43	0.09	1.49	0.03	—	—	0.06	—	5.88	—	0.02	—	
Vardaróphtsa	C	Some	Much	Much	Trace	Trace	Some	Some	Much	—	Trace	Trace	—	
Saratsé	D	Little	Some	Little	Some	Trace	Trace	Much	—	Little	Trace	Trace	—	
Middle Bronze Age														
Góna ¹	E	96	—	—	—	—	—	—	—	—	—	—	—	
Vardaróphtsa	F	86.26	3.37	—	—	1.38	—	0.82	Trace	—	—	—	—	
Vardaróphtsa	G	Little	—	Little	Trace	—	Some	Much	Much	—	—	—	—	
Saratsé	H	Some	Some	Trace	Trace	Trace	Trace	Much	Trace	Trace	—	Trace	—	Trace
Late Bronze Age														
Vardaróphtsa	I	78.96	2.14	Trace	1.98	3.09	0.4	0.94	1.07	—	—	—	—	
Góna	J	63.11	2.37	Trace	—	—	1.15	0.07	1.11	0.03	—	—	—	
Hágios Mámas	K	Much	Some	Some	Trace	—	—	—	—	Trace	—	Trace	—	Trace
Bronze Age of doubtful date														
Saratsé	L	74.88	5.07	Trace	—	0.14	0.11	0.05	Trace	2.1	—	0.18	—	
Iron Age														
Tsaoutsítza	M	74.71	6.79	0.8	—	—	1.38	0.37	—	Trace	—	—	—	

In view of the oxidized condition of most of the specimens examined, it may be doubted if other metals were added intentionally, though in two cases (C, L) the arsenic percentage is high. Arsenic was occasionally used to harden copper in Egypt and to colour it in early Cycladic times, so its knowledge may have thus spread northwards to Macedonia. Arsenical ores occur in this province, and so may have been discovered at an early date. They were worked for gold in later times on Pangaeum and at Rožden.

Bronzes with a high percentage of tin occur quite early but rather sporadically in Mesopotamia². Tin was perhaps smelted in small quantities at a fairly early date in Central Greece; high tin-bronze appears occasionally in Crete and Amorgos before the end of the Early Minoan period, and bronze becomes usual in Middle Minoan times. Tin was also obtained in Bohemia in the Bronze Age, but the trade route from the middle Danube led south-east, and there was probably no regular connection with the southern Balkans. It is therefore uncertain from which direction the prehistoric Macedonians obtained their tin supplies, which considering the rarity of metal on their sites cannot have been large. Old tin mines have been claimed to exist on Pangaeum³; but I am sceptical about them.

The most constant impurities in Macedonian copper seem to have been lead in varying amounts, zinc and bismuth sometimes in large quantities, and a little cobalt; nickel is sporadic but is sometimes present in large amounts, silver is very rare. Too few analyses of ores have yet been undertaken to be certain of the source of this copper; it does not agree with that of neighbouring regions, either of South Greece, or of Troy, or of later Macedonian coins, which lack silver, cobalt and arsenic, always have nickel and lead, frequently zinc, and rarely and in small quantities antimony. For other parts of the Balkans no analyses have yet been done, though the copper of Transylvania is not unlike that of Macedonia save that silver is constantly present in it.

¹ Cf. Rey, II, p. 244.

² Not only bronze but copper and tin were known in Gudea's time (Winckler, *Altorientalische Forschungen*, I, 1894, p. 159).

³ Arzruni, *Verhandlungen der Berliner Gesellschaft für Anthropologie*, 1884, p. 58; Helmhaecker, *Engineering and Mining Journal*, LXVI, 1898, p. 637.

The presence of native sulphur in two specimens (H, K) suggests the use of sulphide ores, despite the difficulty of smelting them; on the other hand, the absence of silver makes the employment of pyritical ores improbable, as in Macedonia they mostly contain precious metals. The considerable percentages of impurity in many specimens show that the local workmen were unskilled in purifying their metal. The earliest specimen examined (A) is so pure that the use of native copper or of a carbonate ore is almost certain; it differs considerably in character from the other pieces.

The dissimilarity of Macedonian copper from that of other regions suggests a local source or sources. A small mine at Tsátzilé (Sacili) was worked in pre-Greek times, perhaps in the Bronze Age; its ore agrees partly with prehistoric Macedonian copper, but does not seem to contain any nickel, cobalt or bismuth. It is possible that some of the small deposits near Gevgelë were known, but I have not been able to obtain samples from them.

Silver was rarely known in prehistoric times, because it usually occurs in small quantities disseminated in ores of other metals. There is no evidence for its use in Macedonia before the Iron Age.

A lump of slag, apparently derived from cast iron, was found at Vardaróphtha in the pre-Mycenaean level of the Late Bronze Age. Sporadic pieces of cast iron may be produced at any period, only often the nature was not recognized and it was thrown away. The earliest claimed piece of cast iron is a ring of Hallstatt date from Byčískala, which was probably intentional. In the Middle Bronze Age level at Kilindir was a piece of magnetite, which may have been brought there for smelting rather than as an ornament or talisman. Magnetite crystals occur in the Kara Dağ and have been washed in the past¹. It has been objected that prehistoric peoples would have had difficulty in constructing crucibles to stand the temperature of cast iron; but Mr W. E. Woodward reminded me that the magnesite of Macedonia would be suitable, though there is no direct evidence for its use.

It does not seem, however, that stray examples of cast iron are to be regarded as the origin of iron-working. Iron, unlike copper, should not be liquefied, which would demand too high a temperature for regular production; but the process must be stopped when a bloom of fairly pure wrought iron has been produced, which is then not cast but hammered. This technique was known to Homer, and its discovery heralds the introduction of the Iron Age. It is perhaps safest to accept the evidence of the Jupiter Dolichenus inscriptions, and place the earliest iron-working on the middle Euphrates near Maraş, perhaps the Hittite Kisswadna. Greek traditions of the Idaean Dactyls point to an early iron-working centre in Phrygia, and iron slag of doubtful date is said to have been found at Bozüyük². But iron-working does not seem to have reached Macedonia until comparatively late times; the piece of slag from the Iron Age level at Vardaróphtha was of normal bloomery composition. Probably the first iron was imported from the south or south-east.

The impression given by this evidence is that the early inhabitants of the Aegaeon coastlands were not primarily metallurgists. Just as Hesiod's peasant was first and foremost a farmer and perhaps in his spare time a sailor, so one may suspect that the Macedonians were principally interested in agriculture or pasturage, but had sufficient intelligence to notice and exploit such mineral resources as were at their disposal; so apparently did the early Helladic people of the south, though they did not insist on settling in places with mines, as in the Peloponnese there are few traces of early workings. In some districts in which prehistoric mining was practised it seems that whole peoples devoted themselves to it, as in the Austrian Alps and perhaps at Aramo; but the Macedonians seem rather to have been amateurs at mining, as were perhaps the people of South-Eastern Spain in chalcolithic times, and those of West Wales under the Romans.

¹ Cvijić, *Geologie von Macedonien und Altserbien*.

² Olshausen, *Zeitschrift für Ethnologie*, 1907, p. 691.

Appendix II

NOTES ON A LATE NEOLITHIC SKELETON FROM SÉRVIA

BY PROF. J. KOÚMARES¹

ACCOUNT OF A HUMAN SKELETON

The skeleton was sent to me just as it was excavated, with the earth on which it lay. The bones were in good order, but the skull had unfortunately been smashed in the course of transit from Salonica to Athens.

I reassembled the fragments of the skull and mandible, but found that the upper jaw was missing.

AGE. Apparently about 30 years, to judge from the cranial sutures, and from the worn crowns of the teeth.

SEX. Female, to judge from certain characters of the skull, which is small and smooth with inconspicuous brow-ridges, small mastoid processes and zygomatic arches, projecting occiput, high forehead and a lower jaw which is slight with a widely-open angle. The other bones are of very small dimensions.

NORMA VERTICALIS. Viewed from above, the cranium is in appearance ovoid or, more precisely, pentagonoid, the parietal eminences being conspicuous.

MEASUREMENTS

CRANIUM:

Circumference	490 mm.
Maximum length	172
Maximum breadth	139
Height (from Auricular point to Bregma)	101
Minimum frontal width	91
Maximum frontal width	113
Frontal angle (profile)	102°
Frontal angle (inclined)	131°

INDICES:

		Designation
Cephalic index	80-88	Sub-Brachy-Cranic
Length-height index	58-72	Orthocranic
Breadth-height index	72-66	Tapeinocranic
Transverse fronto-parietal index	65-45	Stenometopic
Transverse frontal index	80-53	

MANDIBLE:

Coronoid width	88
Width at angles (bigonial)	89
Anterior width (at mental foramina)	45
Length of mandible	74
Height of mandible	33
Ascending ramus height	57
Ascending ramus width (minimum)	31
Ascending ramus angle	125°
Profile angle of mandible	78°

¹ Dr W. L. H. Duckworth very kindly undertook to give the exact English equivalent of the technical terms.

OTHER BONES:

Right humerus	Maximum length (head to trochlea)	271 mm.
Right ulna	Maximum length	233
	Physiological length	207
Left femur	Maximum length	383
	Trochanteric length	365
Right femur	Maximum length	383
	Trochanteric length	364
Right tibia	Maximum length	315
	Length from condyle to malleolus	312

REMARKS

(1) The left humerus presents a supra-trochlear foramen.

(2) To judge from the lengths of the femur, tibiae, humerus and ulnae, the nearest estimate of the stature of the individual (according to Manouvrier's table) would be about 1456 mm. (145.6 cm.), less, that is, than the average height of a woman (149-159 cm.) and much less than the average height of a man (160-170 cm.). This estimate is necessarily approximate only, since, as is well known, in small individuals, whether men or women, the stature does not bear the same proportion to the lengths of the limb-bones, as it does in persons of average stature. The ratio is in fact greater, owing to the greater length of the trunk. (But the margin of error is, in any case, slight.)

(3) The cranial index is brachycranic rather than mesocranic. The latter index I have found frequently in prehistoric skulls.

(4) The breadth-index of the frontal region, which shows stenometopy, is perhaps of greater significance. I have often found this in the case of prehistoric skulls in Greece. In our skull, the stenometopy is due to exuberant growth in the parietal diameter, placing the specimen in the brachycranic class. In the case of more recent skulls I have, on the contrary, frequently found metopy and eurymetopy, but the latter occurs also in prehistoric skulls (Crete, Cephallonia, etc.).

(5) No signs of metopism occur.

SUMMARY

It would not be safe to draw any ethnological conclusions from one skeleton, especially as it does not present marked characteristics.

Appendix III

MUSEUM INDEX¹

SALONICA. With the exceptions mentioned below the vases in the Inventory are at present in the small museum adjoining the Church of St George. Most of those that are complete or have been restored are exhibited on the shelves or in the cases; some which are incomplete are also on the shelves, but most, as well as sherds, are in drawers below the cases (e.g. Tsoutsítza, Kilindir, Várdina), or in small boxes (Vardaróphtsa, Saratsé, Hágios Mámas, Molyvópyrgo). There are also several large boxes containing sherds and miscellaneous objects (Sérvia, Várdina, Armenochóri).

In the Archaeological Museum the following are exhibited: **214, 215, 244, 277, 298–300, 377, 379, 406, 421, 424, Fig. 91, 435, 451, 453, 455, 476, 496, 497.**

146–161 (Olynthus) and **498–504** (Olynthus) are also in the Archaeological Museum or the adjoining storerooms, but are not, as far as I know, exhibited.

333–341 (Armenochóri) are also here, but not exhibited.

ATHENS. In the National Museum but not exhibited: **1–10, 12, 13–20, 42, 52, 53, 55, 92–103, 312, 318–332, 342–349.** These can be seen, if permission is obtained, as well as a representative collection, chronologically arranged, of sherds and miscellaneous objects from Vardaróphtsa. There are also boxes containing sherds and objects from Vardaróphtsa, Hágios Mámas, Molyvópyrgo, Kritsaná, and Sérvia.

LONDON. British Museum. **266, 267, 301–306, 381, 449,** forming part of the collection made by the British Salonica Force, 1915–1916, and presented by the Greek Government. This collection includes the sherds from Aiváte (Fig. 21)².

LIVERPOOL. Museum of the Archaeological Institute. **382.**

OXFORD. Ashmolean Museum. **369.**

PARIS. Louvre. Some of the sherds and objects from the excavations made by the Archaeological Service of the French Army in Salonica during the War. It includes the sherds from Kapoutzédes (Fig. 22) and Sédes (Fig. 23)³.

ISTANBUL. National Museum. The Pátele vases (Pl. XXIII) and bronzes (Fig. 112, *m, n, o*).

¹ Relates only to material illustrated in this book and refers to conditions as they were in 1932. For other collections of Macedonian material, cf. *M.T.I.* Preface, pp. xi, xii.

² Cf. also *B.M.C.*, Index, under 'Macedonia'.

³ I have not seen this collection.

Appendix IV

BIBLIOGRAPHY, MAINLY ARCHAEOLOGICAL

Since Casson's bibliography (*M.T.I.* pp. 330–41) the following books, articles, etc., either directly concerned with the Prehistoric Archaeology of Macedonia or having some bearing upon it, have, among others, appeared.¹

- ÅBERG, N. *Bronzezeitliche u. früheisenzeitliche Chronologie*, Teile III, IV.
 BITTEL, K. *Prähistorische Forschung in Kleinasien*.
 BLEGEN, C. W. *Zygouries*.
 — Current reports on the Excavation at Troy, 1932–36, *A.J.A.* xxxvii–xli.
 BÖHM, J. and FEWKES, V. J. 'Cinerary Urn-graves at Kiepenice', *B.A.S.P.R.* xi (May, 1935), 31 ff.
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