

TREATISE
ON THE
CULTURE OF THE PAHLIA
AND
CACTI

BY E. SAYERS,
AUTHOR OF THE FLOWER GARDEN COMPANION, &c.

BOSTON:
WEEKS, JORDAN AND COMPANY,
1839.

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A

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P R E F A C E .

THE general desire manifested by the lovers of choice flowers to improve the beautiful tribes of the DAHLIA and CACTUS, has induced the writer to compile this little treatise. He does not pretend that the following pages are entirely original; he acknowledges his obligations to the late works of Paxton and M'Intosh, two of the most eminent floriculturists in Great Britain. So far, however, as these pages have any claim to originality, the compiler has drawn from an experience of no recent date in the general culture of flowers, during which he has paid particular attention to the Dahlia and Cactus. The favorable reception which, in the present enlightened state of horticulture, is extended to every consistent effort for the improve-

ment of any of its departments, encourages him to send his little treatise to the press; and that it may have a tendency to strengthen the impulse already prevalent in the culture of choice flowers is his earnest wish.

May, 1839.

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CULTURE OF THE DAHLIA.

INTRODUCTION.

THERE are few subjects that can engage the attention and leisure hours of the intelligent observer of nature in a more satisfactory manner than the culture of flowers ; for in them we find a perpetual fund of information that at once enlivens the mind, and gives a new energy to our researches. Who can examine the nice symmetry and regular structure of a flower, of the least admired varieties, without at once acknowledging that the superior order of nature defies the most correct artist to produce so fair a copy : nor can the best painter vie with the nice tinselling of the pencil of nature, or design any thing original that will compare with the native flowers that are perpetually unfolding their blossoms to our view. Unlimited as is the number of those primitive beauties, that ever retain their regular number of parts and symmetrical order, so that among millions of flowers of

the same species no difference is discoverable to the most careful examiner, their peculiar nature admits of certain sports or variations of form and color, so that the art of man can gratify his desire for novelty, by producing from the primitive, new varieties that bear a similitude to their parent, although entirely different in color, form and structure. This part belongs to the Florist, and perhaps no flower was never more diversified, and improved in a floricultural view, than the *Dahlia*; for within a few years we have been made acquainted with many hundreds of varieties proceeding from a few. Nor are they more remarkable for their number than for their brilliant and diversified shades and colors, which give every variety of contrast, from *self* or distinct shades to the most mingled and variegated—from a clear white to a dark purple. This beautiful flower, too, has been found to possess such qualities as will admit of being grown to correct modifications and colors that are considered by florists as the *ne plus ultra* of their art. The success of the culture of the *Dahlia* within a few years has been such as to gratify the most sanguine desire and the most refined taste of the amateur. Taking the flowers in a general view as ornaments of the flower garden, they may be considered as the “nobles” of their season,

for certain it is that no flowers of their season add so much brilliancy to the flower garden as a good collection of the Dahlia. The limited object of this little treatise prevents me from doing more justice to this lovely flower ; I shall therefore proceed to give some account of its introduction into notice and its native country, which I quote from "*Paxton on the Culture of the Dahlia*," an English work, and one of the best treatises I have seen in print on the subject.

"We are informed," says the writer, "from indisputable authority, that this plant was first introduced into this country [England] from Spain, by the Marchioness of Bute, so early as 1789: but, as it was not subsequently heard of, it is supposed to have been lost shortly after this introduction. In 1804, accounts are recorded of seeds of this plant having been transmitted by Lady Holland, from the Royal Gardens at Madrid to Mr Buonaruti, then resident in this country. From these seeds a few plants were produced, and some of them flowered in the following season ; while two others are said to have flowered in the garden of Lord Holland in the autumn of the second year."

Mr Paxton adds : "The botanical name, *Dáhlia*, was first given to this genus in honor of Dahl, a Swedish botanist, by Cavanilles, a Spanish botanist ; but the propriety of this

having been disputed on account of its resemblance to *Dalea*, a name previously bestowed on a genus of a totally different nature, and more especially as the name of the genus under consideration is frequently, but vulgarly, pronounced *Dàylia*, many botanists agreed to change the name to *Georgina*, some say, in honor of Georgi, a Russian traveller and botanist, while others assert, in compliment to Lady Holland, through whom it was introduced into this country : but, although the learned M. De Candolle and other eminent botanists adopted the latter appellation, and although many efforts have been made to establish its name in this country, it has been found that the original name, *Dáhlia*, had become too generally known and received to be easily eradicated ; besides which, having the priority of publication, (which is considered conclusive in such matters,) it is now almost universally acknowledged.

“ The Dahlia is a native of the high sandy plains of Mexico, where it was first discovered by that eminent and indefatigable botanist, Humboldt, five thousand feet above the level of the sea, but in what year we have no authentic accounts. There are three distinct species of this genus : *D. coccinea*, *D. Cervantesii*, and *D. variabilis* ; of which the two former are not now cultivated, as they do not

readily sport into varieties, and are much less beautiful than *D. variabilis*, from which latter all the innumerable varieties at present known to our collections have emanated. From the most authentic sources we thus learn that the Dahlia has been cultivated in this country [England] for upwards of thirty years, but perhaps during the whole time it cannot strictly be said to have attained any degree of perfection till within the last ten years ; and, if we take a retrospective view of the progress of Dahlia culture during this brief period, what abundant cause have we for wonder and astonishment ! Each succeeding year produces some fresh beauties to admire ; each revolving season develops some new peculiarities of shape and color ; every annual catalogue apprises us of immense accessions to our previous stock ; and we are involuntarily led to exclaim, ‘ Where will all this terminate ? ’ But, to this interrogatory, time alone can afford a solution ; and whatever conjectures may be entertained, it is impossible to come to any satisfactory conclusion.”

Having spoken of the introduction and encouragement given to the Dahlia in Europe, it now becomes my duty to give a cursory view of the encouragement it has met in this country, for certain it is that in this part of floriculture America keeps a closer pace with

Europe, than in the culture of any other class of florist's flowers. It is only within ten or twelve years that any fine specimens of Dahlias were to be seen in this neighborhood, nor I believe in any other parts of the States; the *D. coccinea speciosissima* I recollect to be first grown by Mr William Leathe, of Cambridgeport, near Boston, about ten years ago; it attracted much admiration, and at that time was considered a very elegant flower; it was however soon eclipsed by that splendid scarlet, the Countess of Liverpool, and a general improvement made rapid strides in the self colors, until the parti-colored flowers made their appearance and formed a new era in the list of choice Dahlias. It would be altogether needless for me to name over the many splendid varieties now extant; suffice it to say that almost every variety of shade and color, as well as the greatest perfection of form, is now to be seen in the Dahlia. There is much credit due to certain individuals who have been at pains to introduce new and rare kinds into this country, as they have made their appearance in Europe. Through their laudable efforts the lovers of the Dahlia have been put in possession of choice kinds with comparatively little trouble, a correspondence having been kept up by these public spirited individuals with Widnal and the most noted

growers in England and other distant countries.

No person has done more for the introduction and advancement of the culture of the Dahlia than George C. Thorburn, of New York, who yearly flowers many thousand plants at his place at Hallet's Cove, near Harlaem. The show there in the flowering season is a rich treat for the lovers of floriculture : for almost every variety can be seen growing in two large blocks or masses which lead from the road to the dwelling-house, and form a complete field of the Dahlia as a foreground to the house.

Mr T. Hogg, Mr William Read, and many other well known florists, have also contributed much in the vicinity of New York, to the introduction of the Dahlia. Indeed so general has become the taste that almost every garden has its show of the Dahlia in the season. In Boston too, there are many choice collections, and there exists a rivalship among the amateurs which is a sure prelude to perfection in floriculture. In the vicinity, the Messrs Hovey, of Cambridgeport, have bestowed much pains in collecting yearly the choice kinds from every source where they could be obtained ; their collection is well chosen, and the interest they take to show their flowers in the flowering season entitles them to the public patron-

age. The lovers of flowers cannot but be sensible that a free privilege to view such collections as those, should be requited by liberal purchases of the plants, thus encouraging and aiding the grower to carry the culture to the highest point.—In the vicinity of Cambridge, Mr Samuel Sweetser's collection is also amongst the best in the Union; Mr William Leathe, of that place, with Mr McIntire, have well chosen collections; and indeed it might be said that the *Port* is almost unrivalled for amateurs in florist's flowers. Many more amateurs might be quoted in this neighborhood who have much contributed to the culture of the Dahlia, would my limited space allow.

There is no flower of such a decorating character as the Dahlia in its season; for, whether it finds a place around the limited ground of the city residence, or the open exposure of the rural cottage, its brilliant flowers shine unrivalled and attractive to every observer: by the roadside it invites and cheers the wearied traveller, and in the city it gives a lively conception to every passer by.

EFFECTS OF SEASONS AND LOCATION.

THE cultivation of the Dahlia is generally encouraging to the lovers of floriculture ; and when well understood is very simple in its operation. The Dahlia adapts itself to more variations of soil and location in favorable seasons than any other family of plants that claims so general admiration. As a proof of this, we find it flourish in the impure air of a city equally as well as in the most salubrious air of the country. Nor does a different kind of soil act so materially on its well-being as on many kinds of plants which are partial in their nature, and will only flourish in their peculiar soil and location. But should the season prove unpropitious, the most unremit- ted and scientific exertions of the cultivator cannot counteract its effect on the flowering ; although in some cases good culture will greatly assist the process. The most unpropitious season to the Dahlia in this climate is *a long continuance of drought* in the months of July and August : for when this occurs the growth of the young shoots is impeded so that the flower buds cannot unfold and develop ; but are impoverished in their embryo state in the shoots, which are naturally converted into a hard, woody substance, in

order to bear the extreme dry season. In this case it is not until the cool nights of the fall months that the Dahlia can make the proper shoots for flowering; and this often happens so late that the entire stalk is killed by the frost before flowering commences. The most favorable locations in such seasons are on the borders of rivers, lakes or large sheets of water, that afford a humid atmosphere in the mornings and evenings of hot, sultry weather: for there is no plant of the flower garden that is more benefited by a humid atmospheric air than the Dahlia.

So far as my experience has been in regard to location, I have found that a free exposure is the best; for when the Dahlia is grown in a confined, shady situation, the plant is generally drawn slender, and the flowers produced are thin of petals, and do not possess the bright, vivid color as when fully exposed. But care must be taken to plant the Dahlia where it is sheltered from the north and northwest winds, by which the plants when in a growing state are often blown down and injured.

S I T U A T I O N .

THE Dahlia flourishes best in an open situation where it is not subject to the shade

and drippings of trees or tall shrubs. "It delights" says Paxton, "in a position where it can constantly receive the vivifying and strengthening rays of the sun, from the time he issues forth in eastern glory, to the period of his setting below the western horizon." This fact is apparent to the most superficial observer; for when the Dahlia is grown in the shade or confined places, it always makes a slender growth, and the flowers are generally in such locations small, and do not possess that brilliancy of color that they attain when in full exposure. This is fully exemplified in the Dahlia growing in confined places in cities, and shaded avenues.

Paxton observes, "in its native state, the Dahlia is found growing on plains; and from this, as well as many years' experience on this subject, we learn, that to grow this plant in perfection, it requires to be planted in a very open and exposed situation."

It is quite important to grow the Dahlia to perfection, that a flat, exposed situation should be chosen; and that the soil be of a mellow loamy nature, that holds a regular moisture; but does not contain it in so great quantities in the fall of the year, as to saturate the soil so as to rot the tubers, which is often the case.

In regard to the local position of the Dah-

lia, it may be planted to good advantage in any site where it is exposed. In the central part of a flower border, a little on the rise from the walk, it has a good effect when planted at convenient distances, so that it is not crowded with other flowering plants. Where a garden is laid out so that embankments are raised at equal distances, it has a pretty appearance on the border, or grouped in irregular figures on grass plots; when the different varieties are mingled and planted with taste (as recommended under the head of planting) it forms a noble and prepossessing appearance. In many cases the Dahlia is mingled among shrubs in shrubberies, or the facing of clumps of trees, when it has a pretty effect; in this case care should be taken to plant the tall, brilliant growing kinds, which should be placed so as their flowers form a mingled contrast with the foliage of the shrubs, which can be effected by noticing the heights of the shrubs, and planting those kinds that will correspond when grown, to their full stature.

The Dahlia may be planted to an excellent purpose to give a graceful appearance to the observer, by placing it in a raised situation, and more especially when in groups; the varieties in this case should be so disposed as to give a mingled appearance to the whole of

the different colors, and their heights should be so managed that they form a regular slope. The dwarf plants being placed next to the eye of the observer, and the tallest to form the backing, which should be bright showy kinds, and the light mottled varieties should be so managed as to be placed in front.

In planting the Dahlia, for the purpose of flowering in the greatest perfection for show flowers, there is no better method that I am acquainted with than to plant them in a block or square flat piece of ground; the roots may be planted in rows about four feet apart each way; if an alley for a walk is left between three feet wide, it is a good method, for in this manner of planting, there will be plenty of space left between, to prune and tie up the plants without injuring them in doing the work. The walk between the rows will also admit any one to a free access to view their beauty without treading the ground too close about their roots, which is often very injurious to the roots of the Dahlia, and besides, the continual walking between them binds the soil so, that the sun, air, and rain cannot penetrate and have a free access to their roots. In this position, too, the flowers have a free access to the sun and air, so as to retain a brilliancy of color that could not be obtained in a shady and unpropitious location.

P R O P A G A T I O N .

THERE are several methods practised in propagating the Dahlia, as by dividing the roots, cuttings and grafting; the former is the most simple and generally applied, and the latter practised only when a number of plants are wanted from any superior variety. The dividing the roots is performed as soon as the roots begin to germinate and show their eyes, which is generally in the latter part of March or beginning of April; this, however, depends on the state of the heat in which the roots have been kept. The method is to take a sharp knife and divide the crown of the roots in such a manner that an *eye* or two, with the tubers, is preserved with each intended plant. This done, it is either to be potted or planted out for its final flowering, which will be described under the proper heads of “potting and planting out.”

To propagate the Dahlia from cuttings, a hot-bed should be made in the latter part of March, of one, two or more sashes, or a size convenient for the intended roots, either in the pit of a green-house, or what is better, a garden frame; the bed may be made of a portion of hot horse manure and oak leaves, or if leaves are not at hand, manure will

answer ; prepare the materials by mixing it well together into a round conical heap, to cause fermentation. When it is all well fermented into a moderate sweet heat, (which will be in a few days,) it may then be made into a bed of about three feet high under the frame, and two in the pit. The bed may be made by shaking the manure well together, and making it six inches wider all round than the frame that is to cover it. The bed being made, place the frame on it, and close it to draw up the heat ; when the heat rises, strew over the bed to the depth of three or four inches, old tanner's bark, light sandy mould, or rotten decayed leaf mould. As soon as the bed is in a moderate sweet temperature, the roots may be placed in it thickly together, in a regular manner, when they may be covered over with light soil, two or three inches deep ; but care must be taken to leave the crowns above the surface, in order to prevent them from rotting, which is often the case when covered too deep. Every care should be taken in giving air, and keeping the internal air of the frame moderate ; if it has too much hot bottom heat, many of the tubers will rot, and the crowns more particularly.

The principal object to be borne in mind in the management of the frame and roots

is, to keep a moist sweet internal temperature, and a free circulation of air in the day, that the young shoots may have strength as they proceed in their growth; when the sun shines strongly on the frame, it should be partially shaded, to prevent the direct rays of the sun from scalding the tender shoots. Care should also be taken to let off the dense steam that arises when the bed is first made, by slightly raising the lights at the back, day and night. The crowns of the plants should be often sprinkled over to cause the eye to start into growth; but care must be taken not to give too much water, as it will saturate the earth and rot the tubers before they begin to grow and throw out young fibres from the tubers.

The roots of Dahlias are often potted entire, and plunged into a hot-bed, or placed in a green-house or hot-house, on the shelves, flues, or different places, where precisely the same manner of propagation may be followed; and any heat from 45° to 65° will answer for starting the roots into growth, with the above treatment.

The method of propagation by cuttings, is to cut off the young shoots three joints long, at an eye above the crown, as from the eye left new shoots will be made in succession. When the cuttings are taken from the

plant, pot them singly in small pots, filled with maiden loam, with a little sand and leaf mould well decayed if at hand, or a portion of sandy peat, will answer a good purpose. The object should be in selecting compost for this purpose, to choose that which will moderately retain a moisture to feed the cutting, and to be of consistency to drain off the water, and loose enough to allow the young fibrous roots to make a free growth in the soil.

Having the bed in readiness, and the cuttings three or four joints long, prepare the compost by mixing and getting it into a mellow fine texture. This done, prepare some shreds of old broken pots, by beating them into fine pieces; then have a quantity of small thumb pots, into which place at the bottom about one third full of the shreds, and then fill the pot up to the crown with the compost, and giving it a gentle shake and leaving a crown in the centre; the cuttings are then to be taken from the plant. The morning is the best time, because during the absence of the sun the leaves have not perspired, as they do when it shines on the leaves, which give out much of their flow of sap during the hot part of the day.

Prepare the cutting by taking it off with a sharp knife, just under the joint in a clean

transverse manner; then make a hole in the centre of the pot about half way through the compost, placing the cutting therein, and close the compost moderately about it, but not hard enough to break or prevent the young fibres from striking freely into it. The pots may then be gently watered with a fine rose pot or syringe; and when dry they may be placed in the frame, and the sashes closed, in order to prevent exhaustion taking place too freely; when the sun shines on the frame strongly, the glass may be covered with mats, in order to prevent their being scalded. A little air may also be given—and the general rule should be to keep the internal air of the frame in a moderate heat and moisture, sufficient to keep the leaves fresh and from drooping. On the contrary, if kept too much confined and moist, the leaves are very liable to be damped; in this case, the ends of the leaves turn black, and putrefaction commences on the points of the leaves, which is, in a short time, if not counteracted, communicated to the stalk of cuttings, and finally decays the whole. When this happens, it can be counteracted by cutting off the part of the leaf affected, with a sharp knife, and sprinkling over the amputated part fine dust of charcoal, which will if not too much affected, immediately allay the putrefaction.

Another error often happens to cuttings, which is the over watering the soil, when it decays on the surface of the pot; for this defect the only remedy is to cut off the under part at a joint, and put the cutting into a fresh pot of compost, but not the one from which it has been taken, which is in a great degree contaminated by the decayed part of the cutting. The contrary to this is the cutting being wilted, owing to keeping it too dry, and to counteract which, it should be placed in bottom heat, under a bell-glass, which should be often taken off and wiped dry, in order to prevent it from damping off.

The management of the cuttings in the frame, is simply to keep them well shaded in the middle of the day, so that their leaves do not flag, and give them sufficient air at the back of the frame, by tilting up the lights to keep them moderately dry; the temperature of heat should be kept moderate from 60° to 65° .

When the cuttings are rooted, which may be seen by the plants beginning to make their growth, and their leaves looking up fresh, they may be taken from the frame and placed in the green-house or other places of the same temperature, and kept moderately watered.

Removing the Plants.—When the plants

are well established in the pots, they are then to be removed into larger sized pots, and managed in every way as before stated, until planted out in the garden.

PLANTING OUT.

THE time of planting out the Dahlia for its flowering, must depend on the season and the different parts of the union in which it is to be planted. The only and best direction I can give is not to attempt it until the frosts are all over and the weather is sufficiently warm to insure its free rooting in a soil which should be previously dug and well pulverized. I am fully persuaded that, nine times out of ten, if the Dahlia was kept in a healthy vigorous state in the pots ten days later than usually recommended, and the ground well prepared during the time, great advantage would result from such management. The first of June, in the Middle and Northern States, may, I think, be considered a proper time for "planting out."

Having chosen and prepared the ground, the planting may be performed by making holes in the earth intended for their reception. The holes should be made sufficiently large and the earth broken very fine. The

plants may then be carefully turned out of the pots with their balls entire, the potsherds removed from the bottom, and the plant placed in the centre of the hole, when some fine earth may be drawn lightly around it. A gentle watering should then be given with a water-pot with a rose, to settle the earth well about the roots.

RAISING NEW VARIETIES FROM SEED.

IN order to have Dahlias flower from the seed the first year, the seed should be sown early in March in a hot-bed, for the purpose of forwarding the plants previous to their being planted in a flowering bed. For this purpose, a moderate hot-bed may be prepared, of the same heat and temperature as the one recommended for starting the old roots into growth; indeed seedlings may be grown in the very same frame. Prepare for the sowing a quantity of soil, of about two thirds mel-low loam and one third leaf mould, which, incorporate well together, and sift through a coarse sieve; fill a number of large pots or pans with the soil, and then sow the seed, which must be covered lightly over, and then give a gentle watering. The pots are then to be placed in the frame, and if the heat is

not too violent, they may be plunged up to the rims ; the earth will require to be kept moderately moist, and in a few days the young plants will make their appearance. Great care should be taken to give air of a fine day, and to keep a sweet, healthy internal atmosphere. When they are grown into two or three rough leaves, the young plants may be potted off into small pots with the same compost as recommended for sowing the seed. From the small pots the plants may be shifted into others of larger size, and in these they may remain until the time of planting out, which is the same as for those grown from cuttings, &c. Every means should be taken to forward the plants into flowering the first year, in order that those varieties which have the properties requisite to a good flower, be retained for the ensuing season, and those which are not worth securing,—and these will generally be ninety-nine out of a hundred,—should be taken up and thrown away. In every part of culture the seedlings require precisely the same treatment as those propagated from cuttings, with the exception that they should be planted in such a situation that their flowering may be forwarded early as possible.

In selecting seedlings those which are of a bright color, compact form, and full of petals

—that are well fluted, and have round and even margins,—should be saved. In the selection, however, it must be understood that those approaching the nearest to the above qualities should be saved: for in many cases the Dahlia, like many other florists' flowers, does not arrive at its plenitude of petals, nor brilliant colors the first year, but it will take two or three years to acquire perfection.

GENERAL CULTURE AND TRAINING.

THE principal culture required for the Dahlia in a healthy state, is to keep the soil about the roots in a moderately moist state, and not to allow any weeds or other plants to grow near it, to weaken and impoverish the soil in which it stands. The surface of the earth should be often hoed and raked, which gives an air of neatness, and is beneficial to the growth of the plant by attracting the dew and moist atmospheric air in hot weather; indeed the surface soil should always be kept loose about the roots of the Dahlia, to favor a free access of air, moisture, and the genial influence of the sun.

Training.—There are many modes adopted of training the Dahlia, but they all tend to the same result, viz: to secure the plant

from being broken down by high winds or storms, and to place the branches in such position that the flowers show to good advantage. The most general mode of training is to place a strong stake of red cedar four or five feet in length near the plant, and train one shoot to it by tying it with bass matting or other strings as it progresses in growth. In doing this the string must not be tied too tightly round the stalk, which often wounds and sometimes cuts it asunder when it is exposed to the violence of the wind. To this mode of training is added that of spreading out the branches on trellis or against a wall. In many cases this mode has a very pretty effect, but in all cases it should be well done or the intended effect will be a failure.

The neatest and best mode I have seen for training and protecting the Dahlia, is a neat, upright, wire frame, made of three upright pieces of stout wire about five or six feet in length, with a spindle-shaped piece of iron to each wire at the base to secure it into the ground; these wires are girdled or bound with three more of a smaller size to form a circular frame of about eighteen inches diameter, and the top is in the form of a funnel, being about two feet in diameter. These wire frames are very pretty when neatly painted green, for open lawns or grass plots, where

the Dahlia deserves a place as a single object of the first order in autumnal decoration.

When those supporting stands, or trellis frames are used, the method adopted with them is to plant the Dahlia and then place the stand over it and allowing it to grow up the centre in a natural manner. The plant should be regularly thinned so that the centre is not too much crowded, as the shoots in such case would be likely to become weak and slender ; and they must be tied to the frame in a neat and regular manner.

PRUNING AND THINNING THE BRANCHES AND FLOWERS.

THE Dahlia should be timely and carefully pruned, in order to render it a handsome, sightly plant. The first general rule for this, is to trim the plant to a single stem to two or three feet high, by cutting off all the lateral shoots. The top should be pruned or thinned out in a regular manner, so that the sun and air may have free access to the leaves and branches. In doing this, the pruner should be careful to form it into regular symmetry, which is of great advantage to its appearance. When the plants begin to flower, care should be taken to thin or pick off several of the buds

where they are thick, in order that one flower may not exhaust and impoverish the other. This is essentially necessary when fine show flowers are desired, as in that case every means should be taken to give vigor to the plant.

FALL MANAGEMENT.

THE principal course to be pursued in the fall management of the Dahlia, is in keeping the ground clean, pruning off the superabundant leaves, and thinning out the branches. So soon as frost is expected, three or four inches of earth should be put around the roots of the plants, to protect them from being frozen, as is often the case at the early part of the season, when neglected. Many persons take up the roots of Dahlias previous to the early frost, which I think all cultivators will pronounce to be wrong; because the plant is taken from the ground in a state of luxuriant growth, and when the root has not been matured by the return of sap; consequently, when it is taken from the ground, the tubers shrivel up, owing to their being too green: but when left in the ground after the stalk is cut down by the frost, the small fibres extract nutriment from the ground, and feed and plump it into a mature state.

I have at different times taken Dahlia roots from the ground when in a full state of growth. In such cases, the method that I have pursued has been to cut off the stalk a foot or two above the crown of the roots, and replant them in a moist, shady situation, and there let them remain until the proper time of taking up Dahlia roots for their final housing into winter quarters.

PRESERVING THE ROOTS IN WINTER.

THERE are many methods of preserving the roots of the Dahlia through the winter; indeed it forms a prominent item in the management of this species of plants: for the many roots that are annually lost for want of proper management, in a great measure deters many persons from cultivating it more generally. A failure in culture is always a principal objection with the lovers of flowers to extend their numbers; and I unhesitatingly give it as my opinion, that it is a duty incumbent on every cultivator of plants and flowers, to give to every purchaser and amateur the best and most successful manner of treatment in their knowledge. Were this to become general among horticulturists, the result would be that by a successful treatment of one class of plants, the amateur would attempt another

with more zeal, feeling almost certain of success ; and instead of an abandonment for want of success, which is now often the case, a more ardent desire would be created, to extend their cultivation.

The principal thing to be considered, in preserving the roots of the Dahlia is, the preparing them in a proper manner in the fall, which is rarely done. In many cases the roots are taken from the ground in a growing state, before the tubers are matured, and consequently they are much shrivelled. On the other hand, roots are left in the ground oftentimes too late, and become frozen ; and consequently are partly rotted before being taken into winter quarters. The object should be to have the roots well matured and ripened previous to taking them from the ground for winter quarters.

There are many modes of preserving the Dahlia through the winter ; the one most generally adopted is the drying of the roots when taken from the ground, and placing them on sand or other dry substance under the stage or the back part of the green-house. In this situation they are looked over at different times during the winter and divested of any decaying parts ; as the rot of the stalks, or any part of the tubers that are beginning to decay, should be immediately cut off with a

sharp knife, and the wound dried, that it may not begin to rot, and communicate disease in a manner to destroy the whole.

Another method is to preserve the roots, after being dried, in boxes of dry sand, by placing them in layers and putting sand between them; the boxes are then kept in a room or situation that is not too warm and dry, or cold and moist. Being kept too warm, the eyes are liable to start into growth at an early and unnatural season, when the sun and air cannot have effect to mature the young shoots in a healthy vigorous manner; if kept in a situation where the roots are frozen, it is certain they will be lost; if too wet it is probable they will be rotted, and if too dry the tubers will shrivel up. A moderate heat from 40° to 50° , in a situation where the surrounding air is not too moist or dry, is the most favorable for preserving the Dahlia.

A very easy and good method is to take up the roots, cut off the stalks and dry them, then dig a pit in a dry sandy situation secure from the frost. The roots may then be carefully placed in the bottom of the pit, some dry sand placed over them, and the surface above their tops should be so managed, that the water may be readily let off. In this situation the roots may remain to the time of parting for planting,

when they may be treated as directed under the proper heads.

Another, and I think the best, method of managing the Dahlia, is, to grow plants from cuttings in pots, in summer, to preserve them during the winter. In this method there is an advantage of removing the roots in an easy and speedy manner; an advantage is also gained of protecting them late in the fall from frost or other causes of injury, as the pots can readily be placed in a frame or other convenient place for protection.

Mr Samuel Sweetser, of Cambridgeport, manages Dahlias in this manner to an excellent purpose: the plants are grown in moderate sized pots, which are taken into the green-house in the fall and placed away in a convenient place. If the earth about them is too moist they are placed in a dry place, and not removed until they are thoroughly dried, when they are placed away under the stage of a green-house, on shelves, or other places, until they are desired to be started into growth, when a little of the top soil may be taken from the pots and plunged into a frame or other place to vegetate.

CHARACTERISTICS OF A GOOD
FLOWER.

THE Dahlia, like many other families of florist's flowers, has so much engaged the attention of the scientific florist, that a general rule is laid down as characteristic of a good flower; the leading features of which are, form, size, and color. This is essentially necessary, because, when any new varieties are obtained from seed, upon a due examination of a skilful florist, a conclusion may at once be decided upon whether it is worth saving or not. And besides, it is essentially necessary at prize-shows that some given rule of decision should predominate, whereby an undisputed decision can be formed satisfactorily to all parties.

“The form of a Dahlia,” says Paxton, “when viewed from the front, should present one unbroken external circle, without any irregularity arising from the imperfect development of the petals, or from a want of conformity in their shape or disposition; each petal should approach as near as possible to a circular figure, without the slightest disposition to be pointed or acute, but perfectly round at the extremity, and very slightly concave; but by no means so much so as to expose any part of the under side of it to view. This

form is said to be illustrated in the most perfect manner by the flower which is termed the 'Springfield Rival,' the petals of which are certainly very slightly curved; but I consider that this flower, though so perfect in this respect, is defective in not being of a perfectly hemispherical figure. Any irregularity in the shape of the petals, such as their being notched, quilled, convex, or too much concave, pointed, &c., is at once sufficient to render the flower unfit for public exhibition and competition; and besides being of a perfect and uniform shape, the petals should lie over each other in the most precise order and regularity, otherwise the flower will be defective in its general form and appearance. In some full-blowers, the eye or disk is evident, and no flower can be brought into competition, with any chance of success, when it is thus defective. If a flower does not present a perfectly hemispherical figure when viewed from the side, or is not precisely the shape of either half of any globular body, it is imperfect; and in proportion as it deviates more or less from this form, it is in the same degree defective; for a flower may be too prominent, or too flat in the centre, either of which is a manifest deficiency."

The color, in all cases, should be clear in the self-colored kind, as the "Countess of

Liverpool ;” and when parti-colored or variegated, their colors should be distinctly striped, so that the pencilling is distinctly observable without being mixed with the ground color, which should also be clear.

“The color of a flower, whatever it may be, should be rich, clear, and distinct, as has before been mentioned ; variegated flowers, such as the York and Lancaster, (the leading seedling at the Sheffield Dahlia-show last season,) should have the stripes of each color definite and clear ; that is, one color should not mingle with or merge into another, but the edge or boundary of each should be preserved distinct, and there should be no spots, irregular blotches, or cloudings.

“I cannot attempt to prescribe rules for size, neither is it at all necessary or desirable ; for I consider that a flower cannot be too large, provided it is well and correctly formed, and the color perfect and agreeable ; these characters, however, are very generally deficient in large blooms, which are usually too flat, instead of being prominent in the centre, and of a hemispherical figure ; the petals are likewise generally coarse and irregular, and the colors are seldom rich and clear. But where there are none of these imperfections or deficiencies, large flowers are decidedly preferable to small ones ; and, if perfect in other

respects, the larger the flowers are, the greater success will attend them when brought into competition, and the more valuable will be the sorts that produce them."

C O N C L U S I O N .

AFTER what has been said on the culture and treatment of the Dahlia, I cannot refrain from occupying a small space in commendation of the more general cultivation of so splendid an embellishment to the flower garden. I am well aware that the amateurs and professional florists will spare neither time nor expense within their means, to obtain and improve every variety into an endless number of so beautiful a flower. It is greatly to be desired that the introduction of the splendid varieties now extant, may hereafter grace every cottage garden, and give a new feature to rural scenery, by embellishing the shrubbery and fore-grounds of every dwelling by the road sides of country residences; for certain it is that no flower possesses that brilliant display of variegated beauties as the Dahlia of the season.

I was ever of an opinion, that an improved taste for a flower garden around the country cottage, is a sure indication of its intelligent

and industrious inmates ; for the flower garden in such cases is most generally cultivated by the joint efforts of the family, from the aged parent to the lisping child who culls the wild flowers that so gracefully margin the groves and way sides in infantile extacy to decorate their little select parterre. The flower garden, too, imbues the mind with the principles of moral rectitude ; for there is a charm in flowers that admits of no obscene features to mar our pleasure, or any disagreeable apprehension, by a close study or minute investigation into their symmetrical beauties or finely tinselled colors ; they are the harbingers of pleasure, and elicit the smiles of approbation from the hoary age of maturity to the untaught prattling in the arms of its guardian parent.

There are many who will say, “ what is the use of flowers ; ” as if they demand no other respect nor attention from their first giver, than merely fantastical ornaments to please the giddy and thoughtless observer. I always pity any rational person for such assertions, for certain it is, there can be no feeling of gratitude to the first giver of such beauties, nor any estimation of their value as being so very essential to our comfort and delight. Let me ask the orchardist what can form a more beautiful feature in the land-

scape, than an apple orchard in full bloom, or how deeply would he regret a general failure of its fruit? Can the fruit be produced without the flower? We must certainly answer in the negative; and the same with all our comforts derived from the vegetable kingdom.

An improved state of Horticulture is most generally an improvement to the value of landed property, and in no way can the landlord realize the benefits of a good tenant more than in an improved state of the ground around the dwelling. I think a good garden in most cases may be considered as indicative of a good tenant; for those who cultivate the vine or fruit tree, in and around their dwellings, are always desirous to partake of its fruits. The tree that inhabits such places, is considered as coeval with the inmates and is cherished as such;—the expanding of the leaf—the bud and flower—the growing and maturing of the fruit—and every gradation from the circulation of the sap to the fall of the leaf, and the fruit, is watched and guarded with a parental care, and no intruders are allowed to retard its progress unnoticed by its owner.

Such floricultural decorations as the Dahlia always ensure improvement, for their gay and lively appearance at once attract the at-

vention of the cultivator to any minor objects that are disorderly or disagreeable around them, and which demand improvement, and very often a thorough adjustment, so that every thing around the plants may correspond with their beauty.

DESCRIPTIVE LIST OF DAHLIAS.

	Ft. high.
WHITE.	
Bride of Abydos, fine white	from 4 to 5
Exemplar, Widnall's, white, cupped petals	5
YELLOW.	
Golden Sovereign, Headley's, rich gold yellow, <i>perfect bloom</i>	4 to 5
Jackson's Rival, large yellow	4 to 5
Sulphurea elegans, sulphur colored	4 to 5
PARTI-COLORED.	
Mary, Dodd's, fine white, laced with rosy lilac	3 to 4
Mary Queen of Scott's, Dodd's, clear white, tipped with purple	3 to 4
Gem, or Royal Adelaide, white, edged with rose	4
Mrs Broadwood, white, purple tips, with dark centre	
Conqueror of Europe, blush, shaded with pink	4 to 6
Urania, pink, with white centre	4 to 6
Village Maid, white, edged with pink	3 to 4
King of Dahlias, Widnall's, pure white, edged with rose pink	3
Queen of Dahlias, white, edged with purple	4 to 6
Widnall's Rainbow, purple, shaded with crimson and red	5
LILAC.	
Beauty of Camberwell, rosy lilac	4 to 6
Lilac Perfection, fine lilac, excellent form	3 to 4
Inwood's Ariel, mottled lilac, fine	4 to 5
Unicorn, Gaines, rosy lilac	4 to 5
PURPLE.	
Dennisii, fine ruby purple	5 to 6
Lord Liverpool, fine dark purple	5 to 6
British Queen, fine rosy purple	3 to 4
Warminster's Rival, bright purple	4 to 5

DESCRIPTIVE LIST.

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Ft. high.

SCARLET.

Countess of Liverpool, superb scarlet, fine form	6 to 7
Douglas' Glory, fine scarlet,	5

CRIMSON.

Mazepa, Thorburn's, shaded light crimson, fine	4
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MAROON.

Granta, Widnall's, fine cupped petals	4
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NEW VARIETIES.

Allen's Flora, blush, spotted and shaded with crimson	5
Ariadne, Brown's, yellow, shaded with brown	4 to 5
Beauty of Bedford, Mayles, purple shaded	4 to 5
Blandina, Dray's, white	4
Conductor, Widnall's	
Countess of Mansfield, Henderson's, puce and white, cupped petals	4
Corinne, Brown's, white veined, purple and creamy	3
Diana, Elphinstone's, orange, seedling 1837	
Duke of Wellington, Dodd's, orange	4 to 5
Fowler's Queen Victoria, white, tipped with violet, cupped	5 to 6
General Washington, Elphinstone's, dark purple, cupped petals	3 to 4
Grant Thorburn, violet purple, cupped petals	4 to 5
Hope, Nevill's shaded rose, cupped superb	4
Horsham Rival, Elphinstone's, seedling 1837	
Knight's Victoria, crimson extra	
Lady Dartmouth, Widnall's, white, margin bluish lilac	3 to 4
Marquis of Northampton, Elphinstone's mottled ruby, cupped petals	4
Maria Edgeworth, or Clio Perfecta, primrose, tipped and spotted with purple	4
Middlesex Rival, puce, cupped petals	4
Mrs Ashley, Dray's, white, violet tipped	3

	Ft. high.
NE PLUS ULTRA, Widnall's, fine	5
Rival Scarlet, Stafford's, fine, cupped petals	4
Rienzi, Widnall's, crimson, beautiful cupped petals	3
Royal Standard, Whale's, rich rosy crimson	4
Reliance, Widnall's, bright orange, margined with buff	4
Rosetta, Brown's, shade rose, cupped petals	4
Sarah, Brown's, nankeen quilled	4
Sulphurea elegans, Jones's, fine sulphur	4
Suffolk Hero, Girling's, deep crimson, cupped	3 to 4
Springfield Rival	
Stone's Yellow Perfection,	3
Topaz, Girling's, fine yellow, superb	3
Zeno, Elphinstone's, seedling 1837	
Beauty of Cornwall, purple, tipped with white	6
Champion of England, Elphinstone's, seedling 1837	
Conqueror of Sussex, carmine	4
Countess of Burlington, Skiver's, white	3 to 4
Criterion, Douglass, white, margined lilac	4
Duke of Sussex, Alman's, crimson purple, cupped petals	4
Exquisite, Girling's, amber, cupped petals	4
Giraffe, Nutting's, white, edged with purple	5
Glory of the West, scarlet, globular and cupped	5
Innovator, Wells's, yellow, edged with red	3
Lady Webster, Knights's, crimson	4
Mark Anthony, seedling	
Mrs Cadwallader, Elphinstone's, rose, seedling 1837	
Marquis of Northampton, Elphinstone's, mottled ruby, cupped petals	4
Pothecarey's Lord Nelson, white, laced with purple	3 to 4
Polyphemus, purple and crimson	
Purple Perfection, Squibb's,	
Springfield Major, bright crimson, cupped petals	5
Spors Wormley Star, fine, light scarlet	4
Venus, Bennett's, shaded rose, cupped petals	4

CULTURE OF THE CACTUS.

Most of the different varieties of the *Cactus* are natives either of the West Indies or South America, where the primitive kinds are found growing on and in the chasms of rocks, and on old dead wood, where they often subsist for months without water. Indeed, there are few tribes of plants that will live and endure so long a period of drought as the *Cactus* and its natural families of the *Aloe*, and those plants which are denominated *succulents*,—as nature seems to have purposely designed them to endure a recess of moisture, by their organization; being of a fat, fleshy texture, covered with a thick, tough, leather-like *coat* or bark, which does not respire, or at least admit of respiration so freely as deciduous plants; and hence, the plants being full of sap, or perhaps more properly a superfluous fluid, intended as a reservoir to sustain them when exigencies (as a long drought) require such provision; without which they could not subsist.

The natural habit of the *Cactææ* being a spinous and rough surface on almost every part of them, has in a great measure, hitherto deterred the lovers of flowers from bestowing that pains on their culture that other families of flowers, such as the *Camellia* and *Geranium* have received : but their beautiful flowers are beginning to attract the attention of amateurs, and it is little to be doubted that ere long the Cactus will become a general favorite of the green-house, parlor, and every department of floriculture.

The mode of cultivation is to obtain new varieties by *seed* and cross impregnation, by mixing the pollen of one variety with another, by which the beautiful varieties of *Jenkinsonii*, *Ackermanii*, *Malisonia*, and many others (bearing the personal names of the lovers of the tribe) have been produced. The general mode of propagation adopted is, by cuttings of the leaf or stem of the plant, which in the *speciosa*, *Jenkinsonii*, and those kinds having joints, are cut at the joint; but those kinds which have long spaces between the joints, as the *speciosissima*, *cylindricus*, and the like tall growing kinds, may be cut into short pieces at the eye or bud. The preparing the cuttings of the Cactus for insertion into a compost for striking, is something different from almost any other kinds of plants ; which

require the cuttings to be inserted shortly after being taken from the plants, that respiration may not too much exhaust the moisture in them, and which will in a great measure weaken their growth ; whereas the Cactus, on the contrary, requires the cuttings to be laid on a dry shelf, or over the flue of a greenhouse, so that the wound may be contracted and dried up. This treatment is necessary to all kinds of succulent plants, to avoid their rotting off at the wound, if water is applied when potted. The cuttings being thus prepared, and the wound thoroughly dried up, (which will be in a week or ten days after their preparation,) they may be put into pots or pans in the usual manner of putting in cuttings.

The best compost for striking Cactus is 4-5ths of coarse sand and 1-5th of well rotted leaf mould, two or three years old ; into which they may be inserted two or three inches deep. The cuttings being potted, they may be placed over the flue, or in any dry, warm part of the house, and slightly syringed of a fine sunny morning, or of an evening when the fire-heat is sufficient to dry the leaf in a short time ; water lying long on the leaves in this process, in many cases rots the entire cutting ; and most generally, at all events, it decays close to the surface of the soil in the pot.

When the cuttings begin to root they may be moderately watered, and when sufficiently rooted, potted off in the following manner, for flowering plants.

The best compost for potting the cuttings or young plants of Cactus that I am acquainted with, is, about three parts of decomposed leaf mould, three or four years old, and one part of coarse sand. If a small portion of very fine ground bone dust is added, it will greatly facilitate the growth of the young plants. The method of potting is to prepare a quantity of well-broken potsherds, beaten very fine, which are to be put at the bottom of the pot, about an inch thick; the soil is then to be used by placing it lightly in the pots until they are about three fourths full; the plants are then to be taken gently from the pots with a sharp pointed stick, then to be placed on the surface, the roots spread in a regular manner, and earth closed over them sufficient to cover them to a proper depth. After potting off, two or three shiftings are required in this tribe of plants as in most others, when the pots are full of roots.

Mode of Culture.—The culture of the Cactus has been very much improved within a few years; indeed, the system has been entirely reversed from the former method of growing it in a dry, harsh, sandy soil or com-

post, to that of a light, rich soil, that shall be *porous* enough, with drainage to let off the superfluous water before it saturates and rots the roots, or the stem just above the surface of the soil ;—hence, by the improved mode, this tribe of plants is grown and flowered in as good a manner and as large plants in one year as was formerly done in three or four. The present mode, then, consists in keeping the plants in a healthy growing state from the time they are first rooted as a cutting, until they are large enough for flowering plants ; when a different process is taken, *to check the flow of sap* and growth of the plant, in order to set the buds thickly on the leaves. Although the Cactus will do well in a green-house, and is by many growers considered as strictly a green-house plant, it does much better if managed as a hot-house plant, while in a growing state, at 60° of fire heat in the winter quarters, as with proper management it may be kept in a growing state during the season. When grown in such heat, the plants should be syringed every other evening, in a moderate manner, so that the moisture may quickly dry up and not lie long on the leaves, which is very injurious to its health and well being. The watering may be done with the Cactus as with other plants, when in a growing state, namely :—whenever the earth is dry in the

pots, it may be moderately refreshed with water, but care must be taken to do so in such a degree that the earth shall not be saturated so as to be always moist, and thus rot off the plant, as before hinted. In every other department of culture the Cactus requires good treatment until it is grown to a sufficient size for flowering, when an entirely different treatment may be given it. In the fall the plants intended for flowering may be placed on dry shelves in the green-house, where they are to remain without water, in order to set the flower-buds in a firm manner. The plants are to remain in this situation until New Year's, or even the beginning of March, when they are again to be taken into a warmer place, and treated in every manner as before directed for growing plants.

That a tribe of plants possessing the various traits of foliage, flowers, &c. that are natural to the Cactus, will at some future period engage much of the attention of the amateur and lover of flowers, cannot be doubted: for although in regard to appearance of foliage they cannot be said to vie with the *Camellia* and many other families that find a place under glass during the winter, yet there is a beautiful natural order in their nerves, and the spines or armature with which nature has endowed this family of plants, with which

to guard against the intrusion of animals and other invaders, that most generally, when once made acquainted with their prickly coats, they are careful how they again come in contact with so formidable a tribe of the vegetable kingdom. Indeed, in many cases, the tall growing kinds of Cactus and the American Aloe are used to guard off cattle, and as a barricading division of lands.

The flowers of most kinds of the Cactus are generally a recompense for their plain appearance of foliage, for in many cases they are beautiful, and mostly pretty. Their color is of many hues, from that of a bright scarlet, as in the *speciosissima*, to a beautiful white or cream color, as in the *grandiflorus*, or night-flowering varieties. In order to give some explanation of the color and habit of the plants of this natural family, I shall preface the descriptive list to follow, with the natural ports and habit of the different sections of the family, by giving a full description of a natural plant in a growing state, which may be considered as a type of each section in order, as they follow the different divisions. In order to facilitate this end, I shall use such terms as seem to be the most intelligible to the general reader. In this case I must, therefore, in a measure deviate from the general rules of terminology of botany; which

will, I hope, be considered as no intrusion on the science, more particularly when it must be evident that the tenor of this book is to lend some aid to those who are desirous to become acquainted with the culture and beauty of this family of plants.

CULTURE OF THE CACTUS IN ROOMS.

THE Cactus does admirably well in the parlor or warm dry rooms, dry heat agreeing better with the Cactus than almost any other tribe of plants; but care must be taken that they are not allowed to be frozen; for if this once happens, it is certain death.

The management is simply this. In the winter months, keep the earth moderately dry, and at no time over-water them, as this is the season for them to lie dormant and form their flower-buds. When the spring advances, about the first weeks in April more water may be applied and the roots kept moderately moist, but not too wet. The situation chosen should be where they may receive a full share of the sun, and if possible in the warmest part of the room. The guide given for the green-house, will answer, in every particular, for the parlor.

GRAFTING THE CACTUS.

THE grafting of the weaker kinds of the Cactus on the gross growing ones, is now becoming very general among amateurs, as that of engrafting the *truncatus* on the *Napoleonis* and the *triangularis*.

The operation is performed in various ways, as by taking off the stalk to be grafted, transversely, and inserting the graft by making an incision into the stem, with the point of the knife downwards, in the angle. The cutting is prepared by cutting off a joint of the plant, and paring off each side of the bark in the form of a wedge. The graft is then inserted in the incision and the cavities closed up with wax, tallow, or other pliable substance, to keep out the wet and air from the part where the scion and stalk are united.

GENERAL OBSERVATIONS.

I THINK it may be confidently asserted, that this beautiful tribe of plants will ere long become a favorite with the parlor connoisseur; for certain it is that many varieties produce flowers that will compare in delicate and rich

colors with the most choice plants of the greenhouse or parlor. The great objection to the Cactus has been, the monotony of the appearance of the whole tribe, as their habit is such that the trunk, branches and leaves are all similar in surface and armature. But if this tribe does not engross our attention with lively and vivifying shades of green foliage, as the Camellia, and many other families of plants, the inquiring observer may realize a natural lesson from its peculiar habits, of the most satisfactory and pleasing nature.

The family of Cactus may be considered as the "armed part of the vegetable kingdom;" for most plants of this kind are covered with spines or *aculei* on the surface of their leaves, which are a safeguard and protection from the intrusion and damages of the animal kingdom. Taking this beautiful economy of nature into consideration, the attention of the most superficial observer must at once be absorbed in its utility; for without such protection, so fragile and brittle is the whole family, that the least intrusion of the wild animals of its native country would not only mutilate, but entirely destroy the whole plant. Allowing this economy in the structure of the Cactus, let us now examine the many variations and shapes of its peculiar habits. Some we find are of an erect and stately habit, as the *albi-*

florus and *peruvianus*; these are entirely contrasted by those of a pendulous habit, as the *flagelliformis*, hanging down in so fragile a manner, whilst others take an intermediate stature, of a branching nature, as the *C. speciosissimus*, &c., natural to them: hence, while one variety of this family grows erect, the other, on the contrary, descends. In addition to these contrary positions, we are presented with a medium habit in the *speciosus*, *Jenkinsonii*, *Ackermanii*, &c., which branch out in a regular manner from their side shoots, which are, generally, flat-leaved, trunks margined with indentations, like the teeth of a saw,—similar to the Cactus *Jenkinsonii*, *extensis*, and like similar characters. There is also a nice and natural regularity of the different spines, which are in dotted turfs over the surface of the leaves, of different colors—some black and some yellow. The *Opuntia microdasis* is a beautiful specimen of foliage, being tufted over with regular rows of yellow spines on a beautiful green color. Others, as the upright growing kinds, have regular rows or lines of spines of five, six, or seven angles; and some, as the *Opuntias*, are irregularly dotted over on flat leaves. The flowering is also various; as some open only of a night, as the *C. grandiflorus* and *C. triangularis*; the latter plant has been flowered lately at the fine es-

tablishment of Mr Cushing, Belmont place, by Mr Haggertson, and was certainly a splendid specimen of so rare a flower. To these may be added those which flower in the day, as the *C. speciosissimus*, *Jenkinsonii*, and many other beautiful varieties. Indeed, there is not a plant among them but deserves culture and the best attention of the amateur and florist.

I quote the following article from McIntosh's beautiful work on the Green-House, which I hope will be useful in this place.

TREATMENT IN THE HOUSE.

“SUCULENT plants, so far from requiring the temperature of a stove, as erroneously supposed by many, are most certainly much more injured by too high a temperature than by being kept too cool. If we except the genera *Stapelia* and *Euphorbia*, and a few of the *Cactææ*, all others are much better when kept in a cool, dry, airy green-house, than any where else; nay, a cold pit, if not in a damp situation, will be a very proper habitation for many of them; and not a few, particularly of the families *Sempervivum* and *Mesembryanthemum*, stand in the open borders of our

gardens during the most rigorous frosts with which we have of late years been visited, with the exception of the winter of 1837-8.

Another very erroneous notion, which till of late has very generally prevailed, is, that succulents should be planted in lime rubbish, gravel, or similar porous matter, with a view to prevent them from growing too rapidly, and also, that they should scarcely have any water given to them. The truth of the matter is, that this singular and interesting tribe of plants have been long neglected in this country, and placed in situations in the green-house where little attention has been paid to them; and many of them, notwithstanding this treatment, have continued to live thus disregarded and unnoticed, till their splendor, or the fragrance of their bloom, arrested, for a time, the attention of the owner: then they may have been brought into a more favorable situation till their flowers had faded, when, for the most part, they were consigned again to their old situation. Plants requiring so little attention as this to keep them in existence, and the only fear of losing them being from an excess of damp, led the indolent gardener to plant them where they were not likely to suffer from this cause, and at the same time rid himself of the trouble of attending to them.—Plants may exist for a long time under very

bad treatment; but plants so circumstanced cannot be expected to flower well, or to attain any very extraordinary habit, either of beauty or singularity. But the same species of plants, treated in a more rational and favorable manner, will develop all their beauties and singularities to us in return.

Succulent plants, in general, do not require much water during winter, when they are in a dormant state; but during spring and summer, when they are growing vigorously, they require as large a share of that element as any other plants (not exactly aquatic.) During winter, care must be taken that they are not over-watered, and also that the house that they are grown in is water-tight, for many of the more delicate would suffer if rain drops were to fall into their centre, and more particularly those that are kept in a low temperature. A good way to supply many plants of this description with water is, by standing the pots in pans of water; but this is only to be understood as applicable to the most robust-growing sorts during spring and summer; and to the more delicate ones occasionally. During spring and summer, they may be syringed over their tops once or twice a week; but during autumn and winter, this should be discontinued.

Air cannot be too freely admitted to them

at all seasons, both in winter and summer ; and during the latter period, the side lights of the succulent house, at least that portion of it dedicated to the families *Sempervivum*, *Cras-sula*, *Mesembryanthemum*, &c. should be altogether removed : that portion in which *Stape-lia*, *Cactææ*, &c., are kept, should only be thus openly exposed in very warm days ; but a partial degree of ventilation must be given them upon all fitting occasions.

A watchful eye must be kept that the smaller and more delicate do not suffer from damp, and that cuttings of those apparently likely to die or become unsightly be put in, for many of the more curious are not long-lived. Frequent cleaning the surface of the mould in the pots ; examining them minutely for the detection of insects, which they are liable to, particularly the scale, white bug, and green fly ; rubbing off the former with a sponge and soft soap, washing the second off with clean water applied by the engine, and using tobacco smoke, or Scotch snuff sprinkled over them, when damp from previous watering, will completely rid them of these enemies.

There are two curious and often fatal diseases to which succulent plants are subject, particularly the genus *Opuntia*, and some other of the *Cactææ* ; and these are admirably

described by M. Thiery de Menonville, who travelled, many years since, through the Spanish settlements of South America. These diseases are termed by him the gangrene and *la dissolution*. The former of these is of frequent occurrence, beginning with a black spot, which spreads till the whole plant ultimately dies. The latter disease is very appropriately called *la dissolution*, and is much more serious in its effects than the former: it is described by the late eminent Sir James Edward Smith, in 'Introduction to Physiological and Systematic Botany,' as follows:— 'This seems to be a sudden decay of the vital principle, like that produced in animals by lightning or strong electricity. In an hour's time, from some unknown cause, a joint, a whole branch, or sometimes an entire plant of the nopal (the Indian name for the *Opuntia cochinillifera* or Indian fig), changes from a state of apparent health to a state of putrefaction or dissolution. One minute its surface is verdant and shining; the next it turns yellow, and all its brilliancy is gone. On cutting into this substance, the inside is found to have lost all cohesion, being quite rotten. The only remedy in this case is speedy amputation below the diseased part.' Both these diseases are not unfrequently observed in collections in this country, and if the former be not arrested

in its progress by amputating the branch upon which it appears before the disease has extended too far, the consequence would be the loss of the plant in a day or two.

Some of the continental cultivators of these plants have grown them to a large size within a short space of time, excluding the air by placing a tall bell-glass over the plant, supplying it with abundance of water and heat in the stove, and also by placing them in a very warm hot-bed ; thus stimulated to the utmost extent, the plant swells out to a large size ; but care must be taken that this humidity be not carried too far, for fear of rotting the plant.

In regard to temperature, most succulent plants will stand uninjured when the thermometer falls to fortyfive degrees, or even lower, but many of them will also stand several degrees of frost with impunity. Excepting the *Cactææ*, *Stapelia*, and *Euphorbia*, all other succulents are rather injured by artificial heat than benefited. They will stand any degree of sun heat, but fire heat is a very different thing.

The late Mr Haworth, in his 'Supplementum Plantarum Succulentarum,' speaking of the culture of succulent plants, transcribes the following passage from Miller, a passage which, he says, 'is worthy of being recorded

in letters of gold ; and more especially,' he adds, (and we may add so also) 'as the truth it inculcates, or rather complains of, still continues to exist.' The quotation alluded to is to the following effect: 'At which time (October) you should remove them (the succulents) into the conservatory, placing them as near the windows as possible at first, letting them have as much free open air as the season will permit, by *keeping the windows open* whenever the weather is good. And now you must begin to abate your waterings, giving it to them sparingly ; but you *should not suffer the leaves to shrink for want of moisture*, which is another *extreme* some people run into for want of a little observation ; for when they are *suffered to shrink* (not die gradually away) for want of *sufficient moisture to keep their vessels distended, they are rendered incapable of discharging this moisture whenever they receive it again.*'

'I humbly hope,' adds Mr. Haworth, 'this golden passage from our great horticulturist will have more effect over those who read it, than all my own feeble pen has heretofore stated to the same effect. For, at this enlightened period, it requires but a moderate share of philosophy to allow that air and exercise, and a due supply of warmth and food, are all essential requisites towards the health-

! L. of C.

ful support of every organised being, whether of the animal or vegetable kingdom. And air and the rustling winds are the exercise of plants; and humidity and water are at least the vehicles which convey their food; and warmth the medium which adapts them to receive it in a salutary way; although the degree of warmth actually requisite is as different for the different species as the different climates over which the Creator has been pleased to distribute them,—by no means at random, but all in harmoniously beautiful order. And those which it has pleased their great Architect to place in equinoctial latitudes appear to be more adapted to the reception of nutriment above ground, by absorption from the air, in the dewy places of their nativity, than those whose absorbing orifices are less capaciously expanded in more temperate countries; or in those still more chilly regions which approach the confines of perpetual snow. There the great business of nutrition appears to be almost wholly from the root. And hence, perhaps, the impatience which Alpine plants evince to heat, which actually exhausts and overpowers them.

‘O Jehovah! in sapientiâ ea fecisti.’”

C O N C L U S I O N .

IN conclusion to this little treatise I insert a quotation on the beauty of flowers from the beautiful and masterly pen of the reflecting Hervey; his "Meditations on the Flower Garden," is certainly one of the most beautiful delineations of the simple elegance and utility of flowers; and should be read by every beginner in the study of this branch of nature's economy, as the best text and guide in ascertaining the intrinsic value of plants, and their admirable adaptation to the pleasure and satisfaction of those whom a refined taste leads to their culture.

He thus describes their beauty in his "Reflections on a Flower Garden":

"What a surprising variety is observable among the flowery tribes! How has the bountiful hand of Providence diversified these nicest pieces of his workmanship; adding the charms of an endless novelty to all the other perfections! A constant uniformity would soon render the entertainment tiresome or insipid; therefore every species is formed on a separate plan, and exhibits something entirely new. The fashion spreads not from family to family; but every one has a mode of its own, which is truly original. The most

cursory glance perceives an apparent difference, as well as a peculiar delicacy, in the airs and habits, the attitude and lineaments of every distinct class.

Some rear their heads with majestic mien, and overlook, like sovereigns or nobles, the whole parterre. Others seem more moderate in their aims, and advance only to the middle stations; a genius turned for heraldry might term them the gentry of the border. While others, free from all aspiring views, creep unambitiously on the ground, and look like the commonalty of the kind. Some are intersected with elegant stripes, or studded with radiant spots. Some affect to be genteelly powdered, or neatly fringed; while others are plain in their aspect, unaffected in their dress, and content to please with a naked simplicity. Some assume the monarch's purple; some look most becoming in the virgin's white; but black, doleful black, has no admittance into the wardrobe of Spring. The weeds of mourning would be a manifest indecorum, when nature holds an universal festival. She would, now, inspire none but delightful ideas; and therefore always makes her appearance in some amiable suit.* Here stands a warrior, clad with crimson; there sits a magistrate, robed in scarlet; and yonder struts a pretty

*—Nunc formosissimus annus.—*Virg.*

fellow, that seems to have dipped his plumes in the rainbow, and glitters in all the gay colors of that resplendent arch. Some rise into a curious cup, or fall into a set of beautiful bells. Some spread themselves in a swelling tuft, or crowd into a delicious cluster. In some, the predominant strain softens by the gentlest diminutions, till it has even stole away from itself. The eye is amused at the agreeable delusion; and we wonder to find ourselves insensibly decoyed into quite a different lustre. In others, you would think the fine tinges were emulous of pre-eminence. Disdaining to mingle, they confront one another with the resolution of rivals, determined to dispute the prize of beauty; while each is improved by the opposition into the highest vivacity of complexion."

A LIST OF CACTUS,

AT MR. S. SWEETSER'S, CAMBRIDGEPORT,

1839.

No. 1.	Echinocactus,	Ottonis.
2.	"	Multiplex.
48.	"	crenatus.
49.	"	Erysiesii.
19.	Cereus,	aurantiacus.
32.	"	Cæruleus.
10.	"	coccineus.
24.	"	costus minor.
33.	"	cylindricus.
47.	"	Chiloensis.
46.	"	Desvauxii.
21.	"	extensis.
23.	"	fimbriatus.
9.	"	flagelliformis.
14.	"	grandiflorus.
20.	"	ignescens.
17.	"	Jenkinsonii.
35.	"	longiflorus.
53.	"	Malisoni.
18.	"	marcrantianus.
12.	"	Monstrosus.
43.	"	Mayfly.
15.	"	Napoleonis.
36.	"	Pitajaya.
13.	"	alba florus.
22.	"	squamulosus.
44.	"	Smithii.
54.	"	triangularis.
55.	"	Vandesi.
11.	"	Peruvianus.

No. 27.	Epiphyllum,	Ackermanii.
37.	"	alatum.
29.	"	crispatum.
39.	"	Hithenii.
56.	"	speciosnm.
28.	"	truncatum.
4.	Opontia,	vulgaris.
5.	"	rosea.
6.	"	spinosissima.
7.	"	glauca.
41.	"	curssavia.
42.	"	fragilis.
45.	"	truncata.
50.	"	Brasiliensis.
51.	"	cochinillifera.
3.	"	microdasis.
52.	"	spinosissima minor.
31.	"	discolor.
25.	"	pulsilla.
57.	"	
26.	Pereskia,	aculata.
40.	"	grandiflora.
	Rhipsalis.	salicornoides.

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