

DAHLIAS

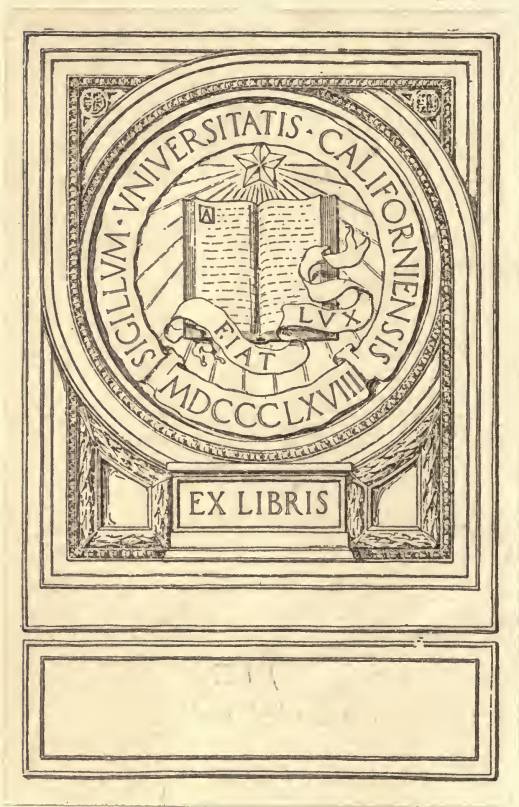
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PRESENT-DAY GARDENING





GARDEN FLOWERS
IN COLOR

UNIVERSITY OF
CALIFORNIA

EDITED BY
R. HOOPER PEARSON
MANAGING EDITOR
OF THE *GARDENERS'*
CHRONICLE.

NO. 1000
CALIFORNIA

PLATE I (*Frontispiece*)
CACTUS DAHLIA—MRS. RANDLE

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Dahlias

By
George Gordon, V. M. H.
*President of the National
Dahlia Society*

*With Eight Coloured
Plates*



NEW YORK
FREDERICK A. STOKES CO.

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PREFACE

THE known history of the Dahlia covers a considerable period, and teems with interest to those who are concerned with plant development. One hundred and ten years ago one of the forms of *Dahlia variabilis* flowered for the first time in this country, and now the descendants of this Mexican species are so numerous and diverse as to render it difficult to realise that they have descended from the species that bloomed in Fraser's nursery in 1802. The fact illustrates in a remarkable degree the amount of variation that is sometimes to be found in a single species.

To those who fully appreciate the garden value of the Dahlia it is a matter of satisfaction to know that once more the flower appears to be attaining the high degree of popularity it so well merits. The increased appreciation on the part of the public is due to the raisers of the present day having broken so far away from the traditions of the past that they have directed some portion of their energy to the production of varieties specially adapted for beautifying the garden. The Dahlia has considerable value for the late summer exhibitions, but it is not comparable with its usefulness for the adornment of the garden. The flower is equally suitable for the gardens of the stately mansions and the smaller plot that surround the humbler cottages.

Recognising to the full the importance of the Dahlia

in the garden, an endeavour has been made to give special prominence in this volume to what may be regarded as the garden aspects of the flower, and to the details by which the many distinct and beautiful forms may be fully utilised in the production of delightful colour effects and abundant supplies of flowers for beautifying the home.

I have to thank Messrs. J. Cheal & Son, Mr. J. B. Riding, Messrs. J. Stredwick & Son, and Mr. C. Turner, for so kindly contributing the flowers photographed by Mr. Waltham for illustrating this volume.

GEORGE GORDON.

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DAHLIAS

CHAPTER I

INTRODUCTION

THE Dahlia differs in some respects from many of the flowers on which the florists of this country have lavished care and skill. It is similar to most of them in having been brought to so high a state of development as to enable it to contribute to the attractions of the garden and to bring honours to cultivators at the exhibitions; but, unlike some other flowers, it has not succeeded in evoking a degree of enthusiasm proportionate to its merits. The Dahlia does not appear to have appealed very strongly to the poets, and the literature of the flower has suffered somewhat from the fact that writers have in the past overlooked its historical aspect, confining their attention almost exclusively to cultural details. Such practical information is certainly of greater value than any other, but it should not be regarded as all that the cultivator needs to know. Those who would achieve success either in the creation of tasteful effects in the garden or the production of exhibition blooms must acquire a knowledge of the cultural details, but their interest in the flower will be all the greater if they study

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its history and learn how great and varied have been the changes it has undergone during its cultivation in European gardens. Not only is the interest increased, but the pleasure to be derived from the cultivation of the plants is greatly enhanced; moreover, valuable lessons may be obtained from the record of work of past generations of growers and raisers.

With respect to the popularity of the Dahlia, attention may with advantage be directed to the fact that there has always been a remarkable steadiness about the fame of this flower. Its cultivators are, it may be assumed, enthusiastic, but their enthusiasm is of a quiet kind, and not, as in the case of that of some other flowers, bubbling over and giving rise to the feeling that it will soon exhaust itself. In taking a retrospective glance over the hundred and odd years that have elapsed since the Dahlia was introduced from its Mexican home to this country, it becomes evident that, quiet though it may have been, enthusiasm as well as strenuous endeavour must have been forthcoming at an early period in the history of the Dahlia as a cultivated flower. The creation of the varied and beautiful types that are now to be seen in gardens could not well have been effected without something more than the carrying out, in a more or less mechanical manner, of the technical details essential to success. That something must have been enthusiasm, for without it there could not have been that constancy of purpose, extending over a comparatively long period, which is an example to all who are engaged in plant improvement.

Even to those who are constantly in touch with the activities of the florists of the present day, and therefore conversant with what is being accomplished in the world

of flowers, it appears a marvellous accomplishment to have evolved the noble show flower, the graceful cactus variety, and the diminutive pompon, with numerous other types, from the same wild species. In order to avoid any misapprehension upon this point it may be well to state here that *Dahlia Yuarezii*, from which the race of cactus varieties has descended, was a cultivated plant in Mexican gardens previous to its introduction into Europe, and it had undergone considerable modification before it left its native country. This fact notwithstanding, there is full justification for a strong sense of gratitude for what the raisers, both past and present, have accomplished in the enrichment of our gardens with flowers so distinct in character and possessing so much beauty as the cactus Dahlias. The earlier raisers may be regarded as unwise in endeavouring to mould the flowers of all Dahlias on similar lines, and these characterised by great formality. It would have been a great advantage had the desirability of a diversity of form been recognised at an earlier period than was the case ; but it should be remembered that raisers have for business purposes to produce that for which there is a ready sale. Long after the Dahlia had made its home in this country the demand was for finely formed flowers. Endeavours were made to meet this, and the result is seen in the show and fancy varieties.

Coming down to recent times, much the same thing has occurred with the cactus Dahlia. Until quite recently the demand was almost exclusively for varieties bearing blooms large in size, pleasing in colour, and with gracefully arranged florets, and the raisers concentrated their efforts on the creation of varieties that met the requirements of pur-

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chasers. If a considerable proportion of the cactus Dahlias bearing blooms of high quality were of but little use for contributing to the attractions of the garden, some portion of the responsibility must be assigned to the cultivators. Those who admired the graceful cactus-like blooms did exactly what the lovers of roses had done before them: they based their estimate of the merits of varieties upon the individual blooms as presented to them at the public exhibitions. In adding plants to their collections, whether for garden decoration or exhibition, they made their selections from the prize stands, and in the earlier days of the cactus Dahlia the varieties bearing flowers in the highest state of development had a very robust habit, consequently those who purchased cactus Dahlias for the garden found that instead of brilliant displays of colour they had masses of foliage among which the flowers were hidden. In some cases the luxuriance of growth was increased by the use of manures in the preparation of the soil far beyond the requirements of the plants.

Happily for the future of the Dahlia, both cultivators and raisers now recognise the importance of differentiating between the varieties for exhibition purposes and for garden decoration, and also between the methods of culture best adapted for the respective purposes. In the case of exhibition Dahlias individual blooms of the highest quality in their respective sections, as defined by the florists, are essential, and the varieties may be selected without reference to the habit or freedom of flowering. But when, as in the majority of cases, they are intended for beautifying the garden, the character of growth and flower production should have the first consideration, and those only

selected that are more or less compact in growth, free in flowering, and that bear their blooms on stalks of sufficient length and rigidity to carry them well above the foliage. This is necessary in the case of all the sections, but more especially should attention be given to these points in making selections of the cactus varieties. Those who are able to do so should make visits to gardens and nurseries where representative collections are grown, at the time the Dahlias are in bloom, as the knowledge thus gained will be of much assistance not only in making purchases, but in arranging the plants in the garden. Not only should they inspect as many collections as possible but also follow the selections that are given under the several classes in this work, as they have been prepared from notes made in the garden and with special reference to the purpose for which they are recommended. It will also be found of very considerable importance to act upon the advice given with regard to adapting the cultural details to the object in view.

With reference to the relative merits of the several classes, it will suffice to say that this is a point which may with advantage be left for every reader to determine for himself. Whether this or that section should be regarded as the best is a matter of taste. If the garden is small the sections consisting of varieties that do not attain a large size will be preferable, as they will admit of a representative selection being grown in a limited space: for a somewhat similar reason the giant decorative and the pæony-flowered varieties are not so suitable for gardens of medium size as for those having a large area. Whether the varieties belong to the cactus or show, or the pompon or single sections, is not a matter of consequence, provided the class or

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classes be in accordance with the taste of the owner of the garden. The only advice that can be given with advantage on this subject is that cultivators should avoid placing an undue limit upon the number of types to be grown in gardens where the space is sufficient for all, because the greater the diversity in the colours and forms of the flowers the more lasting will be the interest and pleasure obtained from their culture.

CHAPTER II

DAHLIA HISTORY

ALTHOUGH the history of the Dahlia in its relation to the garden does not extend over a period exceeding 123 years, it is necessary to go back nearly three centuries in quest of the first description and illustrations of the flower : whether the search might with profit be continued to a more remote period is doubtful. There is no evidence to justify the belief that there is an earlier record of the Dahlia than the one given by Francisco Hernandez, physician to Philip II of Spain, in his work on the plants and animals of New Spain, or Mexico, which was published in 1615. Hernandez describes the flower under the Mexican name of *Acocotli*, and the account is of much interest from the fact that two forms—*D. variabilis* and *D. crocata*—are figured in connection therewith, and that both have single flowers. In a book that was based on the foregoing and published at Rome by Vitalis Mascardi in 1651, there is a figure of a Dahlia that, owing probably to indifferent drawing, leaves one in doubt as to whether the flower was double or single. If it is intended to represent a double bloom, there is nothing to show whether the doubling had been effected under natural conditions or within the boundaries of the garden. The probability is that the flower figured was single, and there is no other ground for assuming that the

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Dahlia was undergoing modification in the direction of an increase in the number of florets at so early a period.

From the publication of Mascardi's book at the middle of the seventeenth century, nothing further relating to the Dahlia was published until 1787, and the reference to it in a treatise which appeared in that year was for the benefit of the French flower-lovers. Nicholas Thierry de Menonville was commissioned to visit South America for the purpose of obtaining the cochineal insect and the plant on which it lives, and he appears to have been successful. It is evident that he gave attention to matters others than those immediately associated with the object of his journey, the Dahlia being among them. In 1787 Menonville published a treatise on the cochineal insect and its host plant, and in this he described the Dahlias that had come under his notice in a garden near Guaxaca. There he stated that the plants attained a height of between five and six feet, they had leaves similar in form and size to those of the elder, and aster-like flowers of comparatively large size. Menonville's treatise is thus of interest as containing the first reference to the Dahlia as a cultivated plant.

In the year 1789 the Dahlia was introduced into this country, but unfortunately the plants that were first raised failed to retain their vitality in the conditions to which they were subjected. In the course of that year Vincentes Cervantes, director of the Mexican Botanic Garden, sent seeds of the Dahlia to the Abbé Cavanilles, director of the Royal Gardens at Madrid. At that time the Marquis of Bute was the English Ambassador at the Spanish Court, and the Marchioness, who was greatly interested in floral-cultural matters, obtained some of these seeds and sent

them home. From them plants were raised ; but owing to their having been grown in a greenhouse, without probably an annual rest, it was not found possible to keep them alive more than two or three years. Nothing further was seen of the Dahlia in this country until 1802, when John Fraser, an enterprising nurseryman carrying on business in Sloane Square, obtained from Paris some seeds of *Dahlia coccinea*, a now well-known, single form with rather small, brilliant scarlet flowers borne on long, rigid stems of a deep bronze-green hue. From these he raised plants that flowered in one of his greenhouses in the following year, and from one of the blooms a coloured plate was prepared and published in the *Botanical Magazine*, Tab. 762, a place being thus secured for the Dahlia in the botanical literature of this country. Ten years later the second edition of Aiton's *Hortus Kewensis* was published, and in this work two reputed species and three varieties were included.

Abbé Cavanilles would appear to have been successful in the raising and cultivation of his Dahlias. One of the plants raised from the Mexican seed produced semi-double flowers in 1790, and in January of the following year was figured in his *Icones et Descriptiones Plantarum*, the publication of which was commenced at Madrid in 1791, as *Dahlia pinnata*, the early designation of the species now known as *D. variabilis*. Cavanilles dedicated the plant to M. André Dahl, a Swedish botanist of distinction, and the author of a work on the Linnæan system published in 1784. We have thus evidence that the doubling of the Dahlia in Europe commenced in the year in which it first flowered in Spain. The failures to grow the Dahlia when first introduced to this country and France were due to culti-

vators regarding it as a tropical plant requiring much heat, whereas it has its home on the higher plateaux of Mexico, and thrives in comparatively low temperatures. Humboldt and Bonpland in their famous explorations in Mexico, which commenced in 1799, found Dahlias growing wild in a prairie between Areo and Patzcuaro at an altitude of 5000 feet above the sea level.

In 1804, the year in which the illustration of *Dahlia coccinea* was published in *the Botanical Magazine*, a second supply of seed was received in this country from Madrid. This was sent by Lady Holland to M. Bounainte, librarian to Lord Holland at Holland House, Kensington, and he was successful in raising the three varieties coccinea, crocea, and purpurea. They all bloomed satisfactorily, and were figured in the botanical periodicals. At that period the light and elegant single flowers which are now so highly appreciated were not regarded as sufficient by the flower-loving public, and no sooner had the Dahlia made its way into gardens than strenuous endeavours were made by cultivators to obtain varieties with double flowers. During the first ten years or so of the nineteenth century the Dahlia made its way into several of the chief countries of the Continent of Europe, and was received with much favour. M. Otto, director of the Berlin Botanic Gardens, cultivated it largely, raised many new varieties from seed obtained as the result of careful cross-fertilisation, and effected considerable improvements. Hartig, the garden inspector at Karlsruhe, obtained a double variety that attracted much attention from growers. From Berlin the Dahlia was in 1812 brought by Vogel to Erfurt, and by Haage to Leipzig.

Haage raised a nearly double flower that created much interest, particularly for its rich purple colour. At this period, much attention was given to the cultivation and improvement of Dahlias in France, and when, in 1814, the difficulties connected with visiting that country were removed, Dahlia fanciers found their favourite flower plentiful in French gardens. Many French varieties were introduced to this country, where they were received with enthusiasm. Two of the leading French amateurs were M. Lelieur of Sèvres and Comte de Vandes. To the last-named belongs the credit of having sent to Dr. John Sims the specimens of the two varieties that were figured in the *Botanical Magazine* for 1817, Tab. 1885 A and Tab. 1885 B. The first of these was a single flower of considerable size, fine form, and a brilliant scarlet hue; the other a double flower of medium size, having nearly flat and somewhat reflexing florets, whilst the colour was bright rose shading to light rose at the margin. In general appearance it must have resembled some of the old decorative varieties that were reintroduced during the years 1870-80.

By this time the Dahlia had become established in English gardens, and it rapidly increased in popular favour, whilst the increased demand for novelties induced raisers to work with even greater energy to provide new and improved varieties. Exhibitions multiplied in all parts of the United Kingdom, and thousands of blooms were annually shown during the period when the Dahlia was at the zenith of its popularity as an exhibition flower, this period extending from 1820 to 1860. The flowers that found favour with growers during the greater part of this period showed much diversity in form and colour, and were similar to the

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decorative varieties that were brought into prominence about 1870. They were the precursors of the type known as the show Dahlia, and until 1830 the blooms were smaller than those of the present day, and many of them had florets that were long and pointed and more or less cupped. After the next twenty years rapid progress was made in the development of the Dahlia along the lines laid down by the recognised authorities. The florets lost their points and became smooth and rounded, and so regularly arranged as to give the blooms an unbroken outline, which the height of the crown and the refinement of the flower materially increased. Concurrently with the development of the show Dahlias the fancy varieties were evolved. The difference between the two sections is merely a matter of colour, the show flowers being self coloured or tipped with a darker colour, while the fancies are striped, or flaked, with a deeper colour on a light ground, or tipped with a lighter colour.

During the period from 1840 to 1860, the show and fancy Dahlias were supplemented by the small-flowered varieties variously known as bouquet, lilliputian, and pompon; the last name being now generally recognised. Their origin has long been a source of perplexity to those who are interested in the historical aspect of the Dahlia, and one may search in vain for direct evidence upon this point. There is, however, no doubt that they were of German origin, that they were raised in the district of which Koestritz is the centre, and introduced to this country in the middle of the nineteenth century.

From about 1860 the popularity of the Dahlia declined at a rapid rate, and during the next ten years or so it was

PLATE II
FANCY DAHLIA—MRS. SAUNDERS

1944



T. Lovell Allen

RESTORATION TO FAVOUR 15

under a cloud that gave rise to considerable apprehensions with regard to its future in the minds of those who held the flower in high estimation. Towards the end of this decade the cloud was lifted by the resuscitation of the brilliantly-coloured *Dahlia coccinea*, which nearly seventy years previously had flowered in Fraser's nursery, and two other single varieties, one known as *Lutea*, and having bright yellow flowers, and the other as *Paragon* with maroon-purple flowers margined with rose. These created much interest, and as the result of the well-directed efforts of raisers large numbers of beautiful single varieties were distributed to cultivators.

Of still greater importance in relation to the restoration of the Dahlia in popular favour was the introduction of *Dahlia Yuarezii*, the first of the cactus Dahlias now so highly esteemed by flower lovers. This created much interest when first presented to public notice at one of the meetings of the Royal Horticultural Society held in the autumn of 1876, by the late Mr. W. H. Cullingford. This Dahlia was received in the year 1872 by M. J. T. Van der Berg of Juxphaar near Utrecht from a friend in Mexico. The case in which it was sent to Holland contained various kinds of bulbs, flower-roots, and seeds, and owing to the length of time it was on the journey the contents were received in an indifferent condition. The roots that were not wholly decayed were taken care of, and from a small tuber a growth was produced. Several plants were raised, and during the following summer they were grown with the other Dahlias in the open ground. When they came into flower the distinct and elegant form and the brilliant colour of the blooms at once attracted attention; and

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M. Van der Berg, who had sent roots to a French firm in the autumn of 1873, distributed it in 1874, having previously named it *Yuarezii* in honour of the then President of Mexico.

The cactus Dahlias have enjoyed a high degree of popularity, and there is every anticipation that they will for many years hence continue to increase in favour. The diversity in the form and colour of the cactus varieties prepared the flower-loving public for the new race of pæony-flowered varieties, remarkable for the extravagant form and attractive colours of their flowers. These are said to have been introduced to this country in 1900, but it was not until the autumn of 1905 that they were shown in London and at several of the continental exhibitions by Messrs. Copyn and Sons, by whom they were introduced to cultivation. They originated from the intercrossing of single and cactus varieties, and presumably those sorts remarkable for their robust habit and the large size of their flowers.

Yet another type has to be mentioned in this brief historical record, and that is the one known as the "collerette" Dahlia. Originally introduced to cultivation in 1901, the collerette varieties received but little attention from cultivators in this country until the season of 1910, notwithstanding their usefulness in the garden. They originated from two sports that made their appearance simultaneously in 1899 on different plants growing in the municipal gardens of the Parc de la Tête d'Or at Lyons. In due course these sports were fixed and propagated, and in 1901 they were distributed by Messrs. Rivoire & Son of Lyons under the names of President Viger and Joseph Goujou.

With reference to the decorative varieties it must suffice

to say that they connect the past with the present, and that they are both interesting and useful. The older varieties, which take us back to the distant past when the show flower was in the process of development, are of interest as showing the type of flower that found favour before the show Dahlia had assumed its present fame. The newer decorative Dahlias include varieties raised in this country and abroad, and they have been introduced to cultivation from time to time during the past quarter of a century. These latter differ materially in character and beauty from the older varieties, and possess much greater value both for exhibition and garden decoration. The best of them are included in the selections given in Chapter VIII, and the lists should be closely followed.

CHAPTER III

SHOW AND FANCY DAHLIAS

FOR purposes of exhibition Dahlias have been arranged in seven classes or groups, namely, the show and fancy, cactus, single, bouquet or pompon, pæony-flowered, collerette, and decorative. For a considerable period the show and fancy varieties were divided into two sections and shown in distinct classes ; but they resembled each other so closely that the National Dahlia Society decided to break down the barrier between them and have them shown together in the same classes. This is a great advantage, more especially to the smaller growers, because many of the fancies originated as sports from the show varieties, and now and again they produce self-coloured flowers, which could not be included in a collection of fancies, but may be shown in a stand of mixed varieties.

The show Dahlia, as it is technically termed, comprises all self-coloured flowers, all shaded flowers, and all flowers that have a pale ground colour, whether it be blush, primrose, yellow or white, tipped with crimson, mauve, maroon, purple or rose. The fancy Dahlia comprises all the flowers that have a blush, primrose, rose or yellow ground flaked or freckled with crimson—maroon and scarlet flowers that are tipped with blush white or yellow, and yellow flowers tipped with white.

In briefly tracing the development of the show Dahlia, the oldest and historically the most important of the several classes of Dahlias in cultivation, it may be of interest to mention that during the first ten or twelve years of the nineteenth century much attention was devoted to the cultivation of Dahlias and the raising of new varieties by growers in various parts of the Continent of Europe. We know that during the first decade Dahlias had become established at Erfurt, Leipzig, and Louvain, and that much progress in their culture had been made in France, particularly in the neighbourhood of Paris, and that, in the year 1814, both German and French growers were sending to this country some of their own productions, which were the precursors of the show and fancy varieties. To M. Donckelaar of the Louvain Botanic Garden belongs the honour of having launched the Dahlia on the tide of time as a florists' flower, and thereby provided for many generations of flower-lovers an immense amount of interest and pleasure. M. Donckelaar turned his attention to Dahlias in 1812, and in that year raised a considerable number of seedlings, but these all produced single flowers. He continued his efforts to obtain new forms, and in 1813 he succeeded in raising several varieties with semi-double flowers. This success stimulated him to further endeavours, and in 1814 he obtained varieties with flowers that were quite double, and some of these he sent to this country during the winter of 1814-15. They at once attracted attention, and as they became known they created much interest among the amateurs, who added them to their gardens as soon as circumstances would permit, and in many cases entered into the interesting work of raising seedlings. Chief among the

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cultivators in the early days who distinguished themselves as raisers were Mr. J. Wells of Redhill and Mr. Douglas of Putney Hill, the former being the first to raise a dwarf, double Dahlia.

Good progress must have been made in the next few years, for in 1826 the Royal Horticultural Society had in its Chiswick gardens upwards of sixty double varieties. The improvement in the form and size of the flowers and the development of the varying shades of colour proceeded with great rapidity until 1832, when a great advance was marked by the introduction of Springfield Rival, a crimson self of quite exceptional merit. During the next few years the rate at which new varieties were introduced was very great, for the *Dahlia Register* for 1836 contains fifty coloured illustrations of the leading Dahlias, and also a list of 700 varieties from which the cultivator could select when making additions to his collection. From 1836 to 1856 was a period of great activity among Dahlia growers and raisers, and the improvements made in the flowers was so great that but few varieties were shown more than four or five years with the exception of Springfield Rival, which possessed merit of so high an order as to be able to hold its own on the exhibition stage far beyond the average period.

In these days seedling Dahlias that were distinct and highly meritorious were readily purchased by enterprising nurserymen at prices that would be considered very high at the present day; thus in 1834 the stock of Beauty of Teffont, a light-coloured flower raised by a clergyman, was sold for £60. This was followed by Yellow Defiance, which was purchased from the raiser for the sum of £200. In the next few years the varieties Alice, Beeswing, Cleopatra, and

Shylock realised £100 each, and the variety known as the Marchioness of Ormonde £105. The sum of £105 was paid also for a variety named Queen Victoria, but it did not fulfil its promise, and with the disappointment it caused to cultivators an end was put to the high prices paid for new Dahlias.

The fancy Dahlia was later in making its appearance than the show type, and for a considerable period subsequent thereto the flowers of the several varieties were much inferior in form and finish to the finest of the show flowers. But few of the fancies are included in the fifty coloured illustrations of the leading Dahlias of the day that were published in the *Dahlia Register* for 1836 and in the nurserymen's lists, and in the selected lists of varieties that were given the distinctive term of fancy was not used. In the lists of Dahlias that were issued in 1845 one fancy flower—Oakley's Surprise—had a place, but during the next four years the section had increased considerably, for in one of the lists that was published in 1849 there were twenty-four fancy varieties. Sixteen years later the number of fancy varieties catalogued was forty-one, and of these the greater proportion had been raised in this country. During the past twenty years but few new fancy flowers have been introduced. This section, it should be mentioned, originated on the Continent, and chief among the raisers who rendered good service in the earliest stage of its development was M. Lelieur of Sèvres.

With regard to the characteristics of the show and fancy varieties, of primary importance from the exhibition point of view there is no room for doubt. George Glenny and other authorities some seventy or eighty years ago laid down the

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lines on which these varieties should be judged. It was stipulated that show and fancy Dahlias should be circular in form, the petals or florets rounded, the centre compact, closed, and on a level with the shoulder of the bloom ; that the florets should be stiff and smooth and the back ones the largest, so that the whole of the flower may be seen to advantage when viewed from the front. In judging stands of these flowers due consideration was to be given to variety, attractiveness of colour, uniformity in size, and perfection of form in the individual blooms. These lines, with but little modification, have been followed until the present time at the exhibitions of the National Dahlia Society and other societies that give special encouragement to Dahlias. The Royal Horticultural Society suggests in its "Rules for Judging" that in estimating the merits of the show and fancy flowers, the blooms should be of good outline, the florets rounded or fluted, of a shell shape, centre of bloom well up or even, but close and not over developed, colour bright and fresh, the back florets not being faded.

The flowers of the show and fancy Dahlias have sometimes been described as lumpish and inelegant, and there are those who regard the varieties as utterly unfit for any purpose other than the production of specimen blooms for exhibition. This is a mistake, and it has resulted in many gardens being much less interesting and attractive late in summer and early in autumn than they might be. The flowers have certainly a formal appearance, but lumpish and inelegant they are not, and those who have paid any considerable degree of attention to Dahlias can hardly fail to derive much pleasure from well-developed blooms so

DAHLIAS FOR EXHIBITION 23

symmetrical in outline and noble in their proportions as the show Dahlias, more especially as they represent the results of strenuous endeavour on the part of many generations of flower lovers. Show and fancy Dahlias are less useful for the floral adornment of the house than are the light and elegant blooms of the cactus and single flowered varieties, but for bold decorations they are valuable, the effects they produce being at once rich and distinct.

It cannot be too clearly stated, however, that when the plants are grown in conditions most favourable to the production of exhibition blooms of the largest size they have masses of foliage, and the leaves completely hide the flowers, whilst the flower stems are weak and the flowers drooping. A less stimulating course of culture is necessary in order that the growth may be of compact habit, and the blooms borne on stiff, erect stems well above the foliage, where they will develop the richest colours.

THIRTY SHOW DAHLIAS FOR EXHIBITION

Arthur Rawlings: Deep crimson. Of good depth and outline.

Chieftain: Purple-lilac. Of fine form and distinct in colour.

Colonist: Chocolate shading to fawn ; medium size.

Dr. Keynes: Bright buff suffused with red.

Duchess of York: Lemon-yellow margined with salmon-pink.

Duke of Fife: Cardinal red ; blooms of great depth.

Florence Tranter: Blush white margined with rose-purple.

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George Rawlings : Deep maroon. A large flower with fine outline.

Gracchus : Rich orange. The flowers have fine, broad florets.

Harry Keith : Rose-purple. A large flower and constant bloomer.

Henri Depresie : Orange-scarlet. Very constant.

James Cocker : Rich purple. Of large size and good depth.

John Hickling : Bright yellow ; one of the best of its colour.

John Walker : Pure white. A free blooming variety with flowers of fine form.

J. T. West : Yellow tipped with purple ; a fine flower.

Maud Fellowes : White suffused with purple. The centre of this flower is exceptionally good.

Merlin : Rich scarlet. Of medium size and fine form.

Mrs. C. Carrington : Mauve-pink. A sport from Mrs. Morgan.

Mrs. Gladstone : Light pink ; of exquisite colour and form.

Mrs. Morgan : Light ground tinted with purple.

Mrs. W. Slack : Blush margined with purple.

Perfection : Pale buff. A large and finely-formed flower.

R. T. Rawlings : Soft, bright yellow. Of medium size.

Tom Jones : A cream-coloured flower suffused and edged with mauve.

T. W. Girdlestone : Bright rich purple. A large and effective flower.

J. T. Saltmarsh : Yellow tipped with red. Very constant.

PLATE III
CACTUS DAHLIA—CONQUEROR



DAHLIAS FOR EXHIBITION 27

Willie Garrett : Cardinal red, of medium size and fine form.

Warrior : Brilliant scarlet. Large and distinct.

William Powell : Primrose-yellow. Large and fine form.

William Rawlings : Crimson purple. Very constant.

FIFTEEN FANCY DAHLIAS FOR EXHIBITION

Comedian : Orange-yellow striped with crimson.

Dorothy : Fawn colour striped and splashed with maroon.

Emin Pacha : Yellow freckled and striped with crimson.

Goldsmith : Yellow striped and edged with crimson.

Heather Bell : Bright scarlet tipped with white.

Henry Clark : A light shade of lilac with yellow blotches.

John Britton : Rose-lilac striped with crimson ; constant.

Mabel : Deep lilac striped with crimson.

Matthew Campbell : Buff striped and flaked with crimson.

Miss Browning : Bright yellow tipped with white.

Mrs. Saunders (see Plate II) : Rich yellow with white tips.

Rev. J. M. B. Camm : Bright yellow striped with scarlet.

S. Mortimer : Deep rose flaked and striped with crimson.

Sunset : Rich yellow flaked and very showy.

William Pemberton : Bright orange flaked and striped with deep scarlet.

**TWELVE SHOW VARIETIES FOR
GARDEN DECORATION**

David Johnson: A shade of fawn suffused with rose. Flowers of medium size.

Edward Mawley: Deep crimson. Flowers borne on long and erect stems.

Gracchus.

John Bennett: Rich yellow edged with scarlet.

John Walker.

Merlin.

Mrs. J. R. Jeffard: Rich yellow. The flowers are very large.

Perfection.

Queen of the Belgians: Cream-white suffused with pink.

R. T. Rawlings.

Spitfire: Brilliant scarlet. Flowers of medium size.

Tom Jones.

**SIX FANCY VARIETIES FOR GARDEN
DECORATION**

Duchess of Albany: Orange-yellow striped and flaked with crimson.

Gaiety: Yellow striped with red and having white tips.

Mrs. N. Halls: Scarlet with white tips.

Mrs. Reggie Green: White flaked and striped with rose-purple.

Mrs. Saunders.

Prince Henry: Rose-lilac with purple markings.

CHAPTER IV

CACTUS DAHLIAS

AT the very time of the revival of the single Dahlias as subjects of popular interest there made its appearance in the floral world a new type which has become known as the cactus Dahlia. Its introduction proved an event of much importance, for as the precursor of large numbers of distinct and beautiful varieties it has contributed in no small degree to the revival of the interest in Dahlias both in relation to their value for exhibition and usefulness in the garden. Not less interesting is the fact that the descendants of *Dahlia Yuarezii*, the type of the cactus Dahlia, have effected a change in the views of raisers and growers on the points of perfection in Dahlias that is little short of marvellous. At first this epoch-making Dahlia was not accepted with favour by those florists who had for a long series of years devoted much of their time to the development of the blooms of the Dahlia on more or less formal lines. That they should have looked somewhat askance at the new comer is not surprising, for its flowers varied materially from the ideals for which raisers had long been working. Except in brilliancy of colouring the blooms did not possess one of the points that had long been regarded as essential properties of a show Dahlia. They were of

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large size, but the florets, instead of being cupped, rounded at the tips, and arranged with mathematical precision, were long, pointed, and with a graceful curve. In general character the blooms of *D. Yuarezii* had a rather close resemblance to a variety known as Brown's Glowworm, which was figured in the *Dahlia Register* in 1836 when it was enjoying a high degree of popularity. This point is of interest as a proof that our gardens might have been enriched with cactus Dahlias some forty or fifty years earlier than was the case had there been a demand for flowers of this type.

If *D. Yuarezii* did not at first appeal to the florists its blooms were in full accord with the public taste, which had for some years previously evinced an appreciation for flowers that possessed a sufficient degree of lightness to suggest a touch of nature rather than the hand of man. It accordingly attained popularity with surprising rapidity, and the raisers engaged with much zeal in the task of producing new varieties of a similar type.

It was on the occasion of a fruit show held at the Alexandra Palace, Muswell Hill, on September 3, 1880, that *D. Yuarezii* was first presented to the public notice in this country. The exhibitor was Mr. Henry Cannell, V.M.H., of Swanley, and the large, elegant, and brilliantly coloured flowers at once attracted the attention of visitors. Shortly afterwards Mr. Cannell exhibited a stand of blooms at a meeting of the Royal Horticultural Society held at South Kensington, where also the new Dahlia created much interest. As already stated in a previous chapter, M. J. T. Van der Berg of Juxphaar near Utrecht received in 1872 from a friend in Mexico a case containing bulbs, tubers, and

seeds, and from one of the tubers this Dahlia was raised. It will thus be seen that a period of eight years elapsed between its introduction to Europe and the appearance of blooms at a public exhibition in this country. To the late Mr. W. H. Cullingford of Kensington belongs the credit of introducing the cactus Dahlia to this country. He met with it in one of the nurseries near Haarlem, and attracted by the distinct form and bright colouring of the flowers, he purchased plants and grew them for one or two years without being aware of the rarity of the type. He eventually gave some plants to Mr. Cannell, who, recognising the potentialities of the flower, cultivated it well and brought it into public notice.

The readiness with which the raisers turned their attention to the production of varieties of *D. Yuarezii* is of interest as evidence that they had recognised the trend of public taste and were anxious to meet the varying requirements consequent on the changes in the world of floriculture. As the result of their activities numbers of new varieties were soon forthcoming, and by 1891 they had so greatly increased that the National Dahlia Society found it necessary to provide a class specially for them in the schedule of its exhibition for that year. By this time two sports from *D. Yuarezii* had been fixed and distributed. These were known as Beauty of Arundel (white) and Professor Baldwin (rose-purple).

In the production of new cactus Dahlias raisers made at the commencement the same mistakes as raisers of other flowers: they concentrated their efforts upon the development of the individual blooms instead of improving both the plant and its flowers. In following the course of pro-

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cedure on which they entered they achieved much success. They remodelled the blooms on lines that rendered them more graceful and effective than were those of the type, they greatly increased their size, and developed a range of colouring so wide as to extend from pure white to brilliant scarlet and the richest shades of crimson, purple, rose, and yellow. The success that has been achieved in the development of the individual bloom during the progress of improvement is evident at the autumn shows, and the glorious displays of highly refined cactus flowers in their rich and diversified colours have done much to sustain the interest in the Dahlia, and have contributed materially to the popularity of the September exhibitions.

Recognising the delightful effects produced at the autumn exhibitions by the splendidly developed blooms of the cactus Dahlias, it is not difficult to imagine how immensely would the flower garden have gained had a race of cactus varieties suitable for garden decoration been cultivated concurrently with the development of varieties remarkable for the large size and fine form of the individual blooms. But the blooms were considered of such paramount importance that but little consideration was given for many years by owners of gardens to the habits of varieties or their capacities for flower production. When Dahlias are required for contributing to the attractions of the garden the characteristics of the plants should have the first consideration. In the selection of Dahlias, as of roses and some other classes of flowers, it is essential to differentiate between the varieties specially adapted for exhibition and those most suitable for the production of colour effects in the garden, and to select varieties that are the best adapted for the purpose for which

they are required. If blooms are wanted for competitive purposes, then make selections of varieties from the winning stands at the exhibitions ; but when Dahlias for garden decoration are required, take care to visit gardens and nurseries where these flowers are largely grown, and make note of varieties that are compact in growth and that carry their blooms well above the leaves.

Raisers of cactus Dahlias are at last devoting attention to the production of varieties especially adapted to garden decoration, and they have already introduced a considerable number that possess much merit. The attributes of a good cactus Dahlia for the garden are a moderately vigorous growth, a compact habit, and well-formed, attractively-coloured flowers borne on stems of sufficient length and rigidity to carry them well above the leaves, that they may be readily seen and produce the best effect. The best size for the flower of a garden cactus Dahlia is a matter of taste, but those rather above medium size are in some respects preferable, because of their being for the most part proportionate to the strength of the stems.

Only a decade or so ago varieties of moderate height and bearing comparatively small flowers began to make their appearance in the seed beds of raisers engaged in the improvement of the cactus Dahlia. The best of these have from time to time been selected with a view to fixing these characteristics, and the number in commerce is considerable. They are known as "pompon cactus" (see Plate IV), and form a group that is useful for garden decoration, and even more valuable for the supply of flowers for floral arrangements. The blooms are similar in form and colour to those belonging to the ordinary varieties

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and about half the size, thus being most suitable for decorative purposes in a cut state.

The best place for the cactus Dahlias in the garden must be determined by the varieties selected and the purpose for which they are intended. If the object is to beautify the garden those varieties only which are recommended for that purpose should be selected, and in the majority of cases the preferable course will be to plant them in mixed borders. In this case there will be an abundance of other flowers until the Dahlias come into bloom, and from the time they reach this stage until the frost causes a check to tender vegetation they will contribute liberally to the floral display. In spacious borders they may be arranged in triplets to form bold groups, each group consisting of one variety, but in those of small size it is best to plant them singly. Arranged in borders wholly devoted to them, these garden cactus Dahlias are both attractive and interesting, provided due consideration is given to the height of the plants and the colours of the flowers. Medium-sized beds on the lawn are very attractive when filled with one variety, and that of moderate height and free in flowering.

Dahlias required for the production of blooms for exhibitions should be given a position in the kitchen garden or other out-of-the-way place where they will not be conspicuous from the house or the principal paths in the pleasure grounds, as breadths of Dahlias are not particularly attractive when grown in conditions most favourable to the full development of exhibition blooms. The preparation of the soil and the distance at which the plants are arranged must be in accordance with the directions that are given in the chapters devoted to these details.

THIRTY-SIX CACTUS VARIETIES FOR
EXHIBITION

Advance : Bright scarlet. Flowers very large.

Brigadier : Bright crimson.

C. E. Wilkins : Rich salmon-pink with yellow centre.

Conqueror (see Plate III) : Rich crimson ; large and effective.

Dolly : Rich scarlet with pure white tips.

Dr. G. G. Gray : Bright crimson-scarlet. The florets are very narrow.

Dr. Roy Appleton : Lemon-yellow suffused with salmon.

Edith Carter : Rich yellow, passing to bright rose-red on the upper half of the florets.

Excelsior : Deep maroon. A refined flower.

Glory of Wilts : Bright yellow. A large, well-formed flower.

Frederick Wenham : A shade of fawn tinted with pink. This flower has very long florets.

Harold Pearman : Rich yellow ; the blooms of large size and freely produced.

H. L. Brousson : White suffused with rose. The flower is of extra good form.

H. H. Thomas : Rich crimson. Very large and effective.

Iolanthe : Coral-red tipped with golden-yellow. Distinct in colour and high in quality.

Ivernia : Salmon suffused with fawn and with lighter centre. Very large.

J. B. Riding : Orange with yellow at base of florets.

John Riding : Bright red with long incurving florets.

Leda : Deep rose colour with light centre-segments finely incurved.

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Miss Stredwick : The florets are deep pink at the base and soft yellow at tip.

Mrs. Alfred Dyer : Lemon-yellow tinted with rose-pink.

✓ *Mrs. Douglas Fleming* : White. A large and elegant flower.

Mrs. Charles Wyatt : White. A large flower of fine form.

Mrs. Macmillan : Bright pink with centre of cream white.

Mrs. Randle (see *Frontispiece*) : Rich rose-pink. Flowers large and elegant.

Nantwich : Pale yellow, occasionally marked with scarlet.

Nelson : Rich crimson suffused with magenta. Large, and of fine form.

New York : Bronze suffused with salmon.

Pegasus : Bright rose striped and spotted with crimson.

Red Admiral : Brilliant scarlet. Of large size and excellent form.

Rev. Arthur Bridges : Clear yellow suffused and tipped with pink.

Rev. T. W. Jamieson : Yellow passing to lilac-rose.

Ruby Grinsted : A rose-fawn flower with pale yellow centre.

Satisfaction : White suffused with soft pink. Finely incurved.

Snowdon : Pure white. A large flower. Habit erect.

Victory : Coral-red. A large, full, and graceful flower.

TWELVE CACTUS DAHLIAS FOR THE GARDEN

Amos Perry : Rich crimson.

Avoca : Rose-crimson shaded with scarlet.

Clarisse : Orange-scarlet shaded with cerise.

Duchess of Sutherland : Blush pink.

VARIETIES FOR GARDEN 37

Eclair : Rich scarlet.

Erecta : Bright pink.

Hon. Mrs. Greville : Orange-yellow tinted with salmon.

Mauve Queen : Bright mauve.

Mrs. J. H. Usmar : Deep orange shaded with coral-pink.

Primrose Queen : Primrose-yellow.

Sweetbriar : Rose-pink.

White Ensign : Pure white.

TWELVE POMPON CACTUS DAHLIAS FOR EXHIBITION

Argus : Crimson-lake.

Dandy : Primrose suffused with salmon.

Garibaldi : Bright scarlet.

Goldfinch (see Plate IV) : Bright yellow.

Mary : White edged with crimson.

Martha : Orange-red.

Minima : Purple-crimson.

Modesty (see Plate IV) : Rose-pink.

Nain : Light orange, deeper in centre.

Snowbird : White (finely incurved).

Titus : Lemon-yellow, shading to buff and tipped with white.

William Marshall : Maroon-red.

TWELVE POMPON CACTUS DAHLIAS FOR THE GARDEN

Cheerful : Pink with light centre.

Coronation : Bright scarlet.

Gracie : Scarlet, white, and yellow.

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Mary.

Mignon : Bright pink.

Minima.

Nain.

Purple Gem : Deep purple.

Sovereign : Golden-yellow.

Sweet : Salmon tipped with white.

Tomtit : Mauve pink (very distinct).

William Marshall.

TWELVE CACTUS SINGLE DAHLIAS

Abbotsford : Orange-scarlet.

Amy Robsart : Rich scarlet. Florets elegantly curved.

Fair Maid : Blush white. Of medium size and fine form.

Hereward : Yellow flaked and striped with scarlet.

Ivanhoe : Rose with crimson zone ; very pleasing.

Minna : Bronze-yellow suffused with carmine at the margin.

Meg Merrilees : Bright yellow. Florets large and twisted.

Queen Mary : White with pale yellow zone ; elegant.

Rob Roy : Deep yellow striped and splashed with scarlet.

Rose Bradwardine : Yellow shaded with bronze and having red tips.

Sir Walter Rose : Pink with orange base ; gracefully curved.

Talisman : Deep crimson. Finely incurved.

CHAPTER V

SINGLE DAHLIAS

FOR some seventy years after the introduction of the Dahlia into European gardens raisers in Great Britain as in other countries devoted their attention exclusively to the production of varieties with double flowers, and all seedlings which failed to produce flowers of this type were destroyed. In this long period the double flowers had, by the perseverance of the florists and a close adherence to the properties formulated by the leading authorities, been brought to a high degree of perfection. They had reached a stage of development when it was extremely difficult to obtain such improvements as would attract the attention of the general body of cultivators. Improvements continued to be made, but they were such as to interest the exhibitors rather than the cultivators who grew Dahlias simply for the purpose of beautifying their gardens, and in the absence of startling novelties Dahlias steadily declined in public favour. Something quite new was required to bring about a revival of interest. It is therefore a matter of importance to recall the fact that when the popularity of the Dahlia had well-nigh reached its lowest ebb, and those who were specially interested in the flower were regarding its future with much anxiety, there reappeared the original Dahlia of 1789. This simple Mexican flower with its small bright

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scarlet blooms, known as the single Dahlia, lighted up as it were the darkness that prevailed among the fanciers, and prepared the way for the cactus and other types. It rapidly acquired popularity as though its charms had been perceived for the first time, and the interest created by its reintroduction to public notice had the effect of bringing two other single Dahlias into prominence that had long remained in the cold shade of neglect.

The reintroduction of the single variety known as *coccinea* was due to the late Mr. Alfred Salter, who, in the autumn of 1874, exhibited blooms at one of the Royal Horticultural Society's meetings at South Kensington. These flowers created much interest, and a demand rapidly arose for varieties with single flowers, so that within a comparatively short period two others were brought out from the obscurity in which they had so long been hidden, and placed within the reach of cultivators. These varieties were known as *Lutea* and *Paragon*; they possessed much merit, although not comparable with the excellent varieties of more recent introduction. *Lutea* had, as its name indicates, yellow flowers, and it was probably a survival from the earlier days of the cultivated Dahlia, but there is no trustworthy information upon this point. *Paragon* was a specially attractive variety; the blooms were rather large, of good form, and of a rich maroon colour with a broad purple margin to the florets. This variety was introduced to cultivation about the year 1830, and it was described in a catalogue of Dahlias issued by Appleby, a Doncaster florist, in 1834. It is said to have been found in a botanic garden, but whether this was the case or not, it is evident that it was valued by some cultivators for a

PLATE IV

POMPON CACTUS DAHLIAS

MODESTY

GOLDFINCH

THE FLORA OF
CALIFORNIA



70 MINU
AIBOCHIAO

considerable period after the double Dahlias had practically obtained undisputed sway.

The two varieties last named were soon followed by other single Dahlias, for raisers were quick to recognise the trend of public taste in favour of single flowers, and to take the steps necessary to meet the demand for them. Crosses were effected between *D. coccinea* and the two varieties re-introduced with it, and possibly between this trio and *D. Merckii*, which under the name of *D. glabrata* was introduced from Mexico in 1840, and new varieties with well formed and attractively coloured flowers were introduced. In a short time cultivators found to their hand a considerable number of single Dahlias of great excellence, and with these there were some that, owing to their coarse habit and large, floppy flowers, were of but little value. Not all the raisers in the earlier days of the single Dahlia were equally careful in making selections from their seed beds, and the distribution of varieties that were not satisfactory had the effect of giving a check to their popularity. Happily this practice, which obtained only among a few, was soon abandoned, and for many years the greatest care has been taken to select for distribution none but those that show a decided improvement in one or more respects upon those of a similar character or colour already in cultivation. As a consequence the varieties in commerce are of so high an order of merit that the chief difficulty of the inexperienced in making a selection is to obtain a proper representation of the varied colours which the single Dahlias afford.

So far the reference to single Dahlias has been limited to varieties that have flowers of medium size, circular in

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outline, and that conform in all respects to the requirements of the florists. In addition to these, which are by far the most valuable both for the garden and exhibition, there are two other types that are regarded with much favour by some cultivators and are useful for special purposes. The first of these types, known as the Tom Thumb Single, was introduced about 1880 by the late Mr. Girdlestone, who for some years was the Honorary Secretary and subsequently President of the National Dahlia Society. The plants of this type attain a height of about 18 inches, bloom freely, and the flowers afford a wide range of colour. Their chief value is for small beds and for planting along the front of borders. The other type, known as the Single Cactus, is distinguished by the flowers having florets that are twisted and curled in much the same way as those of the cactus Dahlia. This type originated with the late Mr. E. J. Lowe, F.R.S., and was distributed in 1896. The plants are dwarf, compact in growth, and free in blooming, and the flowers in their diversity of colour are specially useful, by reason of their lightness, for floral arrangements.

With reference to the desirable characteristics of single Dahlias of the ordinary type, it may be pointed out that varieties producing blooms of medium size should invariably be selected. In form the flowers should be circular and even in outline; the florets perfectly flat and even, neatly and closely fitting or overlapping and slightly recurved, and the flower stems should be stiff and erect. Flowers of this type are not only more refined and pleasing, but they retain their freshness for a greater length of time than do those in which the florets are widely separated.

Single Dahlias are highly effective in the garden when

placed in conditions favourable to a healthy growth, in which a proper balance is maintained between the development of flowers and foliage. The enrichment of the soil with large quantities of farmyard or stable manure, as in the preparation of beds for cactus, fancy, and show varieties to be grown for the production of blooms for exhibition, is unnecessary and undesirable. As in the case of the other sections when grown for garden decoration, the soil should receive only a moderate dressing of well-decayed manure in the course of the winter and be then deeply dug, care being taken to well mix the manure with the soil in the process. This much will be necessary for maintaining a moderately vigorous growth throughout the season, but an excess of manure would encourage undue vigour at the expense of flower-production. It is advisable that strong plants well established in 5-inch or 6-inch pots be selected for planting because of their coming into bloom early and thus prolonging the flowering season.

Complaints are sometimes made of the fleeting character of the flowers of the single varieties. It must be admitted that they do not retain their freshness for so long a period as the double forms, but they are not so ephemeral as is generally supposed to be the case. The length of time that the flowers when cut will retain their freshness is much a matter of treatment. They are too often cut when fully developed or after having been subjected to several hours' sunshine, and they collapse within a comparatively short period of their being arranged in the vases or other receptacles. The proper course is to cut the flowers quite early in the day, and before they are fully open, and to place the ends of the stalks in water immediately they are

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severed from the plant. If this is done the flowers will remain in good condition for a considerable period.

Single Dahlias produce seed freely, and the development and ripening of seed imposes a very heavy strain upon the plants. It is essential, therefore, to pick off the faded flowers at frequent intervals, say once a week, before the seeds have time to form.

BEST EIGHTEEN SINGLE DAHLIAS FOR EXHIBITION

Amy: Terra-cotta. Of medium size and very refined.

Betty: Rose-lilac with crimson zone round the disc.

Butterfly: White with primrose zone.

Cardinal (see Plate V): Cardinal red with yellow zone.

Columbine: Rich rose colour tinted with orange at the base of florets.

Darkness: Maroon-crimson; very effective.

Duke of York: Brilliant orange-scarlet with golden zone.

Eclipse: Bright rose colour with maroon zone.

Kitty: Rosy-mauve with dark zone. Very distinct.

Leslie Seale: Pale lilac with crimson zone.

Miss Morland: Crimson-scarlet.

Miss Roberts: Clear yellow. Of medium size and fine outline.

Mrs. Joynton Hicks (see Plate V): Pale buff with crimson zone.

Owen Thomas: Rich scarlet tipped with yellow; very effective.

Peggy: Orange-yellow with rose tips and rose-crimson base.

Polly Eccles : Fawn colour with red zone ; very free.

Princess of Wales : Rich pink.

Rosebank : Brilliant scarlet. Of medium size and free blooming habit.

TWELVE SINGLE DAHLIAS FOR GARDEN DECORATION

Cardinal.

Columbine.

Ensign : Crimson-scarlet ; free and effective.

Fugi San : Orange-yellow with crimson zone.

Kitty.

Leslie Seale.

Miss Morland.

Miss Roberts.

Mrs. Joynson Hicks.

Morning Glow : Rich amber with scarlet zone.

Owen Thomas.

Snowdrop : Pure white. Of medium size and fine form.

SIX SINGLE "TOM THUMB" DAHLIAS FOR SMALL BEDS

Bantam : Scarlet ; height 12 inches.

Bootles : Deep red ; 16 inches.

Golden Fairy : Golden-yellow ; 14 inches.

Hermione : Pure white ; 12 inches.

Miss Grace : Light orange ; 14 inches.

Tom Tit : Orange-scarlet with yellow zone ; 18 inches.

CHAPTER VI

POMPON OR BOUQUET VARIETIES

THE distinct and highly attractive pompon or bouquet varieties form a group of much value in the production of colour effects in the garden and for yielding abundant supplies of flowers for home decorations. Notwithstanding their usefulness they have not at any time evoked much enthusiasm among Dahlia exhibitors. They have been highly appreciated by those who do not base their estimates of the merits of flowers upon their size alone, but they have not given rise to the excitement characteristic of the periods in which the show and cactus varieties were undergoing the earlier stages of their development.

The record of the origin of these varieties is not sufficiently clear to admit of a definite opinion being formed as to the raiser with whom they originated or the year in which they were introduced to this country. That Germany was the country of their origin there can be no doubt; and it may be safely assumed that they were raised at Koestritz, which for a long period subsequent to 1824 was an important centre of Dahlia culture. The earlier varieties were probably introduced to British gardens towards the end of the first half of the nineteenth century; but they do not appear to have met with much favour from the general body of cultivators until they had been in cultiva-

tion here for several years. It is not surprising this should have been the case, for both raisers and growers were then so unremitting in their attentions to the individual bloom as to regard the plant as of quite secondary importance. The pompons as originally introduced were comparatively neat in growth and free in flowering, but the individual blooms were very different to those with which present-day growers are familiar, and were certainly not specially attractive. Slow in attaining popularity, they did not make their appearance very quickly at the exhibitions. The schedule of the first National Dahlia Show, which was held in St. James's Hall, London, in 1859, did not contain a single class specially provided for them, and during the ten years (1851-59) over which the work of the National Floricultural Society extended no award was made to a pompon Dahlia.

It was not, indeed, until the National Dahlia Society in 1871 included the pompons in its schedule that they were recognised as florists' flowers, and worthy of being associated with the other sections at the exhibitions. This recognition gave a great stimulus to their culture and to the raising of varieties. This inclusion in the scheme of the leading Dahlia shows was a distinct advantage, inasmuch as the pompon flowers were staged with some length of stem, and thus they helped to relieve the flatness characteristic of exhibitions where the blooms are shown close down upon sloping boards. From this period new flowers were multiplied at a rapid rate, the principal raisers being John Keynes of Salisbury and Charles Turner of Slough. Immense improvements in the form and colour of the flowers were quickly effected. The habit of the plants was improved, and the usefulness of the

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section in the garden thereby enhanced. Unfortunately the raisers appear to have taken too narrow a view of the possibilities of the bloom in relation to form, and modelled it on the same lines as the show Dahlia. They have succeeded in raising varieties with blooms of exquisite shape, but too formal to be readily accepted by the great flower-loving public as suitable for floral arrangements. The lines originally laid down have been followed until the present time, and as a consequence the flowers possess a degree of refinement beyond which it does not appear possible to go, as may be seen in the charming variety Florence. The success achieved in the development of the pompon Dahlia in accordance with the florist's ideal, has been little short of marvellous; but in testifying to the perseverance and skill evinced in the attainment of the ideal, it is not difficult to realise how valuable would have been a race of varieties bearing blooms of a type similar to those of the variety known as White Aster, which is so much appreciated for floral arrangements. We may yet have such flowers in a diversity of colouring, for raisers and growers are no longer content to blindly follow the traditions of past generations.

It has already been intimated that the pompon Dahlias are highly meritorious as aids in beautifying the flower garden during a considerable period in each year, and it now remains to be said that they should be fully utilised. They range in height from $2\frac{1}{2}$ to $3\frac{1}{2}$ feet, but in soil that has not been too liberally enriched with manure the majority of the varieties grow to a height of three feet, form neat bushes, and produce a profusion of flowers extending over a period of eight or ten weeks, according to the

strength of the plants when put out, and the character of the season. Strong plants that have been grown on in 5-inch pots will come into bloom two or three weeks in advance of those which are kept throughout in 3-inch pots, and there will be much the same difference in the time of flowering between plants growing in moderately rich and heavily manured soils. They are highly effective grown in beds in open positions, and planted about 30 inches apart; but they probably appear to the greatest advantage when judiciously associated with hardy and other plants in the mixed border. In borders they may be arranged in groups of three plants of one variety or singly. The groups and plants should be from 7 to 10 feet apart as may be preferred, and so arranged they are of immense value for maintaining the attractions of borders after the hardy plants flowering early in the summer have lost much of their beauty.

Although not largely grown by amateurs with gardens of comparatively small size, this type of Dahlia is especially adapted to their requirements. Dwarf in growth and free in flowering, the plants thrive in the conditions that obtain in and near towns, and it is surprising that amateurs who are interested in Dahlias, but from an insufficiency of space are unable to cultivate the show and cactus varieties with success, do not grow and show the pompoms.

There is no occasion, whether in town or country, to make strenuous endeavour to obtain blooms of the largest possible size. For a considerable period this was done, and blooms were sometimes staged that suggested show blooms grown in ordinary conditions; but the practice has changed, and perfection of form and proper development of colour

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are the chief points in determining the relative merits of the pompon flowers.

EIGHTEEN POMPON DAHLIAS FOR EXHIBITION AND GARDEN DECORATION

Adelaide: Blush margined with rose. Very distinct.

Clarence: Maroon-crimson. A small flower, of fine form.

Cyril: Rich crimson. Free and very distinct.

Daisy: Amber suffused with salmon.

Douglas: Maroon-crimson.

Edith Bryant (see Plate VI): Soft yellow edged with crimson. Very attractive.

Florence: Lilac. A very small flower of fine form.

Glow: Rich coral-red, distinct and effective.

Ideal (see Plate VI): Bright yellow. Small deep flowers.

Kate Greenaway: Amber with deep red zone.

Mars: Bright scarlet. Flower of medium size and good form.

Little Donald: Rich crimson. Small and of fine shape.

Montague Wotten: White edged with crimson lake; very pleasing.

Nellie Broomhead (see Plate VI): Richly suffused mauve on a light ground.

Nerissa: Soft silvery-rose. Very distinct and good.

Queen of Whites: Pure white.

Selma: Buff with shading of deeper tint.

Tommy Keith: Cardinal red tipped with white.

CHAPTER VII

PÆONY-FLOWERED DAHLIAS

OWING to the fact that Dahlias of this type produce flowers of the largest size with irregularly formed and loosely arranged florets, and rich and varied colouring with bright yellow centres characteristic of herbaceous pæonies, they have become known as "pæony flowered." A more appropriate name could not well have been chosen for them, for to those who are acquainted with the herbaceous pæony in its varied forms it clearly expresses the predominating features of the flowers, and it has also the merit of being short and easily remembered. The flowers of the numerous varieties now in cultivation exhibit a remarkable diversity in form. Many of them have florets that are gracefully curled, some possess florets that not only vary in shape but also in size, and all are more or less beautiful, and make a strong appeal to those who specially appreciate flowers that suggest the hand of nature rather than of man in their making.

Introduced by Messrs. Copyn & Son of Groenekan, the pæony-flowered Dahlias were presented to public notice at the exhibitions held in London and on the Continent during the autumn of 1905, and their quaint and fantastic forms secured for them a large share of attention. At Paris, Düsseldorf, and elsewhere on the Continent they received

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numerous awards, but in London opinions were divided as to their merits, and of those who first saw them but few were impressed in their favour. Since their first appearance in this country they have been largely shown by English growers in a manner that has brought into prominence their distinctive characteristics, and they have attained to a high degree of popularity. Especially are they regarded with much favour by those who are responsible for the management of public parks and large private gardens, in which, by reason of their bold habit and attractive flowers, they are of much value.

With greater staying powers when cut, the flowers would be most useful for bold decorations in the house, and it is much to be desired that raisers will make strong efforts to improve them in this respect. Individually the blooms, notwithstanding their large size, are light and elegant, and the pure whites, soft yellows, bright pinks, and brilliant reds can be readily arranged to form the most tasteful combinations; but it is tantalising to find them drooping and presenting an exhausted appearance before the close of the festivities or the exhibition as the case may be. An increase in the substance of the florets would greatly improve matters, but even at the present the staying powers of the blooms could be easily increased by cultivators and those who use the flowers for decorations. Instead of cutting them when fully developed, and it may be after they have been exposed to brilliant sunshine for some time and carried in the hand or basket until sufficient have been obtained, the following method of procedure should be adopted. Cut the flowers quite early in the morning, when on the point of expanding, and have at hand a small pail or

PLATE V
SINGLE DAHLIAS

MRS. JOYNSON HICKS

CARDINAL

DAISY OF
CALIFORNIA



ARRANGEMENT IN GARDEN 57

other vessel partly filled with water ; in this put the stalk of each flower immediately it is cut. When this is done the stems immediately become charged with water, and the flowers open gradually, without having appreciably suffered from the change involved in detaching them from the plants. It is also important to remember that flowers produced by plants growing in soil that has been only moderately enriched with manure will retain their freshness when cut for a longer period than those obtained from beds or borders that have been heavily manured.

For beautifying the garden the usefulness of the pæony-flowered Dahlias is generally admitted, and the question that has to be considered is really their suitability for various gardens and positions. Their robust habit renders them of more value for large gardens than for those of modest dimensions, but there is some diversity in the habit of the varieties, and there need be no difficulty in making selections suitable for both large and small gardens and for different positions in either. Improvements have been effected since the earlier introductions, not only in the form and colour of the flowers but also in the habit of the plants. English growers quickly recognised the desirability of a reduction in the height of growth, and varieties have been introduced that do not exceed 3 feet. Some of the varieties attain a height of 6, 7, or 8 feet, and these are best suited for associating with tall-growing hardy and other plants in spacious borders. They may be arranged with the plants or used for forming a background to them. In large, open spaces the tall growers are singularly effective in beds of the size equivalent to 10 or 11 feet in diameter, but it is necessary to remember that if the position is much exposed

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there is some risk of injury to the plants from westerly gales. Varieties ranging from 4 to 6 feet in height are the most suitable for beds in large gardens, and for gardens of medium and small dimensions plants from 3 to 5 feet are preferable for both beds and borders. As some of the most attractive varieties exceed that height, difficulty will be experienced in excluding them from selections, and therefore it will be well to bear in mind that the tallest varieties should in such cases be utilised in furnishing borders. From 3 to 4 feet will be a good distance to allow the plants when grown in beds and borders wholly devoted to them, the exact distance being determined by the height of the varieties and the character of the soil. In the mixed border from 8 to 10 feet will be a good distance at which to put them apart, it not being advisable to allow them to greatly predominate over the other kinds.

As in the case of other classes of Dahlias grown for the production of colour effects in the garden, it is essential that the soil be not heavily manured, for an excess of plant food promotes a stout, soft, and leafy growth but few flowers, and these flowers of so large a size that the stems are unequal to the task of carrying them above the leaves. In the case of soils that are rich from heavy dressings of manure applied in the previous year, a dressing of newly-slaked lime will suffice, the quantity to apply being as much as will whiten the surface. If the soil is only moderately rich, dress it with sufficient decomposed farm-yard manure to form a layer about 3 inches in thickness. Should it be more or less impoverished or light and sandy, about double the quantity may be used, the object in modifying the manurial applications according to the

VARIETIES FOR EXHIBITION 59

character of the soil being to supply the plants with just sufficient food to enable them to make a moderately vigorous growth throughout the season and no more.

TWELVE PÆONY-FLOWERED VARIETIES FOR EXHIBITION AND GARDEN DECORATION

Bertha Von Suttner : Salmon-pink suffused with yellow.

Durban : Yellow shaded with rose.

Holman Hunt : Crimson shaded with scarlet.

Liberty : Bright scarlet.

Merveille : Rose shaded with yellow.

Mrs. George Gordon : Cream-white. A large flower with long stem.

Mrs. J. B. Riding : Deep scarlet. A large and attractive flower.

Norah Lindsay : Of charming dove colour suffused with pink.

Ruskin : Pink striped and suffused crimson.

South Pole : White.

The Geisha (see Plate VII) : Orange-red and yellow. A large flower ; very effective in the garden.

Titian : Blush white suffused with rose.

CHAPTER VIII

DECORATIVE DAHLIAS

THE Dahlias popularly known as decorative varieties have been often described as flowers that do not conform to the standard of any recognised sections but yet are sufficiently attractive for cultivation. This somewhat vague description served its purpose very well when the number of varieties was small and a proportion of them—such, for instance, as the brilliantly coloured Glare of the Garden—had belonged to the distant past ; but with largely increased numbers it would be well were an endeavour made to adopt a standard that would indicate the characteristics of the section and thus serve as a guide to both cultivators and raisers. It is generally understood that the blooms should be double, with broad and more or less flat florets with rounded or pointed tips, but in the preparation of a code of properties to which exhibitors and judges would have to give their adherence considerable latitude must be allowed. Unless this is done several varieties of much merit will be excluded, as for example the stately Grand Duc Alexis with its fluted or rolled up florets, and the elegant Admiration, which has large flowers with broad florets that are so gracefully curved as to suggest a close relationship with the pæony-flowered section.

The decorative Dahlias have been introduced at periods

extending over a long time. A few of the varieties take us back sixty or seventy years, while others have been raised and distributed since the commencement of the present century. Some of the varieties in general cultivation had their origin in batches of seedlings raised from seed saved from show Dahlias, and were selected because of their effectiveness in the garden. These were mostly introduced to cultivation soon after the favour shown the cactus Dahlia had made it quite clear that the trend of the public taste was in the direction of a fuller appreciation of Dahlias less formal than the show section which had for so long a period occupied a predominant position. Since the general recognition of decorative Dahlias has encouraged raisers to distribute new varieties they have adopted a systematic method of improving them, and such progress has been made as to justify the anticipation that the section will in due course become of considerable importance.

The giant decorative varieties which form a distinct and for some purposes useful group are of continental origin, and the earlier varieties were introduced to this country at the close of the nineteenth century. The varieties that produce large flowers with broad, flat florets like those of *Souvenir de Gustave Douzon* were raised in France, and *Grand Duc Alexis*, with its huge blooms composed of rolled or fluted florets, with one or two others, originated in Germany. They have not attained to a very high degree of popularity; not one of the varieties has obtained recognition from either of the societies that make awards to novelties, and seldom are blooms seen at the exhibitions of the societies directly associated with Dahlias. Notwithstanding the fact that they have not been regarded with much favour

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by cultivators generally, they are popular with some, and there can be no question as to their great value in the production of rich colour effects in gardens of large size. In some of the public parks and gardens they have been utilised with much success, and the large beds and groups in the borders have proved very attractive. They are better suited to the conditions that obtain in large gardens than smaller ones, but a few plants may with advantage be planted along the back of mixed borders in gardens of limited size because of their distinctness and the display of colour they produce.

Decorative Dahlias vary much in their habits of growth. Some, like the invaluable, white bedding variety Kaiserin A. Victoria, do not exceed a height of 2 feet, whilst others grow to 6 or more feet. There is also a material difference in the size of the flowers; those of Souvenir de Gustave Douzon attaining a diameter of 6 or 7 inches even when given ordinary garden cultivation. It will thus be seen that in making a selection care must be taken to choose varieties specially suitable for the furnishing of large beds on the lawn and the formation of bold groups in borders devoted to hardy or other flowers in large gardens. In gardens of all sizes a few plants arranged singly among low-growing shrubs that are planted rather thinly will materially enhance the appearance of the shrubbery border and give additional interest to the garden. When thus grown, from 5 or 6 feet apart will be a good distance at which to plant the Dahlias, as there will then be no danger of them crowding the shrubs to their injury.

Decorative varieties of a less robust habit may be grown

STRONG-GROWING VARIETIES 63

in beds and borders in precisely the same manner as the giants, except that they are not so suitable for forming a background to tall plants. In the mixed borders and arranged singly or in groups consisting of two or three plants each along the middle of the border and about 7 feet apart they produce a good effect. As the plants have a tendency to make a vigorous growth but little assistance from manurial matter will be necessary. It will really be better not to give manure to the borders than to apply it in excess of requirement, as compact-growing plants bearing a profusion of flowers on stiff stems are to be desired, and not great masses of foliage with but few blooms of an exceptional size.

But varieties that are dwarf in growth and profuse in flowering like Kaiserin A. Victoria and Glare of the Garden should have a liberally manured soil, otherwise they will become exhausted by flower production before the autumn. They are most effective when grown in beds of varying sizes and along the front of the mixed border, and if the plants are strong when put out they will bloom freely and continuously from about the middle of July until cut down by the frost. Two feet will be a good distance at which to put them apart.

TWELVE GIANT DECORATIVE VARIETIES FOR EXHIBITION AND GARDEN DECORATION

Attraction : Maroon with white tips.

Delice : Rich rose-pink. Distinct and of great beauty.

Grand Duc Alexis : White tipped with rose. This flower has fluted florets.

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Le Colosse : Salmon-red. The florets are very broad and the flower is unusually effective.

Loveliness : Deep pink shading to white. Very beautiful.

Madame A. Nonin : Pale pink. Very pleasing.

Papa Charmet : Rich crimson-maroon.

Phenomene : Bright salmon. Very distinct.

Queen Mary : Rose-pink. Very fine.

Souvenir de Gustave Douzon : Orange-scarlet. A large flower with broad florets.

Yellow Colosse : Deep yellow with broad florets.

Souvenir de Chalonne : Yellow suffused with red, collerette pale yellow.

TWELVE DECORATIVE DAHLIAS FOR GARDEN DECORATION

Cannell's Favourite : Yellow suffused with bronze.

Countess of Pembroke : Pale lilac. Distinct and very pleasing.

Claribel : Rosy-purple. Very effective.

Glare of the Garden : Orange-scarlet. Very free and effective.

Empress of India : Maroon-crimson. Useful for its deep colour.

Kaiserin Augusta Victoria : White, dwarf, wondrously free flowering, the best bedding Dahlia yet introduced.

Kriemhilda : Soft rose-pink. Distinct and free flowering.

Maid of Kent : Crimson tipped with white.

Mrs. C. Turner : Bright yellow. Large, and very free.

DECORATIVE DAHLIAS 65

Orange Glare of the Garden : Orange-red. Very free and showy.

Princess Juliana : Pure white. Very free, and valuable for the supply of cut flowers.

Salisbury White : Pure white. Of medium size, with short, pointed florets.

CHAPTER IX

COLLERETTE DAHLIAS

THE varieties belonging to this section are distinguished from all others by having a frill of short, erect florets around the central disc, which gives the blooms a distinct and pleasing appearance and the section its distinctive name. These florets are really an amplification of the outer row belonging to the disc, and upon their development and colour the merits of a variety largely depend. Practically collerette varieties are single Dahlias with the addition of the frill or collar of erect florets, therefore the blossoms should be stout in substance and regular in outline, and the collar full and the colour in harmony or pleasing contrast with the ray florets.

The history of the section extends over so short a period that it may be briefly stated. In the year 1899, in the municipal gardens of the Parc de la Tête d'Or, Lyons, two Dahlia plants produced sports bearing blossoms with abnormal florets around the disc. These sports in due course became fixed and were propagated, and in 1901 they were distributed as "Collerette" Dahlias by Messrs. Rivoire and Son, Lyons, under the names of President Viger and Joseph Goujon. Since the introduction of these two sports many excellent varieties of the same class have been raised from seed and introduced to cultivation, but it was

not until 1910 that the collerette Dahlias received in this country the attention they so well merit. The interest that was shown in them in the autumn of 1912 seemed to promise a wonderful future for this type of Dahlia. Both the French and German raisers have shown activity in the improvement of these varieties, and proceeding on divergent lines, they have achieved much success. The French varieties have flowers of great substance with broad florets rounded at the tips so regularly arranged as to form a complete circle ; those which had their origin in Germany bear flowers with rather thin, pointed florets. This slight falling off in substance and form has ample compensation in the distinct and beautiful shades of colour, and in the brightness of the blooms. The majority of cultivators will probably prefer the more formal French flowers because of the greater substance and richer colours, and to exhibitors their greater staying qualities will be an advantage. The average size of the blooms of the collerette Dahlias exceeds that of the singles, and it does not appear desirable their size should further increase because of the risk of their stems not possessing sufficient strength to bear them erect, a point of much importance both in the garden and when cut. The chief points to which raisers should give their attention are the improvement in the florets around the disc and in obtaining greater uniformity in development and a wider range of colours.

Most of the varieties of moderate height have a free, branching habit and bloom very freely ; they also possess in a marked degree the merit of bearing their flowers well above the foliage. This attribute, combined with attractive colouring, renders the type of much value for the garden.

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In general character the collerette Dahlias approach most closely the singles, and the sections may be successfully grown in the same conditions. The soil should in all cases be deeply dug and well broken up, and be moderately enriched with well-decomposed farmyard or stable manure. For beds and borders in which they are to be grown for decorative effect a light dressing will suffice to maintain the growth essential to the continuous succession of flowers. They are admirably adapted for associating with other classes of plants, and may be planted singly or in groups of three, the latter method being the more effective in borders ranging from 8 to 10 feet in width. A border wholly devoted to them will form an attractive and interesting feature, as indeed will a spacious bed on the lawn. When grown in beds and borders wholly devoted to them the plants should be arranged from 3 to $3\frac{1}{2}$ feet apart. As in the case of the singles, the flower heads must be removed within a short time of the florets losing their beauty, the plants being examined for this purpose at regular intervals. The old flower heads are not only unsightly, but seed development imposes so severe a tax upon the plants as to materially check their growth.

EIGHTEEN COLLERETTE DAHLIAS FOR EXHIBITION AND GARDEN DECORATION

Albert Maumene : Bright mauve, collerette pale lilac.

Antwerpia : Deep red with yellow collerette.

Burgomaster Seifurth : Bright crimson with yellow collerette.

Comtesse Dugon : White marked with purple, collerette white.

Diadem : Deep but bright rose with light rose collerette.

Diamant : Rose with lighter collerette.

Gallia (see Plate VIII) : Cream colour shaded with rose, collerette cream-white.

Exposition de Lyon : Cerise, collerette white and rose.

Henri Farman : Bright red margined with primrose, collerette soft yellow.

Ideal : Deep crimson with yellow collerette.

Maurice Rivoire : Bright crimson with white collerette.

Madame F. G. Bruant : Rose-purple with white collerette.

Madame Le Page Vigier : Rich scarlet with yellow collerette.

Madame Pairier : Magenta with white collerette.

Meteor : Deep crimson with white collerette.

Princess Louise : Deep crimson with yellow collerette.

Rheinkrone : Maroon with white collerette edged with red.

Souvenir de Chabonne : Yellow suffused with crimson and tipped white, collerette yellow.

CHAPTER X

METHODS OF PROPAGATION

THE propagation of Dahlias is really a very simple matter, but in the raising of stocks of these, as of most other classes of plants, the details have to be clearly understood before the simplicity of the method adopted becomes obvious. Therefore those who are inexperienced in the art of cultivating Dahlias should be careful to become well acquainted with the several methods of increase and the culture for which they are best suited, and so avoid unnecessary trouble and failure. The information essential to obtaining satisfactory results in propagation will be found in this chapter.

To begin well is a point of much importance, and this fact was recognised not less clearly by the past generation of cultivators than by the most successful growers at the present time. We have abundant proof of this in the periodic literature of past days, in which Dahlias and their cultivation received a full share of attention. Again and again we find the old writers urging their readers to so carry out the earlier details that the plants will be able to make a good start when transferred to beds and borders, and will not have to make up for time lost in the preparatory stage. A good beginning as generally understood by Dahlia growers is the provision of a stock of strong plants

with firm, short-jointed growth for planting out at the end of May, or a week or so earlier if the district, situation, and soil will admit of this being done with safety.

There are three methods by which Dahlia stocks may be annually renewed or increased in accordance with individual requirements, and it is advisable to give their relative advantages and disadvantages due consideration.

The first is simply starting the roots into growth under glass early in the spring and then growing them on with no other manipulation of the several shoots except reducing them to two or three, the smaller number being preferable, and planting them intact. The renewal of the stock in this manner has much to recommend it to those who grow Dahlias exclusively for garden decoration, and while anxious to raise the plants required at home have no convenience for rooting cuttings, or are unable to devote the necessary attention to them. Plants raised from the old tubers in this manner commence to bloom earlier than those raised from cuttings in the usual way, and when they are grown wholly for garden decoration this point is worthy of consideration, more especially in the case of many of the cactus varieties. As a set-off to the advantage of prolonging the season of flowering it must be said that the blooms are not, as a rule, of so high a quality as those borne by plants raised from cuttings; and should the season be open, and the period of flowering extended longer than is usual, some flowers will, late in autumn, exhibit open centres.

In raising plants by this method of procedure the roots are removed from the shed, loft, or cellar in which they have been wintered at the end of February or quite early in March and put in pots that are 6 inches in diameter.

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The pots should have a few crocks placed in the bottom, with a layer of some loose material such as the rougher part of the compost, to prevent the fine soil working down between the crocks and interfering with the escape of the surplus water. Generally speaking the roots will be too large to admit of their being put into pots of the size mentioned without being previously reduced. To effect the necessary reduction shorten the tubers to about one-half their length by a cut made at right angles and leave them fully exposed in the greenhouse or frame for two or three days to give time for the cut ends to become dry before proceeding to put them in pots. In carrying out the last-named detail use turfy loam to which decayed stable manure has been added in the proportion of one part to each five parts of loam. If manure of the description mentioned is not available, use instead bone meal at the rate of one 5-inch flowerpotful to a bushel of soil. Should it be desired to increase the stock beyond the number of tubers available, turn the plants out of the pots when the young shoots are about 3 inches long and divide them into two or three portions, preferably two, and then put them into 6-inch pots. Some trouble may be saved without any accompanying disadvantage by starting the tubers that are to be divided in shallow boxes with any light soil that may be available packed about them. When so started they can on the shoots reaching the length mentioned be lifted out of the box, divided, and put into pots 6 inches in diameter. The tubers must be shortened before they are put into the boxes, and a compost similar to that already advised be used. Provided the soil be moderately moist when the tubers are potted or boxed, very little water will be required except an occasional

PLATE VI
POMPON DAHLIAS

NELLIE BROOMHEAD

IDEAL

EDITH BRYANT

1914



T. Ernest Hutton

spraying overhead until the young shoots are pushing freely.

The second of the methods of propagating Dahlias is by means of cuttings, and where the conveniences exist for rooting them it is unquestionably the best of the three systems. With the aid of a glass structure in which a temperature of 65° and a bottom heat of 70° can be maintained there is no difficulty whatever in rooting cuttings, and plants so raised can with ordinary good culture be depended upon to produce blooms of high quality. They may not come into flower quite so early as those grown directly from the old tubers, but, following the advice here given for shifting the young plants into 6-inch pots when well rooted, and growing them in such manner as to ensure their acquiring strength, there will not be a great difference in the date of flowering of given varieties. Lateness of flowering is in most cases due to keeping the plants in small pots from the time of their rooting until they are transferred to their summer quarters and the leeway they have to make up when they have become established therein.

An ideal structure for raising stocks of Dahlias, and indeed many other classes of plants that are increased by means of spring-struck cuttings, is a span roof house about 10 feet wide and of a length proportionate to the requirements of the garden. This should have a 3 feet walk down the centre and beds $3\frac{1}{2}$ feet wide on either side, and one of these should be provided with two 4-inch hot-water pipes underneath to furnish the necessary bottom heat. There should also be two pipes close to the wall on either side. The bottom of the bed over the

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hot-water pipes should be formed with some strong material that will allow the heat from the pipes to pass through it—such, for example, as slate slabs or corrugated galvanised iron—and on this make a bed of sand or other loose material in which to plunge the cutting pots. In a structure arranged as here advised the Dahlias or other plants can be started into growth on one side and their cuttings rooted on the other, and the stage unprovided with bottom heat will also be useful for the accommodation of the rooted cuttings for a few days after they have been potted off singly.

In thus briefly describing what may be considered an ideal structure for the propagation of Dahlias it must not be understood that it is essential to success. It will be found simple and inexpensive and a great convenience, but Dahlias equal to the requirements of a large garden can be raised in almost any house in which a temperature of about 65° is maintained. They can be readily rooted in a warm pit or frame, and in a two-light frame placed on a bed of warm leaves several hundred plants may be raised in the course of the season without difficulty.

The best time to commence propagation by means of cuttings is the end of February, and the roots intended for furnishing supplies should be put in boxes or pots in much the same manner as advised for starting into growth those which are to be grown on with or without being divided. As the tubers will be destroyed when they have yielded the required number of cuttings, any light soil will be suitable for packing about the roots when in boxes or pots, and the former are preferable because of the saving of room effected. To avoid any mistakes with the names put a new tally to

each of the roots as they are potted or boxed, and when the roots of several varieties are put in the same box take care to avoid mixing the cuttings. Placed in a house in which a temperature of about 65° is maintained, and sprayed overhead with sufficient frequency to maintain a moderate degree of moisture about them, they will soon start into growth. At first the roots may be sprayed with clear water every second day, but at the end of the first week the spraying should be given daily, carried out late in the afternoon, and on the appearance of the young shoots they may be watered in the usual way.

Within a short time of the commencement of new growth preparations should be made for proceeding with the work of rooting the cuttings. The first growths when 2 or 3 inches in length will present so promising an appearance that the inexperienced will not hesitate to utilise them for the increase of stock. Some growers invariably take advantage of such aid as they afford, but the first growths do not make such good plants as the later ones, and should therefore be destroyed. If the second crop of growths will afford a sufficient supply of cuttings they should be taken off close to the tuber by means of a knife. These will have a firm base, and be the most suitable when the cuttings have to be rooted in a lower temperature than that suggested. If the number will not be sufficient allow them to attain a length of 3 inches. Then take them off from $\frac{3}{4}$ of an inch to 1 inch above the tubers with a view to avoid injury to the buds around the base of the shoots. These buds, on the removal of the growing shoot, will soon start into active growth, and in due course the resulting shoots will be utilised for propagating purposes.

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In the preparation of cuttings that have been taken off close to the tuber it will suffice to remove the lower pair of leaves, but in the case of the others cut away the lower portion of the stem immediately under the base of the two lower leaves, which must then be cut off close to the stem. The cuttings may be rooted singly in 2-inch pots, or in threes inserted round the sides of 3-inch pots, and as there is some economy of space by the latter method it is preferable in the majority of private gardens. For filling the cutting pots use a rather light loam of good quality to which sharp silver sand has been added in the proportion of one part sand to five parts of loam. With the aid of a blunt stick insert the cuttings at such depth as will admit of the base resting on the soil at the bottom of the hole and the first joint being level with the surface. As the pots are filled give a moderate watering through a fine rose and plunge them to the rim in the hotbed, the temperature of which ought not to exceed 70° . The subsequent management consists in spraying the cuttings once or twice daily as may be necessary to prevent the leaves flagging, screening them from the sun, and ventilating with sufficient freedom to maintain a fresh, buoyant atmosphere, for if the atmosphere is allowed to become close and excessively moist many of the cuttings will fail to root.

In about twenty days from the time of their insertion the cuttings should be nicely rooted, and may be removed to a cool bed in the same house or to a cool structure, where, with moderate ventilation, they should remain for a few days previous to potting them off singly or shifting them into larger pots according to the method adopted in the insertion of the cuttings. To admit of this operation

being performed with a full measure of success prepare a compost consisting of good fibrous loam six parts, thoroughly decayed stable or farmyard manure, leaf-mould two parts each, and coarse silver sand one part. Then take 3-inch pots, put a few small crocks in the bottom of each pot, and cover the crocks with rough material, to secure efficient drainage. On this material put about 2 inches of the prepared compost, and then place the young plant in the centre and fill in carefully and firmly with the requisite quantity of compost. As the potting proceeds return the plants to the same house, place them near the glass, and keep the house rather close for a few days. Subsequently they may be removed to a frame or pit, or allowed to remain in the same house, in either case having the advantage of a free circulation of air about them.

The raising of seedlings is the third of the several methods by which Dahlias can be readily propagated, but it is not one that can be recommended as adapted to the requirements of the general body of cultivators. To raise seedlings is a very simple matter, and there is much interest associated with the sowing of the seeds, tending the young plants, and watching the development of the flowers, but the results are seldom sufficient to justify either the space devoted to seedlings or the attention necessary. It may be that if the seed has been saved from first-class varieties that have been beyond the influence of pollen of those distinctly inferior, a few that will be of merit may be obtained from several hundred seedlings, the remainder being moderately good or distinctly bad. Therefore seedlings should not be grown for garden decoration by the general body of cultivators. Varieties of high merit are alone suitable for that

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purpose, and to grow those which cannot be so described is to waste space that should be turned to the best possible account by the owner.

In the early days of the single Dahlia a stock argument in advocacy of the cultivation of single flowers was the facility with which they could be raised from seed. Many amateurs acted upon the suggestion, raised seedlings in considerable numbers, and as the result filled their borders with a motley crowd of plants bearing flowers of indifferent quality. Many were disappointed with the singles in consequence, and some banished them from their gardens. If the raising of seedlings is entered upon, it should be with some definite object in view, and be proceeded with on well-defined lines, and the trial of the varieties should be conducted wholly apart from the decorative part of the garden.

To obtain strong plants that will come into bloom sufficiently early to admit of it being readily seen whether they are worth keeping over the winter for further test, the seed should be sown in March, and preferably in the first half of the month. Sow the seeds thinly in shallow pans or boxes filled with a light, sandy compost, cover them with a sprinkling of fine soil, and give them a moderate watering through a fine rose. Then place the pans or boxes in a structure in which a temperature ranging between 65° and 70° is maintained, and if they can be placed where the seed will have the assistance of a bottom heat of about 70° germination will be more rapid. Until the seedlings are making their appearance above the surface of the soil the position of the pans or boxes is not a matter of moment, but when they are seen to be growing they should

if necessary be removed to a part of the house where the plants will be near the glass and receive a full share of light without being much exposed to strong sunlight.

When the second leaves are in process of development, and before the seedlings suffer from overcrowding, prick them off into shallow boxes filled with light, rich soil and put them about $2\frac{1}{2}$ inches apart each way. Keep them rather close and shaded for two or three days, to enable them to recover from the check received. When this period is passed expose them more freely to light and air, and as soon as they show signs of becoming crowded pot them singly, using 3-inch pots and a rather rich compost. When seedlings reach this stage they should be grown under precisely the same conditions as plants raised from cuttings.

CHAPTER XI

CULTIVATION

IN entering upon the cultivation of Dahlias it will be found an immense advantage to first determine whether they are to be grown for the purpose of obtaining bright displays of flowers in the garden or for the production of highly-developed blooms that will win prizes in close competitions at exhibitions. It is essential this should be done, because the cultural methods must be carefully adapted to the special purpose for which the plants are grown. In the past it has been too much the practice to recommend and adopt the same course of procedure for plants intended for adding to the attractions of flower beds and borders as for those from which exhibition blooms are required. In consequence the results have in most cases failed to realise the anticipations of cultivators, and the Dahlia has suffered in repute as a garden flower. With the exception of the pompons, pompon cactus and single varieties, Dahlias grown for exhibition require very generous treatment in the matter of manurial applications. On the contrary, those grown for decorative effect, or the supply of cut flowers for use in floral arrangements, require only a moderately rich soil. In the latter case, if manure is applied in excess of that necessary to maintain a continuous and moderate growth, the leaf-development is such as to prevent in some

cases the blooms rising above the foliage, and in others the blooms attain to so large a size as to render it difficult to utilise them with success in arrangements other than those of the boldest character.

SITE AND SOIL FOR EXHIBITION DAHLIAS

Dahlias are so accommodating in their requirements both as regards position and soil that there are but few gardens in which they cannot be grown with success for exhibition purposes, without special preparations being made for them. Some gardens are better adapted to their requirements than others, and it is therefore advisable that cultivators should fully inform themselves as to the conditions by which they attain to the highest state of development, and be thus in a position to strengthen the weak points in their practice.

In the first place, it cannot be too distinctly understood that the position should be sufficiently open for the plants to enjoy a full exposure to the rays of the sun and a free circulation of air about them. Without such exposure the growth will be soft and the blooms have a tendency to coarseness. Sites that are partially shaded by tall trees are unsuitable, for the branches will deprive the plants of some portion of the sunlight, and the roots will push freely into the enriched soil and deprive the Dahlias of a large share of their food.

The question of shelter is of considerable importance, as Dahlias when grown in rich soil suffer more or less when exposed to high winds. This being the case, it is an advantage to give them a site where they will be sheltered somewhat from winds, especially those from the

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west. An ideal site would be an area of sufficient size to accommodate the number of plants to be grown and enclosed with a hedge of yew or holly some 6 feet high. The majority of cultivators have to be satisfied with a site falling short of the ideal, and it is therefore gratifying to know that artificial shelter from the winds may be provided at a small cost. A single line of Lombardy poplars planted 2 feet apart and cut back to within 6 feet of the ground will form a really good screen the first year, and the trees can be kept to the dimensions of a hedge about 7 feet high for an indefinite period. Trees about 8 feet high and well furnished with side growths near the base are the best for the purpose in question. The provision of shelter is not, however, likely to occasion any great difficulty, because the majority of gardens are bounded by hedges, close fences, or walls, and the owners of gardens who are filled with a desire to take a prominent position at exhibitions of these flowers will not be slow to take advantage of such favourable positions as their gardens afford.

PREPARATION OF THE SOIL

Deep cultivation should be regarded as not less essential to success in the production of exhibition blooms than the liberal enrichment of the soil with manure. The proper time for commencing the preparation of the ground depends to some extent on its character, a point that is frequently overlooked, as evidenced by the zeal with which this and that season is recommended without any reservation. Heavy soils are more slowly acted upon by atmospheric agencies than are those which are lighter in texture,

and therefore they require a much longer exposure previous to the planting season. If the soil is a strong or heavy loam it should be trenched or deeply dug in the autumn or early in the winter, and have the surface left in a rough state to enable the pulverising and purifying action of the winter frosts and rains to have full play in the exercise of their beneficial influence. Light soils may be trenched or dug at the same time as those which are heavy, or they may be prepared in the spring as may be found the most convenient.

In trenching ground for Dahlias the soil should be broken up to a depth of at least 2 feet, and if the bottom spit consists of clay, gravel, or other unsuitable material it should not be brought to the surface as in ordinary trenching. The best means of avoiding this is the adoption of the following course of procedure. First open out a trench 2 feet wide and 12 inches deep, and instead of taking out the bottom spit in the same manner as in ordinary trenching dig it to a depth of 12 inches. This having been done, take out a second trench in a manner similar to the first and put the soil into the first trench, continuing this until the whole of the area has been broken up to the desired depth. By this course of procedure a deep root run is provided without burying the well-worked soil beneath that which is not favourable to rapid root development.

The application of manure requires careful consideration, for not only has the right kind to be selected, but it should be applied at such time as will enable the plants to obtain from it the fullest possible benefit. Manure from the farmyard or stable is the most suitable for Dahlias, and

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when the soil is heavy and tenacious in texture it should be applied in a partially decomposed state in the autumn or early in the winter, immediately before the ground is trenched or otherwise broken up. If, on the contrary, the soil is light, apply the manure in the spring, and use it in an advanced stage of decomposition. A lengthy reference to the use of manure in the flower garden is not necessary, but it may perhaps be well to mention that the decomposition of manure of the kind recommended proceeds slowly in heavy soils, whilst in lighter soils the decomposition proceeds with considerable rapidity. As lighter soils have but indifferent retentive properties, some of the food elements are washed down by the rains and carried off by the drainage system in the course of the winter. Hence it is that heavy soils are most successfully manured in the autumn and light ones in the spring, and that in the latter case the material should be in a sufficiently advanced stage of decay for the plants to obtain the requisite supplies of food when their roots begin to run freely in the soil.

If the advice here given with regard to breaking up the soil by digging or trenching is acted upon, the weather by the beginning of March will have so pulverised the surface of heavy soils that the lumps will fall to pieces when crushed with the back of a rake or other implement. Quite early in the month dig the quarter with the fork or spade, preferably the former, and drive the tool straight down to a depth of fully 12 inches, and in the process of digging break up the larger lumps. Light soil should be dug over or trenched to a depth of 2 feet at the end of February or the beginning of March, and before digging is commenced sufficient decayed stable or farmyard manure should, as in

the case of heavy soils, be applied to form a 4-inch layer when spread over the surface.

Soil preparation is not completed by the March operations, and the cultivators who would achieve a full measure of success must subsequent thereto fork the ground over two or three times previous to putting out the plants at the end of May or early in June. To the beginner this may appear unnecessary, but experience warrants the assertion that the aëration and pulverisation resulting therefrom have a highly beneficial influence upon the root system, which will be seen in the rapid and satisfactory progress made by the plants during their earlier stages of growth. Soils that have been highly cultivated for a considerable number of years will be greatly improved by a dressing of newly-slaked lime, the quantity used to be sufficient to form a thin layer over the surface. Soils manured early in the winter may receive their dressing of lime in March, but the others should be limed about a month after the manure is applied. Lime and manure should not be applied simultaneously because of the loss resulting from the setting free by the action of the lime of some part of the ammonia contained in the latter.

BEDS AND BORDERS OF GARDEN DAHLIAS

In the preparation of beds and borders for Dahlias grown for the embellishment of the garden or for the supply of cut flowers a less generous use of manure should be made than is necessary for those grown for exhibition. The quantity should be reduced by about one-half unless the soil is light and much impoverished, when two-thirds

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may be applied with advantage. Should the beds or borders have been so liberally enriched in previous years that Dahlias make an excessively strong growth, give instead of manure a liberal dressing of slaked lime, previous to breaking up the soil. It is advisable to trench the ground for garden Dahlias in precisely the same manner as for those grown for exhibition purposes; but trenching is not so imperative, and good results may be obtained from plants growing in ground that has been dug to a depth of not less than 12 inches. If shallow digging is resorted to the roots will be so near the surface as to incur the risk of the plants suffering from an insufficiency of moisture should there be a period of dry weather during the summer months. Stations for single plants or groups in mixed borders should, as a matter of course, be prepared in much the same manner as the beds and borders.

WHEN AND HOW TO PLANT

Having dealt with the questions of sites for exhibition Dahlias and soil preparation for all classes, it becomes necessary to give attention to the plants in their several stages of development. If the advice given in the chapter on propagation is acted upon, the greater proportion of the plants will be well established by the middle of April in pots 3 inches in diameter. Those raised from cuttings rooted rather late in the spring will be well established in their pots at the beginning of May. Both early and late plants and those obtained from the nurseries should be dealt with in precisely the same manner when they have reached the stage at which more root room becomes necessary.

PLATE VII

PÆONY-FLOWERED DAHLIA—THE GEISHA

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One of the essentials to success in the cultivation of Dahlias is to maintain them in a progressive state from the time they are transferred from the cutting pots until they are planted in their summer quarters. In not a few instances beginners in Dahlia culture fail to appreciate the importance of this point, and leave the plants in the small pots until such times as it is safe to bed them out. As the result of this starving process they become more or less stunted in growth, and several weeks are taken up in the recovery of lost time, a point of much importance considering the comparative shortness of British summers. Whether raised at home or purchased from the nurseries, the plants should be well established in small pots by the end of April or early in May, and be then shifted into pots 5 or 6 inches in diameter, the larger size being preferable. Use a substantial compost such as one consisting of fibrous loam four parts, and leaf-mould and well-decayed manure one part each, and pot moderately firm. It will be an advantage if the plants can be placed in a garden frame or pit, where they can have the assistance of a little artificial heat at night for a short time, and in the daytime also if the weather is cold. Fire heat is not, however, essential, but they must at least be placed in a frame where they can be kept rather close and screened from bright sunlight for a short period and be kept safe from frost. If the compost is moderately moist when used and the plants are well watered previous to being repotted, but little if any water will be required for two or three days. Subsequently the plants must be watered at such intervals as may appear necessary, remembering that while sufficient must be given to maintain a progressive growth, the soil will become sour if the

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supplies are in excess of requirements, and the plants will receive a check from which they will not readily recover. When watering is necessary give sufficient to thoroughly moisten the soil, and then wait until the soil has become rather dry before giving further supplies. After the plants have become well established and have filled their pots with roots the waterings may be carried out on a liberal scale without any fear of injury. When they commence to root freely after the repotting, as indicated by the development of the points of the shoots, admit air freely and discontinue the use of the shading material. From this stage onward, while avoiding exposure to cold weather, ventilate freely, and as the growth and season advances draw the lights off during the warmer parts of the day, and for a week or so previous to their being bedded out the plants should be freely exposed during the night—provided, of course, that there is no risk of frost. Dahlias grown in these conditions will range from 12 to 15 inches in height by the beginning of June, have stems as thick as the finger, and grow away freely and satisfactorily when transferred to their summer quarters.

In making arrangements for planting out the cultivator should allow the plants sufficient space for their full development, and for them to receive the attention they will require with some degree of comfort without there being any waste of space. Some sections require more space than others, but experienced cultivators are generally agreed that the cactus, show, fancy, pæony-flowered, and the robust decorative varieties when grown for exhibition should be planted 4 feet apart in the rows, and 5-foot spaces allowed between the rows. The single, pompon, and collerette

varieties, not being so robust, may be successfully grown when planted 4 feet apart each way. Dahlias grown for garden decoration in accordance with the advice given will be less robust in growth than those cultivated for exhibition purposes, and therefore will require less space. In arranging them in beds and borders that are wholly devoted to them, from 24 to 36 inches apart each way will be a good distance, this being determined by the section and the character of the soil. In growing Dahlias in association with the various classes of hardy plants, they may be arranged singly or in groups consisting of three plants each of one variety as may be preferred. In the case of groups the most striking effect is obtained by arranging the plants in the form of a triangle and about 30 inches apart.

The plants intended for the production of colour effects in the garden should be planted without any further enrichment of the soil than that already mentioned, but in the case of those grown for exhibition some additional assistance that will be available during the earlier stages of growth will be distinctly beneficial. With line and measure mark the positions of the plants in accordance with the measurements given, and then at each one dig in about half a peck of thoroughly decayed stable manure and a pint or so of soot. If manure of the kind mentioned is not available, use instead some suitable fertiliser, such as superphosphate of lime at the rate of 4 or 5 ounces at each station. It will be an advantage to prepare the positions a week or so before planting, and make the soil moderately firm. The operation of making the holes is best done with a trowel, and each hole should be large enough to receive readily the ball of soil, the top of which should be

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about half an inch below the surface when the planting has been completed. There are two points which should be borne in mind during these operations: one is to have the ball of soil thoroughly moist, and the other the necessity for pressing the soil firmly around it. To ensure the balls being sufficiently moist water the plants a few hours previously to bedding them out and not immediately before this is done.

STAKING AND THINNING

Supports should be given to Dahlia plants immediately they are put in their summer quarters, for the growth is somewhat soft and liable to injury from strong winds. Therefore, immediately they are bedded out put a strong stake to each plant, and in the case of those grown for exhibition the stakes should be of sufficient length to stand from 4 to 6 feet above the ground level, the exact height being determined by that of the varieties. Tall stakes are not particularly attractive, and for this reason it is a good practice in providing support for plants grown for garden decoration to use in the first instance stakes that will stand about 2 feet above the ground level when firmly fixed in the border, and when the growth has reached the top of these to put other stakes that will be proportionate to the height attained, as in the case of the exhibition Dahlias. As the stakes for both classes are fixed in position make the plants secure by strands of raffia or some other suitable tying material. While too much play should not be allowed, avoid tying the shoots tightly, that the stems may not be injured by the ties as they increase in diameter:

STAKING AND THINNING 95

this increase will proceed rapidly when a vigorous growth has commenced.

Should the climatic and soil conditions be favourable, there will be evidence of vigorous growth in a comparatively short period, and flower buds will soon afterwards make their appearance. As the development of the side branches proceeds, they should be looped up to the stake, with the aid of raffia or other suitable material, and thus for a time remove the risk of injury from rough winds. In a short time further support will be required, and this should be provided by putting two other stakes to each of the exhibition Dahlias, such stakes to be of the same height as those used in the first instance. They should be so fixed in the ground as to form, with those already in position, a series of triangles. Connect the stakes supporting each plant with stout cord or yarn, and to this tie the side branches evenly and securely as they become long enough to render additional support necessary. In the case of the cactus, show, and other robust varieties that are being grown for exhibition purposes, the earlier buds should be pinched out immediately they are seen, and if the shoots have attained some height, they should be pinched off below the first or second joint. This stopping will divert some part of the energies of the plant into the lower branches, which will at once begin to make rapid progress, and in due course produce flower buds that will prove useful by developing into blooms of high quality for the early shows. Disbudding will not be necessary in the case of plants grown for garden decoration, as large numbers of blooms of average size are of greater value than a few remarkable for exceptionally high development. When these latter

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have reached to the top of the two first stakes, they should have three others fixed around them, and these should be of a height proportionate to that of the respective varieties.

Thinning of the branches is an important detail in the cultivation of the cactus, show, fancy, pæony-flowered, and giant decorative varieties for exhibition. The cactus varieties of rather dense growth should have their branches thinned to five, six, or seven to each plant, and this should be accomplished by the removal of the weaker shoots. The show, fancy, pæony-flowered, and giant decorative varieties will require thinning in a somewhat similar manner, but the removal of the side branches must be regulated by the character of the varieties. An excess of growth is generally a hindrance to the flowers attaining to a high state of development, but some varieties have a tendency to produce large, coarse blooms, and if the growths of these are severely thinned this defect will be more or less accentuated. On the contrary, varieties producing relatively small blooms will need a more severe thinning, that there may be concentration of energy on the part of the plants. All the foregoing sections when grown for garden decoration should have their strong growths tied out and those produced rather late in the season removed, for they are of but little use for bloom production, moreover they deprive the others of much light and air.

WATERING AND MULCHING

All Dahlias derive much benefit from a liberal amount of moisture in the soil, and in the case of those grown for

exhibition it is essential that the soil should be moderately moist during the development of the blooms. At the same time watering must not be overdone at any stage. Upon this point it is difficult to formulate rules that will be of practical value, because so much depends upon whether the soil is light or heavy, and whether the season is wet or dry. It is a good practice to give a watering at the time of planting and two or three waterings subsequently at intervals of three or four days should the weather be dry, but not otherwise, as much moisture in the soil before the roots begin to push into it will do more harm than good. After the plants have become established and are in full growth assist them with one or more waterings during periods of dry weather, the number to be determined by the length of the period over which the latter extends. It is of much importance that each supply should be sufficient to moisten the soil well down to the roots.

After the plants are commencing to bloom freely much assistance will be derived from occasional supplies of liquid manure of a moderate degree of strength. The drainings from the stable and farmyard, when much diluted, are an excellent stimulant at this stage. Some care is necessary in using this liquid, because if it is employed in too strong a condition it will be injurious in its effects, and as the drainings vary much in strength no definite directions can be given for their dilution, which should be made with clear water. A very good liquid stimulant may be prepared by filling a tank or old cask of a capacity of 40 or 50 gallons with water and placing in it a large bag of some loose material filled with horse manure, allowing it to infuse for a day or two. Then commence to use the liquid, and as each

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quantity is taken out refill with water. When the liquid has lost its colour or become very pale, remove the bag of manure and replace with a fresh one.

Mulching the surface of the ground will be highly beneficial, and save excessive watering. Partially decayed stable manure is the best material for the purpose, and it should be spread over the surface in sufficient quantities to form a 3-inch layer. This will prevent the rapid evaporation of the moisture from the soil, and render it possible to attend to the plants with comfort whether the soil is dry or wet from rains or heavy waterings.

DISBUDDING AND SHADING

Flower buds will commence to make their appearance at a comparatively early stage, and it is important in the case of plants intended for the production of exhibition blooms that they should not have their energies taxed with flowers that will serve no useful purpose. Buds that appear soon after the plants become established should be removed in accordance with the directions already given. The earlier of the second set of buds should also be removed, unless the district is a late one, or the blooms are required for early shows. Unless early blooms are required, take out the centre or leading bud of each branch; when this is done the secondary branches or growths will commence to show buds, and generally speaking it will be from these that the blooms for the September exhibitions will be obtained. These should be thinned to one to each sub-branch, the central or leading bud remaining, and the laterals, with their buds that are produced from the two or

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PLATE VIII
COLLERETTE DAHLIA—GALLIA



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ANNOUNCING

three joints immediately below the buds that are left, removed. As a rule, blooms of the cactus, show, fancy, and giant decorative varieties attain their full development in a month from the time of the buds making their appearance. But it should be remembered in connection with this rule that much variation in the rate of development may be caused by differences in plants, weather, and other contingencies, and that in consequence a greater latitude in the matter of time should be allowed. To be really safe it will be advisable to depend upon buds that show from six to three weeks before the date of the exhibitions.

The flowers of all sections, with the exception of the pompons and singles, that are intended for exhibition, should be made secure to stakes of suitable lengths, and when partly developed be protected from the weather by a shade of some kind. Conical shades made with wire and calico and about 12 inches in diameter and depth are the most useful, and can be obtained from the leading nurserymen and dealers in garden sundries. These are affixed to a stout cane about 6 feet in height, and are so placed on the supports that they afford efficient protection from both rain and direct sunlight. The shade should be arranged so that the bloom is near the centre, and high enough above it that air can freely circulate about the latter. When the shade is so low down that the air cannot circulate freely there is a risk of the flower being injured by the heat during periods of brilliant sunlight. The canes, it may be added, should have the lower end pressed into the soil to a depth of 9 or 10 inches to ensure their steadiness. Dahlia blooms of all sections when intended for exhibition should have some protection from the weather, but in

the case of the pompons and single varieties very little shade will suffice.

LIFTING AND STORING THE ROOTS

With the lifting and storage of the tubers the year's cultural work is completed. The second week of October is the most suitable time for lifting the roots, as they will then be in good condition for storing for the winter. The growth of Dahlias is usually damaged by the frost before the middle of October, and the plants rendered somewhat unsightly, but there is no occasion to wait, as is occasionally done, for that to happen before lifting the roots.

To avoid any risk of mistakes in the names, all the plants of which the roots are to be stored should be examined, to see whether they are named correctly and legibly. This should be done preferably before the middle of September, whilst the plants are still in full bloom. As the examination proceeds, a new and neatly-written tally should be given to each, and be firmly attached to the stake with string or thin wire. Then, as the stems are cut down later on, to within about 6 inches of the ground level, the tallies should be removed from the stakes and attached to the base of the stem in such manner that they cannot be separated from the roots. It will be an advantage to select a dry day for lifting, and the best method of procedure is to cut down the plants to within 6 inches of the ground level, and then with fork or spade lift the roots, attach the new tallies to them, and leave them on the surface for a few hours. If the roots are lifted early in the morning and allowed to remain on the ground, they

will become sufficiently dry by the afternoon to admit of much of the soil about them being removed. Should it not be possible to wait for a fine day, lift the roots and place them on the floor of a dry shed or glass house, and leave them until the soil has become dry enough to be removed, taking care that the tubers are not exposed to frost.

In selecting a place of storage, it is essential to bear in mind that they must not be subjected to frost, damp, or a high temperature. A dry cellar is as good a place as any in which to keep Dahlia roots, but any shed or spare room in which they can be kept safe from frost, damp, or excessive warmth may be utilised. In sheds and rooms, and indeed in cellars that are not frost-proof, they can be kept perfectly safe by covering them with a layer of dry straw from twelve to fifteen inches in thickness. As some of the tubers may, owing to injury during the process of lifting, or from some other cause, show signs of decay after they are stored, it will be prudent to examine the roots at intervals of three or four weeks during the winter. If evidence of decay is seen, the decayed tubers or portions of tubers should be cut away, and the cut surfaces dressed with dry, powdery lime. Unless this precaution is taken, all the tubers of a root may rot, and the decay spread even to sound tubers belonging to other roots placed near those showing decay.

CHAPTER XII

SHOWS AND SHOWING

UNTIL nearly the close of the nineteenth century the methods of presenting Dahlias to public notice at the exhibitions were so primitive in character as to suggest to the visitors that these flowers, in their wondrous diversity of form and colour, possessed but little value beyond affording entertainment to fanciers well acquainted with their properties as defined by the authorities, and therefore in a position to fully appreciate them. During the past few years immense improvements have been made in the staging of Dahlias, and in visiting an exhibition of the first class it is possible not only to enter whole-heartedly into the enjoyment of their distinctive charms, but also to obtain object-lessons in the arrangement of the blooms for the decoration of the home, on festive and other occasions. Great as the improvements at the exhibitions have been, there is ample room for further reform, and it is much to be desired that societies who devote any considerable share of their attention to these flowers will see to it that their exhibitions shall be not less remarkable for the taste shown in the arrangement of the blooms than for the cultural skill in their production. Were this to be more generally the case, Dahlia shows would rapidly attain to a higher degree of popularity, and thus become more useful, by

bringing Dahlias before a larger number of flower-lovers, and showing them in the most conclusive manner their great value for floral decorations of the most varied character.

During the comparatively short period that has elapsed since the opening days of the twentieth century, cultivators for business purposes have proved to demonstration, by the collections they have contributed to the leading exhibitions, that Dahlias can be arranged to produce the most charming effects without any greater difficulty than is associated with other classes of flowers. In these collections may be seen Dahlias arranged in vases, baskets, bamboo stands, and other devices ; and it would be well were the competitive classes to be so modified as to admit of such receptacles being used freely throughout the exhibition, and thus render the attractions so varied as to maintain the interest of visitors. It may not be advisable to effect the total abolition of the orthodox boxes, which have been in use since the earliest days of Dahlia exhibitions ; but there can be no question as to the advisability of vases being more largely used. In no way do flowers, when cut from the plant, present a more pleasing appearance than when so arranged that some part of the stem, and a little of the foliage, can also be seen.

What is true of flowers generally is applicable to the Dahlia in its diversity of form, and even show Dahlias, when arranged in rather large vases of suitable design, are, contrary to the general opinion, far more effective than when placed on a sloping board. It is not practicable to exhibit in vases blooms of such large dimensions as those staged in accordance with the orthodox method ; but the charm of the show Dahlia is not dependent on the size of

the individual blooms. We have on several occasions seen them exhibited in this way, and have frequently used them for house decoration arranged in vases, and are fully persuaded that the inclusion of a few classes in the competitive section would be helpful in obtaining for the show varieties the attention to which they are so fully entitled. The cactus, pompon, single, collerette, pæony-flowered, and decorative varieties certainly present the most attractive appearance when arranged in vases, from three to five blooms in each ; and when the vases are provided by the society, the additional expense to the exhibitor is not great.

The staging of cactus varieties, and also some other sections, in triangular wire frames is undoubtedly more convenient to exhibitors than exhibiting them in vases without some such support, and the convenience of exhibitors must not be overlooked. With the aid of these frames, the blooms can be arranged at home on the previous evening, or early in the morning of the show day, and be readily packed and brought to the place of exhibition. The arrangement of a considerable proportion of the flowers shown before leaving home lessens the work that has to be done after reaching the place of exhibition, and thereby enables some cultivators to show more largely than would otherwise be possible. Unfortunately, the frames in general use are too flat and formal to allow of artistic effects in the arrangement of collections ; and therefore, if they are to be retained in the interests of exhibitors, an endeavour should be made to effect an improvement in their design.

A considerable advance has been made in the decorative side of Dahlia shows within recent years, and there

is no doubt that this improvement will continue until the decorations form a really important feature. Usually, the exhibitors in the classes in which taste in arrangement is the chief test of merit are allowed to associate with the Dahlias any foliage they may consider suitable. There is an advantage in allowing exhibitors to exercise their taste in this matter, but it is not always exercised wisely. In most instances, the blooms are quite satisfactory, but many are so crowded by grasses and other foliage as to lose much of their beauty. The most tasteful effects, whether in baskets, épergnes, or vases, are produced by employing blooms of one variety, or of two or three varieties that harmonise in colour, and arranged in association with a few sprays of the same kind of foliage. For example, for arranging with the various shades of orange, deep red, and crimson, a few sprays of some purple-leaved shrub or tree, as *Prunus Pissardii*, will be far better than a mixture of foliage of diverse forms and colours. For associating with some of the lighter coloured varieties, a few sprays of Dahlia foliage are preferable to any other greenery, but the sprays must be small, and obtained from plants that are growing in poor soil, because the foliage of plants growing in rich soil is too large for the purpose, too dark in tint, and so soft that it quickly collapses when cut from the plant. It is essential in the competition for prizes offered for baskets, épergnes, and vases arranged for effect, that the receptacles be properly dressed on all sides, and not "faced," under the mistaken belief that the judges only look at the side of the arrangements next to them.

In the selection of the blooms of all the sections for exhibition, care should be taken to see that they are as

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nearly perfect in development as possible, and quite free from damage from the depredations of earwigs or other cause. They should also, with the exception of the pompon, pompon-cactus, and single varieties, be as large as possible, consistent with freedom from coarseness, which is a serious defect. The show, fancy, cactus, pompon, pæony-flowered, and decorative varieties should be cut when fully developed, but before the back florets have lost their freshness. In the case of the single and colerette varieties, blooms that have not quite reached their full development should be selected, as these will retain their freshness after being cut for a longer period than will those which are fully open at the time of cutting. In all cases the blooms should be cut quite early in the morning, before the rays of the sun have reached them; or late in the evening, as may be most convenient; and as they are cut the stalks should be at once placed in water.

In staging the flowers, it is important to so arrange them as to obtain a perfect harmony of colour, and, when using sloping boards, to graduate the blooms according to their sizes, placing the larger ones at the back, the next size in the middle row, and the smaller specimens in the front. Should the exhibitor in making up his stand find he has one or two blooms that are much larger than the others, he must carefully consider whether it is desirable to use them, because of the risk of their so dwarfing the others as to convey the impression that they are of really small size. Blooms of show, fancy, and decorative varieties are usually allowed 6 square inches superficial, and therefore a board for 12 blooms should be 24 inches long by 18 inches wide; and a board for 18 blooms should be 36

inches long by 18 inches wide. The lengths of boards for other numbers of blooms will be proportionate, but the width will remain the same, as the blooms are invariably arranged in three rows.

In all cases the name should be written legibly on small cards, and so fixed that the visitors will have no difficulty in reading the names, and there will be no risk of the displacement of the cards. Special attention may well be directed to the naming of Dahlias at exhibitions, for in many instances it is far from satisfactory. In some cases the names are written on a slip of paper in such a manner as to render it difficult for visitors to readily ascertain the names of the varieties represented. This difficulty is increased when the names are written hurriedly with a pencil and, it may be, some measure of abbreviation adopted.

CHAPTER XIII

INSECT ENEMIES

DAHLIAS are so far wholly free from bacterial and fungous diseases, and they have few insect enemies. The chief of these latter are earwigs and slugs, and these pests are so destructive that when repressive measures are not taken at an early stage, they do an immense amount of damage, the slugs to the young plants, and the earwigs to the flowers.

The slugs commence their ravages immediately the succulent shoots are produced in the propagating house or frame in which the tubers are started into growth for the supply of cuttings, and continue to be troublesome until the plants are established in their summer quarters. Therefore a careful watch should be kept immediately new growth commences, and if there are indications of the presence of slugs in the house, such as shoots with their points eaten out, or slime here and there, search must be made for the marauders until they are discovered. Unless this is done, a considerable proportion of the young shoots will be rendered worthless for propagating purposes. A few rather tender cabbage or lettuce leaves laid about on the bed occupied by the Dahlias may be useful as traps.

A continuous watch must be kept upon the plants during the time they are occupying pits and frames, for in

the earliest stages slugs are apt to eat out the growing point, and then proceed to feed upon the succulent stems of the lower leaves. A little lime scattered between the pots and over the surface of the soil, without touching the leaves, will be useful as a check. But when it is seen that slugs have made their way into the frame, the best course is to take the plants out, carefully examining the pots in doing so. Then spread an inch or so of lime over the surface of the bed, and replace the plants in their original positions. An occasional dusting of the plants and the surface of the pots with soot will act as a deterrent. The chief dependence must be placed upon diligent search for keeping Dahlias safe from slugs and snails, and it need hardly be said that those caught should be at once destroyed by dropping them into strong brine or some other mixture equally effectual.

To protect the plants when in their permanent quarters from the ravages of slugs, the ground immediately around them should be made fine and quite level, so that no hiding-place for the pests will be available. These surfaces can be dusted with lime or soot from time to time as may be considered necessary. A few lettuce leaves laid about on the surface will be useful in diverting the attention of the slugs from the Dahlias and rendering them less rapacious.

Earwigs confine their attention to the flowers, and as they commence their attacks at an early stage, a very few bites are sufficient to render a bloom worthless for exhibition purposes. The old-fashioned method of catching earwigs by means of small flowerpots loosely filled with dry moss, and inverted on the top of the stakes, is a good one in the case of Dahlias grown for exhibition, but it cannot be recommended for those grown for garden decoration

because of the unsightly appearance of the pots. The damage to the florets is not, of course, of so much importance in the latter case as in the former, but wherever Dahlias are grown an effort should be made to preserve the flowers from earwigs. Pots 3 or 5 inches in diameter are the most suitable for traps. The pots should be loosely filled to about two-thirds of their depth with moss, and be examined at short intervals, when any earwigs that may have congregated in them should be shaken into a vessel containing water. Earwigs may also be caught with the aid of the stems of broad beans and bamboos cut into lengths of about 10 inches and deftly arranged among the growths. From these traps they can be readily dislodged, and dropped into water. Such traps are preferable where there is an objection to the use of inverted pots, as they can be so placed as to be out of sight. Earwigs feed at night, and with the aid of a lamp after nightfall many may be caught and destroyed. If they are plentiful, a nightly search for some time previous to the exhibition will meet with ample reward. Tufts of cotton wool fixed round the stems immediately below the blooms, with the rough ends projecting downwards, are also useful in preventing insect pests reaching the bloom by ascending the flower stems.

Green and black fly are sometimes troublesome, especially in dry seasons. Overhead waterings are the best means of checking these troublesome pests, and the sprayings are conducive to the health of the plants. A weak solution of one of the nicotine preparations will be found most effective in checking these and other pests of a similar character, but after the period of flowering has commenced, plain water should alone be used for the purpose.

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