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FLOWER BULBS

How to Grow Them

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FLOWER BULBS

AND

HOW TO GROW THEM.

NINTH EDITION

REVISED AND PUBLISHED BY
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1915

INTRODUCTION.

THIS little work is not intended to be a scientific treatise on the cultivation of bulbs. The writer is not a scientific grower of them in the strict sense of the word, perhaps. But he has grown and studied them for many years because of a love for them, and study and observation have given him something of a knowledge of what is necessary in order to grow them well; this knowledge he gladly offers to those who are not experienced with this most interesting class of plants.

It has been his aim to make this book practical, comprehensive and reliable and therefore of use to the amateur whose knowledge of bulb culture is limited. The numberless inquiries coming from all over the country about the treatment required by even the best known bulbs in general cul-

tivation show that instruction is sought and needed on this subject. It has therefore been deemed advisable to furnish such information as would meet the requirements of the amateur grower, in a shape worthy a place in his library as a book of reference, on the culture of this popular class of plants.

Numerous lovers of flowers are deterred from undertaking the cultivation of many varieties of bulbs simply because they know next to nothing about their management and are therefore fearful of failure, being thus deprived of a vast amount of pleasure. If this little work is the means of imparting sufficient knowledge of the wants of this class of plants to enable the amateur to grow them well, the writer will have accomplished his end.

No garden should be without a bed of bulbs. Beginning so early in the season—weeks and weeks before the blooming period of the earliest annuals—their brilliant and beautiful flowers are enjoyed more than those of the summer. By their use it is an easy matter to so extend the season of flowers that it appears with the disappearance of snow, or before and lasts until the coming of cold and bitter fall weather.

CHAPTER I.

GENERAL INSTRUCTIONS ON THE PLANTING OF HARDY BULBS.

Hardy bulbs, to do their best, should be planted as early as possible in the fall—that is, as soon as they can be procured from the dealers who grow or import them.

Any time after September up to the middle of November will answer, but early planting is far preferable. They must be given an opportunity to form roots before the coming of cold weather, and make all necessary preparations for spring-flowering in advance of the season. Thus properly planted and cared for, they have then a chance to become thoroughly established before the closing in of winter, and a strong, healthy bloom is the result.

Spring planting of Hyacinths, Tulips and other Dutch bulbs is money thrown away. It is imperatively necessary

that your bulbs be planted in the fall if you would have them do well.

It is very important that beds for bulbs should be well drained. In soils that retain a large amount of moisture, bulbs may give one crop of comparatively good flowers, but they are almost sure to decay after the first season. Heavy soils are not adapted to their successful culture, and if the place where you propose to plant your bulbs is not naturally well drained, make it so by digging out the bed to the depth of a foot and a half and putting stones, brick, broken crockery, and other material of a similar character in the bottom of the excavation to the depth of at least six inches. If you live in the city, old bones, cans, and other accumulations of the back yard can be put into the bottom of the bed, thus getting rid of rubbish and benefitting the bed at the same time. Loamy and sandy soils are the best. Clay and other heavy soils can be made lighter and materially improved by mixing in a liberal amount of sharp sand.

The best fertilizer I have ever used is old, well-rotted cow manure. This

A BED OF HYACINTHS.

should be applied liberally, as you must have a rich, light soil to produce the best results with bulbs. But if this fertilizer is not at hand, or can not be conveniently obtained, some of the commercial fertilizers sold by reliable dealers produce excellent results.

My choice for location would be one facing the south, as experience has convinced me that the mid-day sun of spring striking the bed as directly as possible, will warm the soil and give the bulbs a

A BED OF CROCUS.

stronger, earlier start than they would be likely to get if the bed sloped to the north or east. The objection is urged that a location having a steep southern slope may bring the flowers on before the danger of frost is over, but I find that we often have sharp frosts so late in the season that it is advisable to cover beds of bulbs at night when a cold wave comes along—this covering or protection being necessary, whatever the slope of the bed is—so that very little, if any, extra work is required, and it is beyond question that a south-sloping bed gives flowers several days earlier than can be secured from others having an exposure which does not receive the more direct rays of the sun. However, this is a matter of minor importance, as equally fine, if not as early, flowers can be secured from beds sloping towards any point of the compass.

Before the coming of winter cover the beds with leaves or litter. Leaves make the best covering, as they afford all the protection necessary and do not

scatter weed-seeds as litter, straw, or manure are quite sure to do. Let the covering be about six inches deep. Great care must be exercised in removing it in the spring. If removed all at once or too early the frost will often injure the plants, and if too long

the stems will work their way up through it and be weak and slender. It is a good plan to remove a little at a time, beginning with the disappearance of snow from the beds, and aiming to get all off the bed about the time the stems appear. On cold nights it is well to cover the plants with papers and remove them as the sun comes out next day.

Dutch Bulbs are very showy when planted in solid beds or borders on a large lawn; after their blooming season is over small

annuals, pansies, alyssum, verbenas, coleus or other bedding plants may be set thickly among them without injury to the bulbs; they will ripen off soon after blooming and may be lifted for replanting in the fall or left in the place. In smaller and less formal gardens, hardy bulbs give charming effects when planted in groups among shrubbery and in seemingly careless clusters. Crocus and Scillas coming up irregularly through the sod are very pretty.

There is a certain distinctness about most bulbs for fall planting, such as Hyacinths, Tulips and Narcissi, that renders them decidedly inharmonious when planted together. The species should always be kept separate, and for set beds and borders it is also advisable to keep the colors in separate lines or masses. In small clumps where a wild garden effect is sought they can best be mixed, but even here to produce the best effect Tulips should not be planted with Hyacinths or these with Narcissi.

We reproduce herewith a very useful little chart for bulb planting, published by *Popular Gardening*, giving depth and distances of planting for the commoner Dutch Bulbs.

HOUSE CULTURE OF DUTCH BULBS.

There is no more fascinating occupation during the cold winter months than the culture of these bulbs in the living-room or conservatory. Their

easy cultivation, certainty of bloom, rich coloring and fragrance, are sufficient to account for their great popularity.

In order to secure good results it is imperative that only the best and strongest bulbs should be used. Weak and inferior ones can never be depended on, and their flowers, if any are produced, are always poor. In buying make it a point to always get the best.

Proper treatment begins with potting your bulbs in a compost prepared as nearly after this formula as circumstances will admit of: One-half loam, one-fourth rotten cow manure, one-fourth sand.

After potting your bulbs water well, and then set them away in a place that is dark and quite cool. Leave them there to form roots. This will take from a month to six weeks, as a general thing, though some bulbs root sooner than that, and some take longer time. Much depends on the condition of the bulb at the time of planting.

It is necessary that these instructions should be fully carried out if good results are expected. If you pot your bulbs and put them in a warm, light place as soon as potted, growth of the top and root begin at once and go on at the same time, and the top-growth will naturally be weak, because there are no strongly developed roots to support it. Such plants do not always flower, and if they do, their flowers are apt to be weak, few, and generally disappointing. Leave them in the dark until the soil is filled with roots, and the plants will then be ready to make a strong and healthy growth as soon as they are brought to the light and warmth. The treatment outlined above imitates the conditions under which bulbs make preparation for spring flowering when planted in the open ground—in other words, natural conditions. We plant

SINGLE FLOWERING HYACINTH
GROWN IN TYE'S GLASS.

them out of doors in fall after the ground becomes so cool that there is no encouragement to top growth, but the roots develop, and when spring comes with sunshine and warm weather the plants are in a condition to begin growing and give a strong crop of flowers.

Before you take your plants from the cellar, or wherever you put them to start, see that the soil is full of roots. If it is not, and the bulb is sound, leave it in until roots are formed. Examination can be made by inverting the pot and slipping the ball of earth out without disturbing the bulb.

Cover potted Tulips to a depth of two inches, Narcissus the same. Hyacinth bulbs should be placed about half their depth in soil. Freesias and smaller bulbs from one to two inches under the surface.

The following bulbs are desirable for forcing: Hyacinths (single sorts preferable), Roman Hyacinths, Narcissus, Tulips, Crocus, Bermuda or Easter Lily (*L. Harrisii*), Freesias, *Milla Biflora*, *Allium Neapolitanum*, *Ornithogalum Arabicum*, Scillas, *Chionodoxa Lucillæ*, Babianas, Snow Drops.

The following new method of room-culture for bulbs was presented recently before the National Society of Horticulture of France by M. Denis. We have not yet tried it. He notes that for the successful culture of bulbs in the house the only requisites are warmth, water, light and air, and claims that the simplest and most practical manner of supplying these to the bulb is as follows: Take of fresh moss, bran and powdered charcoal, equal parts, mix together to form the soil, place a bit of broken pot over the hole in the bottom of the pot as a drain and to prevent the soil from leaking out; fill with the mixture, pressing down well. In a four-inch pot plant one hyacinth; in a five-inch pot, a hyacinth in the center with a border of crocus; in a six or seven inch pot, narcissus in the center, hyacinths around them, and a border of crocus, arranging the colors tastefully. After planting water well and again as often as necessary to keep the soil moist. There will be no trouble about the blooming with the most ordinary care.

CHAPTER II

THE HYACINTHS.

The Hyacinth has been a popular flower for centuries, and no flower among all those that help to make the garden bright is deserving of greater

SINGLE FLOWERING HYACINTHS.

as to lose their beautiful bell-like form. But where broad masses of color only are desired—not close inspection which will reveal individual qualities—the doubles are extremely effective, and should therefore be included in all collections which aim at completeness.

Selection of Bulbs.

More care should be given by the amateur to the selection of first-class bulbs for planting. Much of his success will depend upon getting the right stock. If you cannot make a personal inspection of what you wish to buy, it is best to trust this to a high class importing house with a reputation to sustain.

popularity, all things considered. It has the merit of being beautiful and easy of cultivation,—qualities which commend it to the amateur strongly. It blooms early in the season, remains a long time in flower, ranges through so many shades of rich and delicate colors that all tastes can be suited in this direction, and has a delightful fragrance, which is sufficient in itself to make it a general favorite. Many prefer the Tulip, but the writer would cast his vote in favor of the Hyacinth as the best of our hardy spring bulbs for general use.

The single Hyacinths are preferable to the double ones, because of the greater certainty with which they bloom; the flowers of the single sorts have also a less crowded appearance than those of the double in which the petals are so crowded

FEATHERED HYACINTH.

The Feathered Hyacinth has a plume-like mass of bloom borne on a slender stalk, and is pretty enough to deserve a place in all gardens.

The Hyacinth comes in pure white, blue, red, rose and yellow, in both strong and delicate shades of these colors. Plant bulbs about seven inches apart and four inches deep; flowers appear in April and continue well into May.

If contrasts of color are desired, named varieties should be selected, as only in that way can you be sure of getting the shades you want. If one is not particular about this, the cheaper unnamed collections will afford excellent satisfaction. The named bulbs are preferable, however, because they are generally stronger, healthier, and surer to give a perfect bloom, though the cheaper sorts seldom fail to do this. Do not select bulbs solely from their size, as some of the finest varieties have bulbs of inferior appearance, and *vice versa*.

Fine effects can be secured by planting different colors in rows or geometric patterns. For border use, the unnamed sorts are very effective.

After flowering the bulbs should not be disturbed until they have opportunity to ripen thoroughly. This stage of their growth can be told by the turning yellow of their leaves. Then lift them carefully. Avoid bruising them. Dry them off by exposure to the sun. When the outside skin has a silky look, store them away in paper bags, to await the season of fall planting.

HOUSE CULTURE.—Hyacinths are best planted in deep pots, and three may easily be grouped in a six-inch pot, or planted singly in a four-inch pot. Attend carefully to the drainage, water well and bury in a box of ashes in the cellar in a cool spot, or set away in a perfectly dark, cool place, where they will not freeze. When vegetation begins, bring gradually to the light, and if the flower stalk remains dwarf, shade the plant with an empty pot or an inverted paper funnel. Water plentifully.

To grow them in water greater care is necessary. Select very strong bulbs and Hyacinth glasses of a dark tint or opaque, fill with rain-water to the base of the bulb and keep in a cool, dark place, with an even temperature. Never allow the base of the bulb to become dry, or the newly-started rootlets will be killed. In case the tips of the roots become covered with slimy mucous coating, this must be very carefully rinsed off and fresh water given without chilling the plant. Give light gradually as with pot plants. Always choose single Hyacinths for growing in glasses.

The following are some of the best Dutch Hyacinths:

SINGLE WHITE.

La Grandesse. Pure white, large bells.

L'Innocence. Extra large truss; pure white.

Madam van der Hoop. Large spike; late.

Queen of England. Pure white spike; fine for forcing.

SINGLE BLUE.

Leonidas. Bright blue; fine truss; early.

Baron Von Thuyt. Purplish blue; large, compact spike.
Charles Dickens. Porcelain blue; extra fine bells.
Czar Peter. Light blue; a magnificent variety.
King of the Blues. Dark color; very fine spike.
Regulus. Light blue; very large and fine.
Queen of Blues. Light blue; splendid variety.
Grand Maitre. Deep porcelain blue; extra fine; large truss.

SINGLE RED AND ROSE.

Gertrude. Pink; fine dwarf.
General Pelissier. Fine crimson; early.
Gigantea. Blush; very large flowers.
Lord Macaulay. Bright crimson; very large.
Lady Derby. delicate pink, early forcer.

SINGLE YELLOW.

Ida. Pure, early.
King of the Yellows. Extra, medium early.
La Pluie d'Or. Bright, medium early.
L'Or d'Australie. Pure, late.

DOUBLE RED AND ROSE.

Bouquet Royale. Soft rose; darker center.
Czar Nicholas. Delicate pink.
Lord Wellington. Pink; large; very early.
Regina Victoria. Dark rose; early; good spike.

DOUBLE BLUE.

Blocksberg. Porcelain blue; low grower; extra.

DOUBLE WHITE.

Bouquet Royal. Pure, early.
La Tour d'Auvergne. Large spike.
La Virginite. Blush, late.
Prince Metternich. Blush white, one of the best.

DOUBLE YELLOW.

Bouquet d'Orange. Good spike.
Goethe.
Sunflower. Buff, fine spike.

It must not be understood that the above named varieties include *all* the best. They are representative varieties selected from a list so long that it would be very perplexing to the amateur to make a selection.

The sorts above named include the most satisfactory, both for bedding out and for pot culture, among the varieties at moderate prices. They are always safe.

ROMAN HYACINTHS.

Popular as the ordinary Hyacinth is when brought into bloom in winter, it is greatly inferior in delicacy to the Roman Hyacinth. The latter sends up several graceful sprays of bloom from each bulb, instead of one, as is generally the case with the Dutch

ROMAN HYACINTHS.

Hyacinths; these stalks are from six to eight inches tall bearing fragrant flowers of delicate beauty loosely set along the spike. They are forced in enormous quantities by florists in all the large cities, and sell readily at prices that make

it highly profitable to grow them. They come into play in all kinds of cut-flower work in winter, and are in great demand for table decorations. Their delicate

beauty and delicious fragrance, combined with their lasting qualities, make them extremely satisfactory to the purchaser.

They are of the easiest cultivation. Plant and treat as advised in the chapter on House Culture, and the amateur can succeed as well with

them as the professional. Set three bulbs in a five inch pot and give plenty of moisture. These will stand a higher temperature throughout their growth than the Dutch Hyacinths. Nothing simpler or more beautiful for the informal decoration of a dinner-table can be imagined than a pot of Roman Hyacinths with a half dozen spikes of fragrant flowers rising above the pretty, bright-green foliage. If moss or lycopodium is obtainable, cover the surface of the soil in the pot with it where potted plants are used for table decoration, and the pleasing effect is greatly heightened.

ROMAN HYACINTH—FLOWERS.

In purchasing be sure that you get strong imported bulbs. Something of the magnitude of the trade in this one flower can be imagined when it is understood that the importations of Vaughan's Seed Store, Chicago and New York, for the year 1892, amounted to one million bulbs of the Roman Hyacinth.

The white are the first to flower, and are the most popular for the dainty grace of their waxen bells. The rose and blue varieties are about two weeks later in coming into bloom, so that if all these colors are wanted at one time, plant some of the pink and blue varieties at least two weeks before the white.

One of the latest acquisitions in this class is the New Yellow, a variety of a soft sulphur or cream color. It is not only very beautiful in itself, but it affords a charming and delicate contrast with the pure white, pale blue and pink.

ROMAN HYACINTH—BULB.

THE DAFFODIL (*Narcissus*)

There is no flower of recent years that has forged its way to the front, and come into greater demand than the Daffodil in the beautiful forms and colors in which it presents itself today; and though heretofore Hyacinths and Early Tulips have taken the lead as the best spring flowers, we foresee the Daffodil in a conspicuous place in the annual procession of garden flowers in future. Today fabulous prices are paid for even one bulb of some of the new hybrids, and the number of varieties catalogued by growers is astounding, and often confusing.

Excellent varieties can now be purchased for quite a reasonable sum and kinds that fetched from \$50.00 to \$100.00 per bulb, 10 or 15 years ago can now be had for 50c and \$1.00. The coloring, beautiful forms and sizes of the newer *Narcissus* are inconceivable. Catalog descriptions are true but must necessarily be short and convey but a small idea of their beauty. They must be grown to be seen and immediately loved.

No doubt all who are acquainted with these flowers have heard the terms "Daffodil" and "*Narcissus*" applied to them and have wondered wherein lay the distinguishing character. They are one and the same thing, "*Narcissus*" being the scientific name usually applied to the whole genus, while "Daffodil" was applied to the large trumpet section. But now every Daffodil is a *Narcissus* and vice-versa.

Many classifications have been made within the last 50 years but so many new varieties have been introduced by the hundreds of hybridizers at work, changes had to be made and the latest classification (1915) of the R. H. S. England numbers eleven, viz :—

1—Trumpet Daffodils; 2—*Incomparabilis*; 3—*Barrii*; 4—*Leedsii*; 5—*Triandrus*; 6—*Cyclamineus*; 7—*Jonquilla* Hybrids; 8—*Tazetta* or *Polyanthus*; 9—*Poeticus*; 10—Double Daffodils. 11—Various, which includes *N. Bulbocodium*, *N. Cyclamineus*, *N. Juncifolius*, etc.

We however, are only concerned with the most important and more easily distinguished of these, and as this little book is mainly intended for amateurs, we will reduce these varieties to 7, viz.:—

1. **Magni Coronati**—Large Trumpet Daffodils.
2. **Medio Coronati** or **Incomparabilis** with which we associate the **Leedsii** section or White *Incomparabilis*.

3. Parvi Coronati	(a) <i>Barrii</i>	} Cup or crown less than one-third the length of perianth segments.
	(b) <i>Burbridgei</i>	
	(c) <i>Englehearti</i> —Flat cupped varieties (not <i>Poeticus</i>)	
4. Poeticus —The Pheasant's Eye or <i>Poeticus Narcissus</i> .		
5. Polyanthus Narcissus (Bunch flowered)	(a) <i>Tazetta</i> .	
	(b) <i>Poetaz</i> .	

NARC. KING ALFRED

6. **Double Narcissus.**

7. **Various** (a) *Bulbocodium.* (c) *Jonquilla.*
(b) *Cyclamineus.* (d) *Triandrus*, etc.

We will now point out in a few words the distinguishing character of the first 3 classes. **Magni, Medio and Parvi Coronati.**

If a *Narcissus* bloom is examined it will be found to consist mainly of two parts; (1) a long, expanding tube, and (2) a perianth (the petals or perianth segments), bending outwards from the tube; the three classes mentioned above depend upon the point on the tube or trumpet at which the petals are attached. When they come from the base so that the whole tube forms the trumpet (Fig. 1), the flower belongs to Class 1 (*Magni Coronati*). When they come still farther forward on the tube (Fig. 2), thus shortening the trumpet in front by about half, it belongs to Class 2 (*Medio Coronati*), and when the perianth is still more forward until the trumpet appears small-cupped or saucer-shaped (Fig. 3), this is a type of Class 3 (*Parvi Coronati*). Example 1—*King Alfred*; example 2—*Gloria Mundi*; example 3—*Incognita*.

Class 4 (*Poeticus*) may be classed with 3 as a *Parvi*, but its distinguishing characters are its white perianth segments and its yellow and red disc-like trumpet.

Class 5 (*Polyanthus*). As the term implies, these carry from 6 to 12 blooms on a stem, are sweet scented; the *Poetaz* are hybrids of *Poeticus* and *Polyanthus*.

Class VI (*Double Narcissus*) This includes the *Von Sion* (*Double Daffodil*); the *Sulphur* and *Orange Phoenixes*, *Butter and Eggs*; and *Alba Plena Odorata*, the sweet scented double form of *Poeticus Patellaris*.

OUT DOOR PLANTING

Like other spring flowering bulbs *Daffodils* must be planted in the fall, August to October, but not later than the 1st week of November. Of course November planted bulbs will produce flowers of a kind, but to get the most perfect flowers and most vigorous plants, August or September planting is advisable. The *Poeticus* Varieties and Hybrids with *Poeticus* blood should be first, as they root very early.

All *Narcissi* except the *Polyanthus* and a few of Class 7 are hardy and suited for out door planting in beds, borders and naturalizing.

Situation.

As a rule a sunny situation is best, though it has the disadvantage of short flowering period if the early spring happens to be very warm. The red cupped varieties of classes 2 and 3 are best planted in a Northern or shaded situation as the sun quickly burns up their brilliant cups. The earliest and best flowers however will be had from a sunny situation.

Soil.

Light sandy soil, well drained, is the delight of the Daffodil. Heavy clay soil can be improved by the addition of sandy soil dug into the depth of 7 or 8 inches, while beds should have old mortar and builders rubble placed in them at a depth of about 10 or 12 inches to ensure good drainage.

Fertilizer.

There is no better renovating substance for *Narcissus* beds than to dig in a plentiful supply of well rotted turfy soil from fresh pasture.

If stable manure was used in the beds for the previous summer plants, the addition of bonemeal (a good handful to a square yard, or 500 pounds to the acre) will be ample, but if manure must be used it should be thoroughly rotten and dug in well underneath the bulbs so as not to come in actual contact with them.

Crushed and dissolved bones are the most reliable fertilizers, while **no fresh stable manure** of any kind or at any time should be applied. This brings about fatal results.

Planting

Having fertilized and thoroughly dug the bed, take out the top layer of 4 or 5 inches, level the underlying surface, and plant the bulbs about 4 or 5 inches apart, pressing them firmly into the soil. Throw back the covering soil, and over this place a layer of leaves or dry litter for the winter. Examine the beds in the spring and as soon as the leaf points begin to show through, remove the litter and rake over the beds and shake on a light dressing of bone meal or Garden Fertilizer. This helps to produce strong plants and larger flowers.

GROWING FOR HOUSE AND CONSERVATORY

Have the soil consisting of half and half sandy loam and leaf mould all ready to which add bonemeal $2\frac{1}{2}$ pounds to the bushel, and a little rotten manure in the bottom of the pot. Use 5, 6 or 7-inch pots or pans according to quantity and size of bulbs. Three bulbs to a 5 inch, and 5 to a 6 inch is about the correct number to use, but the size of bulbs must determine this. Place the bulbs so that the soil just covers the neck or narrow upper part. When planted place all the pots together in a cold frame or cool basement and cover up with sand, ashes or cocoanut fibre to the depth of 5 or 6 inches. Give an occasional watering

NARCISSUS INCOGNITA

DAFFODILS IN WOODLAND

They should be planted in groups and long irregular lines, or thrown broadcast and the bulbs planted where they fall. It is best to keep the varieties separate in different groups so that each will give its fullest display at the one time as all varieties do not flower together. Some notable kinds for this purpose are Poeticus and its double form Alba Plena Odorata, Princeps, Empress, Von Sion, Barri Conspicuus, Cynosure and Mrs. Langtry.

Varieties for Pots and Boxes.

Varieties required for forcing in quantity should be boxed and the choice kinds are best grown in pots. For pots Empress, Mme. De Graaff, King Alfred, Golden Spur, Emperor, Victoria, are excellent. The Incomparabilis Gloria Mundi, Homespun, Autocrat and Queen Sophia are glorious pot plants, and the dainty Firebrand and Incognita of the small cupped sorts make a brilliant showing.

Leedsii, Mrs. Langtry should be grown in quantities for early white flowers.

All the Polyanthus section are only suited for indoor cultivation, their large trusses and delicious fragrance make them delightful for rooms. Paper

After 8 to 10 weeks they will be sufficiently rooted to remove to their flowering quarters, temperature of which should not exceed 55 degrees. They will stand 65 degrees, but should have three weeks in an intermediate house, say of 45 degrees or 50 degrees after removing indoors.

Growing in Fiber.

This new method for growing bulbs, is the cleanest for indoor use, where there are no facilities for procuring the proper soil and right treatment. The bulbs are potted the same way as in ordinary soil just showing their tops. Once potted, they require hardly any attention, only great care should be taken to keep the compost moist, but on no account must it be sodden or too wet.

Growing in Bowls.

The paper white Narcissus, and some of the other Polyanthus varieties grow splendidly in bowls of gravel and water; give same treatment as the Chinese Narcissus, on page 25.

Naturalizing Daffodils.

The Daffodil makes a very effective show when naturalized in grass by the side of hedge rows, woods, shrubberies, or the banks of streams and lakes, etc.

White Grandiflora is the earliest of them and millions of these bulbs are forced annually for the holidays.

A STRIKING BED OF DARWIN TULIPS

CHAPTER IV

THE TULIP.

ORDER LILIACEÆ.

This genus comprises, according to Mr. Baker's estimate, over sixty species of bulbous plants, found in Europe, Northern Africa, Western and Central Asia. An old record says that "in the Seventeenth Century Tulips became the object of a trade such as has never been since met with in the history of commerce, and by which their prices rose above that of the most precious metals." It is a mistake, however, to suppose that the high prices paid for bulbs, amounting in many instances to many thousands of dollars, represented the estimated value of a root, since these large sums often changed hands without any transfer of property. Bulbs were bought and sold without ever being seen. In short, they were the subject of the wildest speculation, and the "Tulip Mania" will long be notable as an evidence of the tendency common to all countries and peoples to indulge in extravagant speculation.

Though the "mania" has subsided, Tulips have never lost their popularity, and they are sold yearly in immense quantities. Choice sorts can be bought very cheaply, and no lover of the beautiful in flowers can afford to omit them in planting his garden. They bloom early in the season and continue in bloom a long time. There are several classes, some early, others late, adapted for general cultivation, so that the flowering season can be made to extend over a long season by a careful selection of sorts. They are to be had in a great number of colors and shades, the list is so extensive, in

fact, that most dealers abridge it, because to give it at length only tends to confuse one in making a selection.

It is not necessary to give special directions for the cultivation of the Tulip, as those given in the chapter on the general cultivation of bulbs apply here. It is advisable however not to use fresh stable manure in planting, as the ammonia from this is fatal to the bulbs. 2 or 3 ounces of bone meal to the square yard, or 3 lbs. to the bushel is sufficient and safe. Plant about five inches apart and four inches deep.

All Tulips of the same class do not all bloom at the same time, therefore, where uniformity of flowering is desired, care should be taken in making selections. The catalogues of the large dealers generally give data by which an intelligent choice can be made, as to height of growth and earliness of bloom.

KEIZERSKROON— RED AND GOLD.

The Early Single and Double Tulips are best used for massing in beds, beautiful designs can be made with the numerous and brilliant colors planted separately. They also force well, the Van Thol varieties being especially early. Following them, in order of blooming, come the grand **Darwin Tulips** which flower at the end of April and early May. These are easily distinguished by their eup-shaped blooms, soft shades, and long stems. They are increasing in popularity every year and deservedly so. Their shades of color from the faintest mauves and pinks to crimson purple and almost black, their long stems, their stateliness in beds, and hardiness for the Perennial Border, make them one of the most valuable and glorious of our spring flowers. They can also be grown in pots, and with gentle heat forced into bloom in early April.

The **Cottage Tulips**, derive their name from the fact that the majority were discovered in old Irish cottage gardens. The blooms are borne on long stems and are usually pointed or pitcher shaped and the ends of the petals reflexed or turned back. Many of them are deliciously scented, and vie with the Darwin Tulips for brilliancy. Yellows which are absent in the Darwins are plentiful in the Cottage Tulips with such varieties as **Mrs. Moon**, **Gesneriana Lutea**, **Leghorn Bonnett**, etc., and bloom at about the same time. Some beautiful color schemes can be carried out by planting some of each class.

Parrot Tulips are brilliant and showy in the extreme. Their flowers are large, ragged in shape, and the most unique combinations of colors.

SINGLE EARLY TULIPS

- Artus.* Deep Scarlet; fine bedder or forcer.
Belle Alliance. Scarlet; very fine
Chrysolora. Very large and very pure yellow.
Cottage Maid. Rose and white; early; one of the choicest.
Cramoisi Brilliant. The finest scarlet bedding tulip.
Cardinal. Dark bronze scarlet; very beautiful.
Duchess of Parma. Bronzy red with yellow edge; large and showy.
Duc de Berlin. Scarlet and gold; very early and dwarf.
Fred Moore. Deep orange; edged yellow; very bright.
Keizerkroon. Very large flower; red, edged with yellow; tall.
La Reine (Queen Victoria). Early; white, slightly tinted rose
Maes. Rich scarlet; very large.
Pottebakker White. The finest pure white Tulip.
Proserpine. Rose; very fine; large and tall. Queen of Tulips.

- Rose gris de Lin.* Delicate rose; flushed white.
Rose Luisante. Very large, satiny flower; rose-red.
Thomas Moore. Beautiful apricot orange.
Van Vondel. Cherry, feathered with white; very large.
Van der Neer. Violet; a superb flower.
White Hawk. Tall, pure white; very fine.
Yellow Prince. Tall, golden yellow; fragrant.

DOUBLE EARLY TULIPS

- Alba Maxima.* Pure waxy white.
Crown of Roses. Rich rose pink; a magnificent variety.
Golden King. Very large; pure golden yellow.
Imperator Rubrorum. Brilliant scarlet; the best double red.
La Candeur. White; very full.
Lord Beaconsfield. Rose pink. large bloom.
Murillo. White, tinted rose; a charming flower.
Rosine. Lovely pink; semi-double.
Rex Rubrorum. Scarlet; excellent for bedding.

DOUBLE EARLY TULIPS—Continued

Rubra Maxima. Crimson; a standard sort.

Salvator Rosa. White, blotched with rose.

Tournesol red and yellow; extra large, tall and showy.

DARWIN TULIPS

We give in the following list the names of the most brilliant colored, vigorous growing, and all round reliable kinds that have been thoroughly tried out and are at present grown in the most beautiful American private grounds and gardens, and by the million for the cut flower market.

Baronne de la Tonnaye. Bright rose and blush.

Clara Butt. Delicate pale salmon rose.

Dream. Light lilac. *Europe.* Bright carmine red.

Glow. Brilliant dark red, fine sort.

Gretchen. Outside blush, inside soft blush; very beautiful.

Painted Lady. Soft milky white.

Pride of Haarlem. Carmine rose. *Psyche.* Soft rose

Rev. H. Eubank. Vivid heliotrope.

Massachusetts. Vivid pink with white center.

Sultan. Maroon black.

Suzon. Soft pink, edged white.

Velvet King. Deep glossy purple, with white base.

White Queen. Beautiful soft white, slightly tinged blush.

Mixed. Splendid assortment of colors.

COTTAGE TULIPS.

Bouton d'Or. Deep golden yellow.

Columbus. Yellow striped red, sweet scented.

Elegans Alba. White margined rose.

Emerald Gem. Shrimp red, green base.

Fairy Queen. Heliotrope edged yellow.

Gesneriana Lutea. Pure yellow, sweet scented.

Gesneriana Major. Searlet, sweet scented.

Glare of the Garden. The best late crimson Tulip, dwarf.

Isabella. Creamy white, feathered rose.

DARWIN AND COTTAGE TULIPS

Inglescombe Pink. Beautiful salmon pink.

Inglescombe Yellow. Yellow, called the Yellow Darwin.

Ixioides. Pale yellow, with black base.

Maidens' Blush (Picotee). White edged red.

Mrs. Moon. Tall, reflexed flower, sweet scented; the best late yellow Tulip.

The Fawn. Rosy fawn, edged creamy white.

PARROT TULIPS

Constantinople. Crimson; fine flower.

Lutea. Large, yellow.

Markgraff. Red feathered with yellow and green.

Perfecta. Red and yellow.

CHAPTER V.

THE CROCUS.

This is a very popular spring-blooming bulb. It is well suited to our somewhat trying climate on account of its hardiness. It sends up its modest, cheerful blossoms soon after snow disappears, and its bright look makes it a general favorite among ordinary folk as well as the poets, who have sung many songs in its praise.

The Crocus will grow well in almost any soil that is not too heavy and is well drained. The bulbs or corms should be planted about two or three inches

NAMED LARGE FLOWERING CROCUS.

below the surface of the soil. Because of their low growth and small size, better effects can be secured if several bulbs are planted together than where they are used separately. I would not advise attempting to grow them after any set or formal fashion as to arrangement in beds. They give the greatest amount of satisfaction on a lawn when scattered about in a kind of haphazard way, as if they had arranged themselves. If used as a border, set them about two inches apart, and keep the colors in separate lines or masses.

The bulbs should be left undisturbed for several years. They will increase and form strong clumps, from which scores of flowers will be produced in spring. If it should be found necessary to transplant or divide them, do it as soon as possible after the leaves of the plant have ripened. Replant at once if possible. Few of our bulbs suffer more from being kept out of the ground than the Crocus. On this account I would always urge securing bulbs as early as may be in fall, and planting as soon as secured. This advice, by the way, applies pertinently to all bulbs, but more particularly, perhaps, to the one under present consideration.

Most of the Crocuses sold in this country are grown in Holland, it seeming to be generally conceded that better bulbs can be grown there than with us. Perhaps the real reason why so many are imported is that Holland growers can raise them more cheaply than we can. However, I presume that the light, rich soil of Holland, and the careful cultivation given them there, do produce stronger bulbs than American growers have yet placed on the market. The fact is, it pays as well to grow bulbs carefully and scientifically as it does to grow any crop in that manner. Bulbs that have to take care of themselves after they are planted are seldom satisfactory, while those that are properly attended to are the reverse. It "pays" to do whatever is done in the garden well. Bear that in mind, and be as thorough as possible in your cultivation of all kinds of garden plants.

If large beds are planted wholly to the Crocus, pretty effects can be obtained by arranging the colors in contrast, either in clumps or rows. If beds are planted to different varieties of bulbs, the Crocus can be planted as an edging with good effect. Give them a light covering of straw during the severe weather.

The following varieties are very fine, and among the best in general use.

Albion. Large flower; striped.

Non Plus Ultra. Blue, edged with white.

Mont Blanc. Pure white.

Queen Victoria. White; fine.

La Majesteuse. Violet; striped.

Cloth of Gold. Yellow; very rich color, and a most charming flower.

Cloth of Silver. Light blue, striped with white.

CHAPTER VI.

THE SNOW DROP.

(*GALANTHUS NIVALIS*.)

This charming little flower is an early bloomer, a harbinger of spring, and its appearance is as welcome as that of the first robin. It is perfectly hardy and thrives under conditions unfavorable to the growth of most bulbs. Its flowers are bell-shaped, white, with a pale green tip to its petals, some single, some double.

Plant in clumps, or singly in large groups on the lawn. Like the Crocus, the Snow Drop is most effective when planted without regard to formality. Scattered about in the grass of the lawn or along the edge of the border, they give a bright look to the early spring landscape, and attract attention by their purity and modest beauty.

Do not disturb them often, but leave them to increase in size and number.

GIANT SNOWDROPS!

In our opinion the common single Snow Drop is the most satisfactory to plant in our climate, as well as the most graceful; Elwes' Giant, or Elwesi, is a very popular sort on account of its greater size, as well as the double variety. Set them about three inches apart and two inches deep, and protect with dried leaves during winter, removing the cover very early.

CHAPTER VII.
CHINESE SACRED LILY.

CHINESE SACRED LILY.

THE CHINESE NARCISSUS OR SACRED LILY.

This plant, though but recently introduced in this country, has achieved an immense popularity. Besides its curious and interesting mode of culture, it has an added interest as being regarded in its native country with a kind of religious reference. It is said to be in bloom in every joss-house at the New Year, and is considered by the Chinese as the symbol of good luck. Be this as it may, it is greatly loved by the people of the "Flowery Land," and in this country they cultivate it almost to the exclusion of all other flowers.

It is a *Narcissus* of the *Polyanthus* class, but unlike the varieties in general cultivation, produces bulbs of enormous size, often twelve to eighteen inches in circumference. Such bulbs send up a great mass of foliage and several flower-stalks bearing large heads of white and yellow flowers. They make a very pretty ornament for the sitting-room, especially when grown in the Chinese fashion—in a bowl of water.

Take a round bowl of a size to accommodate the bulb easily, and cover the bottom with about two inches of small, clean pebbles; set the bulb firmly among them and pour in enough water to cover well up around the base of the bulb—pure rain water, of course, is the best. Renew the water as it evaporates, and change it if it becomes unwholesome. The plants grow very rapidly, and if in a bowl of clear glass, the root-growth may be easily watched. The rapidity of the growth of this plant is marvelous, and it is very free of bloom. At the time the buds appear the plant seems to be much more tender than when growing freely, and must be kept from drafts and sudden changes of temperature at this time. They generally bloom in four to five weeks after planting, and flowers may be had for months by successive plantings.

If grown in earth the plants are very pretty, and the bloom perhaps a little more sure, but they lack the interest given by the more unique mode of culture.

CHINESE LILY BOWL.

CHAPTER VIII.

THE LILY OF THE VALLEY.

(CONVALLARIA MAJALIS.)

LILIES OF THE VALLEY.

The rival and fit companion of the violet, there is no flower more lovely than this; its graceful waxen bells are filled to overflowing with the most delightful fragrance, and when set among its own glossy dark leaves it is a gem of the garden. No flower is more beautiful for bouquets, boutonnières or vases, and a very profitable branch of the florist's trade is the forcing of Lilies of the Valley for winter blooming. This branch of their culture, however, had best be left to owners of greenhouses, as room culture of these plants is very difficult. With proper forcing arrangements they can be brought into bloom in three weeks, and pips are frequently kept in cold storage for forcing in late spring by enterprising florists.

The Lily of the Valley is one of the hardiest of flowers, thriving year after year without any protection. It prefers a shady and somewhat moist situation, and a corner filled with these plants, mingled with hardy ferns, and allowed their own way for several years, becomes a thing of beauty. It multiplies rapidly, and when the clumps crowd one another too closely they must be carefully divided and transplanted, otherwise a top-dressing of rich earth in the fall is the only care they need.

For garden planting, clumps, either home-grown or imported, should be selected; the small pips are specially grown for forcing. They delight in a light loamy soil, and do well in the shade of taller plants or shrubs, but this is the least formal of flowers and its planting should follow nature as closely as practicable, setting a clump here and there in some secluded nook, where it will always give the effect of a delightful surprise.

Bulbous Irises

(Spanish—English)

Indoor Culture

These Irises can be grown in flats four or five inches deep, or planted in benches. A flat 12x24 inches of suitable depth will accommodate seventy-five to one hundred bulbs. They should be placed in the soil as soon as received. They must not be buried in soil or coal ashes like other bulbs, as they start to grow soon after planting. They will do well out doors, and later in a cold frame. Start a batch in a night temperature of 45 to 50 degrees in December, and other batches in succession as needed. If they are planted in benches, let it be in a cool house as much heat spoils these Iris.

Outdoor Culture

For outdoor culture, plant in November. Never mind if they make growths several inches long before freezing weather; severe cold will not hurt them. They are quite hardy and, if left undisturbed in good soil, will continue to flower for several years. Good Spanish varieties to grow are Louise, pale blue; Cajanus, yellow; British Queen and King of the Whites, pure white. The best English kinds are, Grand Lilas, (pale blue); Mont Blanc, (white); Othello, (dark blue).

(For other Irises see page 44).

CHAPTER IX.

MINOR HARDY BULBS FOR FALL PLANTING.

The Scillas, Snow Flakes and other smaller spring flowers, are not the least attractive ornaments of the grounds of the lover of nature. The English have long ago discovered this, and in every English park will be found some sunny slope bright with Crocus in the grass, a shady spot among the trees white with Snow Drops or brilliant with the heavenly blue of Scillas. While these minor sorts are attractive and pretty in garden beds and make the daintiest of little spring bouquets, they are seen to best advantage in the grass where they bloom among the new leaves, and most of them are over by the time the lawn must be mowed.

Blue flowers are among the rarest, and many of the most beautiful shades of this color are found among the the Scilla sorts. They may be

grown in pots, but their true place is in the open ground. Plant about three inches deep.

S. Siberica, or Siberian Squill, is entirely hardy, with grass-like leaves and flowers of an intense blue, borne one to three drooping from each stem. Owing to their beauty, hardiness and very moderate price, we recommend them especially for planting in close clusters on the lawn, where they will gladden the eyes every spring with their marvelous "blue flash."

S. Campanulata, or Wood Hyacinth, is a taller growing plant with spikes about a foot high, bearing drooping flowers about an inch in diameter.

The more common shade is the blue, but there are also white and pink varieties.

WINTER ACONITES.

TRITELEIA UNIFLORA.

CHIONODOXA LUCILLÆ,

often called Glory of the Snow, is a recent innovation from the mountains of Asia Minor. It is scilla-like in habit, but usually somewhat larger, and the bright porcelain-blue color shades from the tips of the petals to a pure white center. It is very pretty for pots and lovely for out-door beds and borders. The flowers are often $1\frac{1}{2}$ inches in diameter, and borne in spikes of four to six blooms.

ERANTHIS HYEMALIS.

WINTER ACONITE.

A tiny yellow flower of extreme earliness and very hardy, often showing its blooms before the snow is fairly gone, and remaining until the later flowers begin.

THE SPRING SNOWFLAKE (*LEUCOJUM VERNUM*)

resembles the Snow Drop considerably, but it is a stronger grower, reaching a height of seven or eight inches. Flowers are pure white and somewhat resemble the Snow Drop. It does not bloom as early as the Snow Drop, and on this account it is valuable, as its later flowering helps to prolong the show afforded by spring blooming bulbs.

TRITELEIA UNIFLORA.

A charming little thing. Quite dwarf in habit. Most satisfactory if planted in masses, or used as an edging. Color white, each petal banded with blue.

FRITILLARIAS.

These are among the floral curiosities; bell-shaped drooping flowers of a brownish purple color, spotted and shaded with purple and brown; they are hardy and grow about a foot high. In Holland, where the bulbs are grown, a field of these curious flowers swaying in the breeze is a pretty sight.

CROWN IMPERIAL.

An old plant that deserves more popularity than it has at present. New plants have crowded it into the background but it will by and by come into proper recognition of its merits, as all good plants are sure to do, sooner or later. It has a stately habit of growth, sending up stout stalks which bear a cluster of drooping flowers, bell-shaped, in shades of red, yellow and orange. Above this cluster, or "crown," is a tuft of glossy foliage, which gives

CROWN IMPERIALS.

the plant a peculiar and striking appearance. It is a showy and handsome garden plant, but its odor prevents its use in bouquets or house decorations.

DOG'S TOOTH VIOLET.

An interesting little plant, having foliage thickly spotted with brown, and flowers of purple, pink or white. In form they bear considerable resemblance to the popular Cyclamen. Hardy and early; desirable for low groups.

COLCHICUM AUTUMNALE (AUTUMN CROCUS).

This curious little plant sends up its leaves in spring, but reserves its pretty lavender flowers to brighten the autumn; it is a most persistent

bloomer, and the bulbs, which are imported from Holland, are often in full bloom when received, tightly packed in buckwheat chaff. When brought to light they color, and have received the name of "Air Lily," from this persistency of bloom. Plant outside, where it is quite hardy.

STERNBERGIA LUTEA.

This is another fall-blooming bulb of much beauty. It is a rich yellow in color, and much like the Crocus in shape. It blooms very soon after being planted. Very desirable because of its late blooming habit.

BULBOCODIUM VERNUM.

Pretty rosy-violet flowers, quite hardy and blooming close to the ground like the Crocus.

STERNBERGIA LUTEA

CHAPTER X.

HALF-HARDY OR TENDER BULBS FOR AUTUMN PLANTING.

These bulbs, natives of Southern climates, are peculiarly adapted to the favored regions of the Pacific coast and the Southern States, where they thrive as in their native habitat. Most of these sorts may be cultivated in pots or frames or cool greenhouses, care being always necessary not to force their growth rapidly, in which case they are apt to fail at the blooming time.

ALLIUMS.

Most of the Allium family are barred out from decorative uses on account of their disagreeable leek odor; the pretty little Allium Neapolitanum, however, is free from this drawback, and may be grown in pots or in the open ground in the South. It blooms in white clusters, and is very pretty for room culture. Cultivate the same as the Roman Hyacinth.

ANEMONES.

One who has seen a field of Anemones in bloom at the farm of some cultivator of these showy flowers can hardly expect to find a more brilliant sight; the large cup-shaped flowers, waving with every breath of air, seem like a shimmering sea of color. The foliage is very pretty, growing about a foot in height, and bearing the flowers well above it. The blooms are white, scarlet, purple or violet, and about two inches in diameter. The Bride is a very lovely pure white sort, and the colors may be had in mixtures or separately, but these flowers shade so into each other that they are most effective when planted in a brilliant mass of indiscriminate color. By keeping in a cold frame or cool greenhouse they may be flowered in the North. The Anemone Fulgens, or Scarlet Wind Flower, is a brilliant sort from Southern France, and will only thrive in a similar climate.

ANOMATHECA CRUENTA.

This little plant is often called the Scarlet Freesia, and somewhat resembles the Freesia in habit and form; it is one of the many South African bulbs

ALLIUM NEAPOLITANUM.

which have been recently introduced to culture. For directions see the Freesia, as a variety of which it is generally grown.

ARUMS.

The most widely known of the Arum family, the Calla Lilies, in their numerous varieties, we will treat of separately. Aside from these popular plants, the curiously marked imported varieties are very interesting. We would hardly recommend them for pot culture on account of the unpleasant odor possessed by the bulbs, but as a curiosity of the flower garden the Arum is very attractive. It requires the same treatment as the Calla, including the period of rest in the dry season.

BABIANAS.

Small bulbous plants from South Africa, cultivated like Freesias; they grow nine to twelve inches high and bear pretty lavender or purplish blossoms.

CAMASSIA FRASERI.

This is a beautiful hardy bulb that should

CAMASSIA FRASERI.

BABIANAS.

have a place in every garden; as robust as a Tulip, producing each spring loose racemes of twenty to thirty flowers on graceful spikes one to three feet high. It is also a fine pot bulb for winter blooming, and is well adapted for cutting, as the flowers remain perfect for a long time.

CYCLAMEN.

The Cyclamen, or Alpine Violet, as it is sometimes called, is one of the loveliest of bulbous plants. It has received great attention from horticulturists during the past few years, with the result of developing purer and richer colors than were known to them before, and a profusion of bloom that seems little short of marvelous. This plant is seldom seen at

its best, except under the care of professional florists, and is susceptible to atmospheric and other changes when brought from the greenhouse to the living-room. However, it can be well grown and made to bloom freely in the house. The bulbs are to be had from most dealers about November 1st to 15th, and should be planted at once; be careful to drain the pot well and water sparingly until it is growing freely, after which give it a good watering once in two or three days, as it seems to require it. If the pot is placed in a jardiniere, take care that no water is allowed to stand in the latter; this is destructive to most plants, and the Cyclamen and Palm are easily hurt by it. This is one of the most charming of house plants, the blooms last so long and develop so gradually and gracefully; the foliage is also quite ornamental.

CYCLAMEN.

FREESIAS.

This graceful flower was brought to England from the Cape of Good Hope a few years ago, and such was its success among flower-lovers that

FREESIAS.

thousands of bulbs are now grown and cultivated every year for their use. The pretty white and gold blossoms are very fragrant, very desirable for

bouquets, and charming among their own grass-like foliage. It is difficult to show the delicate charm of these flowers in an engraving; the stalks are slender and grass-like and bend about eight inches from the ground to carry a horizontal row of white trumpet-shaped flowers, usually touched with yellow at the throat. When first brought into commerce the bulbs were so tiny that little was hoped for from them, but each year has seen them increase rapidly in size and consequent strength. They are fond of light and warmth, and luxuriate in the climate of California, but are easily grown in pots in a sunny window. Plant about three in a five-inch pot, in light, rich, well-drained soil, and give them a generous amount of water and light. When the flower-stalks appear set in little supports and bind lightly to them, as the weight of bloom is often too heavy for the stems.

After the blooming season is over, water more sparingly, and when the foliage ripens and turns yellow let the soil become quite dry and set away in a dry place until August or September, when they may be repotted and brought into vigorous growth for the next season. In this way the same bulbs may be flowered for several successive seasons, as well as increased, for these bulbs propagate very freely, and are most grateful for cultivation. *Freesia refracta alba* is the common variety and will be found to include most of the variations in the throat markings; *F. Leichtlini* major is rather larger and has a more pronounced yellow.

IXIAS

Ixias and *Sparaxis* are also bulbs from the Cape of Good Hope, and admirably suited to warm climates in the northern hemisphere. They do not respond quite so readily to pot culture as the *Freesia*, but do well in a cool greenhouse or cold frame, and are quite at home in the open ground of the South. Their colors are brilliant and include rare and orchid-like combinations, a bright green flower marked with black being one of the most striking and beautiful. The flowers are borne in long spikes on slender stalks, and the foliage is slender and rush-like. It would be difficult to name a more lovely flower among the rarer bulbs. Cultivate like the *Freesia*.

MOREA PAVONIA.

One of the most distinct plants in cultivation; flowers Iris-like, pure white with a beautiful porcelain-blue stain half an inch broad at the base of the three large divisions; the spot is margined with dark purple teeth, and is of deep violet at the base. It blooms in early spring and is perfectly hardy. The peculiar coloring has given it the popular name of Peacock flower.

IXIAS.

ORNITHOGALUM ARABICUM.

Named from two Greek words signifying Bird's Eye, from the black bead-like center of the flower; it is commonly called the Star of Bethlehem, and is easily grown in the house in winter; the bulbs are large and strong, and require culture similar to that of the Roman Hyacinth. With a little protection they will survive a mild winter in the North if planted deeply, eight or nine inches, in the open ground. The individual flowers are about an inch in diameter, pure white, with a shining jet black center, and grow in good-sized clusters. Will bloom in May or June outside, and may be had in bloom in the house in February. They are fragrant and altogether a pretty thing to grow in winter.

OXALIS.

This little plant has long been recognized by the flower loving world as most useful in filling up "chinks," lending grace and color to the window gardens or hanging baskets, by blooming freely among the larger and less accommodating plants. The foliage is fine and delicate, and the flowers dainty and varied. In a light, rich soil, with plenty of sand, they bloom all winter in a sunny place. Let them dry off in spring and rest during summer and they will be ready for another season's bloom.

RANUNCULUS.

The Ranunculus greatly resembles the Anemones in habit and climatic preferences, and is at home

DOUBLE RANUNCULUS.

in a warm climate and rich soil. The small bulbs, with their claw-like appendages, look so lifeless before planting that the rich and brilliant blooms are surprising to the one who has never grown them before. They should be planted in October or November in the South, but in the North must be kept in a cool, dry place during the winter, and set out as early as possible in spring. Plant in a rather sheltered place, claws downward, about three inches deep; they will bloom in early summer with great freedom. The flowers are large and handsome, showing all mixtures of red and yellow, and all varieties are about equally attractive. They make a brilliant bed outside, and are very pretty in pots if grown in a cool place without forcing. The French varieties have been cultivated to great size, and are to be preferred for house culture.

SPARAXIS.

We have noted the habit and culture of this pretty gladiolus-like plant with the Ixia, and cannot too highly recommend it for planting in mild climates.

SPARAXIS.

TROPÆOLUM TRICOLOR.

This dainty little climber is very rare in America, but deserves a place in every conservatory. It is a bulbous nasturtium of far greater delicate beauty than the annual varieties. Plant in a small pot filled with good soil, well mixed with sand, and when the thread-like vines are sent up train on strings or a wire trellis; these peculiar leafless vines often attain a considerable length before sending out the delicate foliage, which is in turn followed by a profusion of brilliant flowers, scarlet in color, tipped with black and yellow. A conservatory is necessary to develop them at their best, but a south window and plenty of warmth and moisture should bring gratifying results.

TROPÆOLUM TRICOLOR.

"THE CARELESS EYE CAN FIND NO GRACE,
NO BEAUTY IN THE SCALY FOLDS,
NOR SEE WITHIN THE DARK EMBACE
WHAT LATENT LOVELINESS IT HOLDS "

CHAPTER XI.

The Lily, as typified by the Candidum or "Annunciation Lily," has long been used as the symbol of purity, but the genus is one of the most varied of bulbous plants, and comprises many most brilliant and glowing flowers as well. There are, according to the Dictionary of Gardening, about forty-five Lily species, all natives of the temperate and warm regions of the northern hemisphere, and among the most beautiful of all flowers. The facility with which they adapt themselves to cultivation and their stately, elegant habit of growth have made them favorites with amateurs, who find Lily culture one of the most fascinating of pursuits. Most of the leading Lilies are hardy in our climate, provided care is taken to give them congenial environments. Three principal points will cover the absolute necessities of Lily culture.

PLANTING—The Lily bulb is composed of fleshy scales, thicker at the base where they are joined together, in which the nutriment for the growing plant is stored, owing to the loose arrangement of these scales, they dry and wither quickly on exposure to air and warmth, and rapidly lose their strength. The bulbs of different varieties are protected by various devices during transportation and storage; the Japanese wrap their great Auratum Lily in a sheath of clay for shipment; some varieties are kept in damp moss and others are carefully wrapped in tissue paper until they reach their destination, the object being to exclude the light and air as much as possible until they can again be planted. It will be easily seen that a prime consideration with the Lily is *early planting*. The bulbs, of course, ripen at different times, the Candidum Lily being usually ready in August, while most sorts are to be had best during October and November. When the bulbs are received, wrap in damp moss or tissue paper until the bed is made ready for them and plant at once. All Lilies must be planted deeply, six to nine inches, as when growth is well begun strong roots are sent downward from the stalk above the bulb, and soil must be provided for them to sprout.

in. As growth advances, it is an excellent plan to mulch the soil about the plants, firming it well up around the stalks both to retain moisture and provide for further rootlets. Neat stakes should be set beside the tall or slender sorts, and the stalks loosely attached, great care being taken not to injure the bulbs. In potting Lily bulbs for house culture, do not fill the pot with soil at first, but after securing good drainage, put in about three inches of soil, and set the bulb on this, then just cover the bulb with soil and set away in the dark until growth begins. When well started, bring to the light, and as the stalk lengthens fill in earth around it until the pot is

LILIUM CANDIDUM - BULB.

nearly full. The roots sent out from the stalks, which are thus provided for not only help to nourish the plant, but brace it as well, spreading as they do in all directions.

SOIL AND DRAINAGE.—Much as the Lily bulbs dread the light and air, they seem to fear excessive moisture as much or more; good drainage is a positive necessity to them and a low spot retentive of moisture is quickly fatal to the more delicate sorts and congenial to none. If the soil be heavy, lighten it by adding peat or leaf-mold, turfy matter and sand, so as to make it exceedingly friable. It has been thought a good plan in planting to immediately surround the bulb with clear sand, but while surely not harmful, it has not been demonstrated that there is any direct advantage in so doing. In manuring use only old, well rotted cow manure and work it

thoroughly into the soil, but at a little distance from the bulbs; they will send their roots out in search of fresh nourishment, and benefit fully as much as if it were put in contact with them directly.

PROTECTION.—Most Lilies do best when partially shaded, and the flowers last much longer than if exposed to the sun during the entire day. Planted among shrubbery or in a border of herbaceous plants, they are somewhat protected from the sun and wind and are admirably set off as well. From their formal habit of growth they are particularly pretty set in rows showing against a lattice work or a pretty fence. They are particularly averse to handling and should be left undisturbed as long as possible as they gain much in size and strength from year to year; apply the manure in the fall with great care and if transplanting is found necessary, do it quickly and without bruising the scales, as there is always danger of decay in such cases. A covering of three or four inches of straw leaves and old manure should be given in the fall; as these bulbs do not bloom early in spring it may be removed by gradual degrees as the weather becomes mild. It is impossible in our limited space to describe all the desirable Lilies for garden culture, but we append a list of some of the most popular and beautiful members of this attractive family.

AURATUM—(GOLD BANDED LILY OF JAPAN.)

One of the most free-blossoming and hardy of Lilies. Flowers are very large and spreading, ivory white, each petal banded through its center with gold and dotted with maroon; the stamens are long and graceful and are tipped with anthers of chocolate brown. The fragrance is very penetrating and heavy, as well as sweet. It is a rank grower and almost invariably blooms freely the first season. Thousands of bulbs are annually imported from Japan for forcing as well as for out-door planting, as this Lily is well adapted for pot and greenhouse culture, and a favorite among florists. Many call this the "Queen of Lilies, but in such an "embarrassment of riches" we could not choose.

LILIAM AURATUM, OR GOLD BANDED JAPAN LILY.

AURATUM RUBRUM VITTATUM.

This is comparatively a new sort and is still rare in our collections. It differs from the Auratum in having its petals banded and spotted with crimson, but resembles it in vigor and growth and profusion of bloom.

BROWNII.

The flower of this Lily is a flaring trumpet, large and long, brownish purple outside and rich creamy white within, stamens tipped with anthers of a deep chocolate color. The fragrance is delightful. This Lily requires somewhat more protection than the Auratum, and is well adapted for pot or greenhouse culture.

CANDIDUM.

This, our hardy, white, garden Lily, has many popular names, but is oftenest called the "Easter," or the "Annunciation Lily." Its pure, waxy white open trumpets are too well known to need description, nearly every old garden having a bed of them. They are forced by thousands for church decorations at Easter and bloom early in summer in the open ground. This Lily ripens earlier than most varieties, and bulbs should be planted in August or September, as they lose strength rapidly if kept out of the ground. No Lily is more hardy with us or more sure to bloom. Plant early and deep and leave them undisturbed for several years.

ELEGANS.—(THUNBERGIANUM.)

This is quite a large family of native Lilies, mostly small and in shades of red, yellow and black. They are inexpensive and full of variety and interest. Quite hardy.

LILIUM CANDIDUM.

EXCELSUM.

A pretty pale yellow Lily which towers to the height of five or six feet and bears six to twelve blooms.

HARRISII.—(BERMUDA EASTER LILY.)

This comparatively new variety, which has become immensely popular of late, is an improvement of the old *L. Longiflorum*, being earlier, dwarfer and somewhat more free of bloom, therefore especially adapted for house and greenhouse culture. The flowers are purest white, in shape, a long trumpet and filled with a most delicate fragrance. Large bulbs which may

be had in August or even in July, should be deeply planted and well protected during the winter, and will furnish in the spring a stalk three or four

feet tall with five to ten of its immense blossoms. It is the best Lily for pot culture, and by successive plantings, flowers may be had from February to May.

KRAMERI.

A very attractive rose-colored Lily, very fragrant, blooming early in summer.

LONGIFLORUM.

This noble Lily will never be quite superseded by any improvement on it. The flowers are the same as those of *L. Harrisii*, but the growth is somewhat taller. It is sometimes claimed to be more hardy. Plant in November.

LILIUM HARRISII.

SPECIOSUM VARIETIES.

These Lilies have the petals well spread and usually strongly reflexed. They are pure white, or marked with rose or red, large and fragrant; very hardy and in all respects satisfactory for garden culture. *Album*, white, sometimes tinted with pink. *Album Præcox*, similar; strong and petals finely fringed at the center. *Rubrum* and *Roseum*, white with band and spots of rose or crimson; very lovely. The monstrosus sorts have a peculiar broad flat stalk, but are otherwise similar to *Album* and *Rubrum*.

LILIUM SPECIOSUM.

TENUIFOLIUM.

A small Lily, native of Siberia, with very brilliant drooping flowers; hardy

TIGRINUM.

The common Tiger Lily; hardy; pretty for bouquets or the open border; orange, red spotted with black.

There are numerous other distinct and beautiful sorts, the culture of which is similar to that of the above sorts. For their names and descriptions we must refer the reader to the catalogue of some reliable dealer or to some treatise reserved to these bulbs, such as "Wallace's Notes on Lilies," a valuable guide to Lily culture.

LILIUM TENUIFOLIUM,

LILIUM HARRISII.

CHAPTER XII.

MISCELLANEOUS BULBS AND ROOTS FOR FALL PLANTING.

IRIS.

The Fleur-de-Lis, or Flower de Luce, comprises a very large group of very beautiful flowers. Most of them are hardy and easily cultivated in the open ground, loving a shady and somewhat moist situation. For garden planting in the North the Germanica and Kaempferi sorts are to be preferred as the hardiest, as well

NEW IRIS.

as the most showy. Violets, purples and blues are the prevailing tints in these large but delicately lovely flowers, but the yellow sorts are pretty, and the gray-blue *Iris Susiana* is beautiful as well as curious. The German type of flower is perhaps the most perfect in form and coloring, but the *Kaempferi* or Japanese sorts are so hardy and vigorous that they have grown rapidly in public favor from the time of their introduction into this country. Special shadings can easily be selected from the named sorts offered in the dealers' catalogues. The English, Spanish and other varie-

ties of more delicate constitution are only adapted for culture in the South and the Pacific Slope. We do not recommend them for forcing by the amateur.

PÆONIAS.

Any good garden soil will grow these hardy plants and give a profusion of their immense rose or white blossoms. Secure good strong roots

and plant deeply in good rich soil. The double *Tenuifolia* is a handsome crimson sort and the Japanese varieties, though still rare and dear, will

PÆONIA.

repay the extra expenditure. A little protection should be given them during the winter.

BLEEDING HEARTS.—(*DIELYTRA, SPECTABILIS.*)

This graceful plant of the old-fashioned garden, with its deeply cut leaves and dainty pink flowers is too well known to need more than a passing word of comment. It has recently been discovered by the florists that it is adapted for winter forcing like the *Spiræa*, and is one of the prettiest of pot plants for the house in late February and March; it is forced gently, so as to bring out the full beauty of the foliage. But is in the open garden that the chief usefulness of this plant is found; there it fills an odd corner with beauty and makes itself more at home from year to year. As it blooms in early

DIELYTRA SPECTABILIS.

spring, it is important that it be planted in the autumn to secure flowers the first season.

SPIRÆAS.

These plants are rather neglected among us, but they are really very effective garden plants; their place is at the edge of shrubbery or along a fence or border where their plummy mass of flowers is well displayed in early spring.

For fall planting, as well as for forcing, we prefer the *Spiræa Japonica*, a feathery white flower and handsome green foliage, and *S. Palmata*, which bears large crimson sprays of bloom. Good soil, well drained, is all that is needed for garden culture. For forcing, plant in rather small pots and give occasional watering with liquid manure when well started.

HEMEROCALLIS FLAVA.— (LEMON LILY.)

The roots of this pretty flower may be planted either in fall or

SPIRÆA JAPONICA.

spring, but they establish themselves more readily if planted in autumn and somewhat protected through the winter. When once established it is hardy, and bears very fragrant lemon-yellow flowers, which are very pretty in bouquets. They may also be grown as pot plants.

FUNKIAS.

Like the *Hemerocallis*, these may be planted in spring or autumn. The *Funkia Alba*, or Day Lily, is always a favorite on account of its pure white tubular flowers and very rich and delicate fragrance. *F. Lancolata variegata* is especially desirable for borders, as the creamy white and green foliage is very ornamental. Its flowers are pale blue. Both these plants are quite hardy and will do well in any good garden soil.

CHAPTER XIII.

BULBS FOR SPRING PLANTING.

THE TUBEROSE.

The Tuberose is a standard florists' flower for spring and summer use; thousands of bulbs are sold annually by all the large dealers, and the demand increases yearly. It is excellent for bouquets and cut flower work because it lasts so long. Its waxy whiteness and fragrance make it a favorite for greenhouse and sitting-room decoration.

There are several varieties. The Tall Double or Common Tuberose grows four to five feet high, furnishing more flowers on a single spike, but not so large individual blooms as the Pearl. Some florists grow this sort on account of the superior quantity of blooms produced. The Pearl grows from three to four feet high; it is very double, and produces a long spike of thick-textured, waxen flowers. Excelsior Pearl is an extra dwarf selected type of the Pearl, very even in height and with fine, full double flowers. The Variegated-leaved Tuberose is valuable only for its pretty foliage. The Single flowers earlier than any of the others, and is very pretty and sweet. For use in private gardens Pearl or Excelsior Pearl is best.

The Tuberose would be one of our most generally cultivated flowers if failures with it were not so frequent. Some complain that it does not start well in spring; others that it does not come into flower early enough in fall to escape frost, and others that it often fails to show any inclination to flower.

The Tuberose is a native of the South and must have a longer season than it can get at the north, if not planted out in the garden until after the weather becomes warm. In order to give it a longer season to perfect itself in, we must start it into growth in the house in April. If this is done, and it is given a light, rich, warm, sandy soil and a sunny location, it ought to come into bloom before frost time. Some keep it growing in pots which are sunk in the ground during summer. Plants grown in this manner can be moved to safe quarters in September without disturbing their roots, and thus interfering with their flowering. This plan is satisfactory provided care is taken to see that the soil in the pot never gets dry. While the Tuberose does not require a great amount of moisture at its roots, it is easily injured by allowing it to dry out. If allowed to become really dry once, it seldom recovers sufficiently to bloom.

Plants that have been grown in the open ground can be potted the first of September, if frost is feared, and allowed to complete their flowering in the house, if great care is exercised in lifting them; owing, however, to the risk of disturbing the growth, we do not recommend this plan, but would protect with frame and cloth at night, or grow in sunken pots.

Another reason of failure is that unprincipled dealers send old bulbs which have already blossomed. The Tuberose blooms freely but once, at least with us at the North, but if from some cause the first stalk is blasted,

an extra large bulb will sometimes recover, and making new centers in itself will throw up and develop two good stalks. However, never buy a bulb which shows an old dried-up flower stalk in its center.

If bulbs have old, dry roots attached, they often fail to start quickly. These roots prevent the soil coming into close contact with the base of the bulb whence the new roots start. Therefore, when you receive bulbs take a thin, sharp knife and cut all old rootlets close to the base of the bulb before planting. You will be surprised to see how soon they will start.

In starting Tuberoses in the spring set the pots in a warm place until growth begins, then set in a sunny window. In shifting to larger pots invert the pot in which the plant is growing and tap it against something hard, to loosen the earth in it, the hand being held under it while this is done. The entire ball of earth will then slip out without disturbing any of the roots. Put it into a larger pot and fill in between it and the pot with rich soil, pressing it down

TUBEROSE BULB.

carefully with the fingers or a stick. Then water well. Be sure that your plants do not get dry, but do not over water. They can be watered most freely after they shoot up, as the flower stalk makes most rapid growth then. As the stalk rises, tie it to a stake to prevent its being broken; when the buds begin to develop give liquid manure once a week. If plants are started at intervals of two weeks during the season a succession of bloom can be kept up during the fall and early winter.

As the Tuberose blooms but once, the bulbs after flowering are useless except for propagating, and with our short summers at the north we cannot grow flowering sized bulbs. It is cheaper and more satisfactory to purchase specially grown bulbs each season from some reliable dealer.

The following notes on Tuberose growing on a large scale from one familiar with its management will be read with interest by those who are fond of this popular flower:

"One source of trouble with Tuberoses comes from bruised bulbs. Bruising to some extent cannot be prevented where large crops are grown, but I have seen bulbs that had been taken up carefully and tied together by their tops that were as clean as the sheet of paper I am writing on, with skins of beautiful, satiny texture.

"The Tuberose can be grown in almost any soil, but the most suitable one is a sandy loam. Even clear sand, properly fertilized, produces fine, clean bulbs. Black, sticky soil induces tardy growth and less solid bulbs. It adheres to the roots and skins, interfering with the first stages of 'curing,' and results in discolored bulbs, and is favorable to the development of 'big-root,' a disease analogous to 'stump-root' or 'club-root' in the Brassica family.

TUBEROSE FLOWER.

"Phosphates and lime-abounding manures are considered best. Well-rotted stable manure is always good. In the south, cotton seed is largely used. It is put in the drills and when composted with muck and leaf-mold it gives excellent results.

"The 'sets,' or off-shoots from old bulbs are planted in rows about thirty inches apart to give a chance for cultivating between them with a horse, and about four to six inches apart in the rows, and from three to five inches deep. When planted the latter depth furrows are made and the 'sets' placed in the bottom. The furrows are only partially filled at first. Subsequently, as the plants develop, earth is thrown into the furrow, and even banked up afterward. This gives the long-necked bulb, which is the ideal form. Such bulbs are supposed to possess stronger crowns, and are

considered better bloomers, though according to testimony of some expert growers, the less elongated bulbs give as satisfactory results.

“The crop is cultivated thoroughly, it being considered very important to keep the soil loose and free from weeds. The ‘sets’ seldom throw up flowerstalks. When this occurs they are pulled up as worthless for future flowering.

“After the first frost the bulbs are plowed or dug up, first cutting off the tops with a sharp hoe or sickle, the soil shaken from the roots and then put under cover. Sun and rain injure them if left exposed for any length of time.

“When Tuberose are grown on a large scale, houses are provided for ‘curing’ them in, fitted up with shelving to provide free air circulation among the bulbs. Artificial heat is provided for such emergencies as ‘cold snaps’ and long spells of wet weather. At the time of digging or very soon thereafter, the off-sets are taken from the bulbs, care being taken to do it in such a manner as not to wound the base of the bulb more than necessary. The bulbs are placed thinly on the shelves, inclined so that the base of the bulb will be higher than the crown. Much depends on favorable weather at this stage. If dry and windy, so as to hasten ‘curing’ of the roots, which are quite succulent at this period, and a proper healing of the wounds caused by taking off the ‘sets,’ all is well. If damp weather prevails at this stage, the bulbs will start into growth in much the same manner that an onion sprouts in spring, and the wounds will mold instead of callousing properly, and the whole bulb suffers. Constant turning and gentle heat to expel moisture from the house help greatly at this critical time.

TUBEROSE IN BLOOM

“Bruising the green skins destroys their porous structure, and evaporation at the bruised place is not perfect and underneath this the bulb discolors and often becomes diseased. It afterward becomes dry and seems sound, but rot frequently develops, which partially or wholly ruins the bulb. When the crown sprouts during curing and is cut off, rot often starts in the neck of the bulb, ruining the flower-stem if it extends deeply.

“When ‘curing,’ and after drying, bulbs should be kept in a warm and dry place. 55 degrees is cool for them.

“Good bulbs can be grown in some parts of the North, though the season is too short to produce showy stock. Georgia, Alabama and Florida produce large bulbs but they are not of solid structure as there is no frost to arrest growth and favor maturity, the plant seeming to grow perennially. On this account these sections are not noted for successful culture of good bulbs. A portion of North Carolina seems better adapted to their culture

on a large scale, and there several millions of the most perfect bulbs yet produced are annually grown. It is the real center of the Tuberose industry, several growers planting from twenty-five to forty acres each year, and supplying the largest dealers in the North for home trade and export. The cuts seen in catalogues of fields in full bloom are misleading, as blooming plants are always pulled up by honest dealers."

CHAPTER XIV. THE GLADIOLUS.

(ORDER IRIDEOE.)

The Gladiolus—which takes its name from *gladius*, a sword, referring to the shape of its leaves—is a flower that fully deserves all the popularity it has attained. It is a favorite with the professional gardener who uses it

to produce brilliant effects in masses as well as with the amateur who grows it in limited quantities because of its great beauty individually. It has steadily been advancing in favor, until the demand for it has become so great that many dealers make a specialty of it, and acres and acres of bulbs are grown. New varieties of it are constantly being introduced and the list of valuable sorts is now a very long one.

The Gladiolus ranges through nearly all colors except blue, and as we have some varieties in which there is a decided purple, it is likely that in time the florist will succeed in producing a blue variety. There are scarlets and crimsons of most intense and glowing brillianee; soft pink and rose, and delicate shades of lilac and peach; pale yellows, pure whites, rich cherry, and dark maroons and purples. Nearly all varieties combine two or more of these colors in the

GLADIOLUS PRINCEPS.

(Largest flowered Gladiolus in existence.)
Originated by Dr. W. Van Fleet.

What good judges think of "Princes."

"Princes surpasses any with which we are at present acquainted."

PH. DE VILMORIN.

"The most magnificent of any Gladiolus I have ever seen."

LUTHER BURBANK.

same flower in striking and harmonious contrasts, and many are blotched striped and spotted in a most peculiar and striking manner. It would seem as if all tastes, so far as color is concerned, must be suited.

For massing, where broad color effects are desired, we have few flowers that equal, and none that surpass it.

For cutting it is unrivalled, its tall spikes showing to excellent advantage in large vases or jars in room-decoration. It is most effective when used in this way, if kept by itself. Few flowers combine well with it. Drop the stalks into the vase or jar, and let them arrange themselves if you would produce the best effect. If scarlet varieties are used add a spike of white or pale yellow to emphasize and bring out the beauty and brilliancy of the darker flowers. They are especially valuable in room-decoration because they last so long before fading. If a stalk is cut when half its flowers are expanded the buds on the upper portion of the stalk develop nearly as well as they would if the stalk were still attached to the bulb. This flower, while having wonderful strength and intensity of color, has nothing suggestive of coarseness about it, as have so many of our highly colored flowers; indeed, it has all the delicacy of the Lily in form and texture and general appearance.

Within the last dozen years expert cultivation has done much to add new beauties to this showy flower. Among these improvements, those of M. Lemoine, a noted French horticulturist, are most noteworthy, beginning with the half-hardy, brilliantly colored, but small Lemoine, and steadily developing in size and strangeness of hue to the immense and beautiful Nanceanus sorts of last season. These sorts may be left in the open ground through the winter in central France, but they will not stand the rigors of our climate. It is in the blotch of the Lemoine varieties that their vivid coloring culminates to an intensity hardly seen in any other flower.

SMALL LEMOINE BULBLETS.

The *Gladiolus* owes a good deal of its popularity to the fact that it is of such easy cultivation that the veriest amateur can succeed with it. Give it a light, rich, mellow soil, keep the weeds from growing about it and that is about all it is necessary to do. It will not do well in wet location, therefore if your garden is low, raise the beds in which you plant it and provide for good drainage.

It does very well in ordinary garden soil without manure, but much better in soil that has been enriched and specially prepared for it. Dig the ground up thoroughly to at least the depth of a foot, and let it lie until the sun has had a chance to act on it. After two or three days work it over with a hoe or iron rake, and make it fine and mellow, mixing in whatever manure is used until it is thoroughly incorporated with the soil. Cow

manure, old and friable, is the best of all fertilizers for this flower, I think, though the phosphatic manures for sale at the agricultural stores is good. They should not be planted until the weather becomes warm and settled, which, at the north, will be about the middle of May. Corn-planting time is Gladiolus-planting time.

I would advise planting the bulbs in groups rather than singly if strong color-effects are desired. Good strong bulbs will send up from two to three flower-stalks each, but these do not give a sufficiently massive and solid effect to be satisfactory in places where a broad show of color is desired. Plant half a dozen bulbs in a group and you get from them twelve or eighteen or more stalks of flowers and the effect is most brilliant and striking. It is well to set a stake—three arranged triangularly is better than one—in the center of each group of bulbs to furnish support for the flower-stalks when they appear. It is not necessary to tie each stalk rigidly to these stakes, but a stout cord or strip of cloth can be wound in and out among them and so fastened to the stakes as to furnish all the support that will be needed without interfering greatly with their freedom of movement. What is to be aimed at is some support for the stalks in case of strong winds which often break them down if left unsupported. They are amply strong enough to stand alone were it not for winds. If planted in rows, a wire strung along stakes parallel with the rows can be used to tie the stalks to, care being taken to wind the wire at point of contact with paper or cloth, to prevent its cutting into the soft structured stem.

GLADIOLIUS BULB.

The Gladiolus blooms in July and August and continues in bloom for nearly two months. By planting the bulbs at intervals of two weeks the season of bloom can be prolonged considerably.

This flower is exceedingly effective for planting among groups of shrubbery or in the border where there is likely to be a lack of other flowers at the time when it comes into bloom.

The stalks should be left after the flowering season is over and allowed to ripen on the bulbs. After the first severe frost take them up in a sunny day and leave them exposed to the sun till the soil falls off readily. Do not store them away for a week or more, but give them a sun-bath daily. Then

cut off all but about six inches of the stalk and tie them together in bunches and hang them up in a dry frost-proof room. I have found this plan much more satisfactory than that of cutting the stalks off close to the bulb. It is quite important that the bulbs should be exposed to the sun for some days before being stored away, as the stalk, if green at the time of storing, otherwise might rot and injure the bulb.

The *Gladiolus* increases rapidly, each strong bulb generally producing three or four new bulbs each season. So extensively is it grown at present that the commoner kinds can be procured very cheaply and a small investment soon gives one all the bulbs that can be accommodated in a garden of ordinary size. The choice named sorts are higher in price, but many of them are really no finer than some of the cheap bulbs. Of course, if you want a particular color or shade it is necessary to order named bulbs, because in buying the cheap mixed collections you do not know what color you are getting. But if you don't care for any particular color you will be well pleased with the low-priced collections, as those sent out by reliable dealers are equally as strong, healthy and floriferous as the choicer kinds costing from half to a dollar to two and three dollars each. By all means have a bed of *Gladiolus* if you want brilliant flowers which require but a small amount of care and labor in their cultivation.

Large bulbs are not a sure indication of fine flowers; some varieties produce quite small bulbs and yet bloom very freely even to the tiny bulblets. Among the most popular varieties are:

<i>America</i> . Fine, soft lavender pink.	<i>Madam Monneret</i> . Rose color.
<i>Augusta</i> . Pure white, blue anthers.	<i>Mrs. Beecher</i> . Rosy crimson, white throat.
<i>Baron J. Hulot</i> . Fine indigo blue.	<i>May</i> . Pure white, flaked rosy crimson.
<i>Columbia</i> . Light orange, scarlet, blotched purple.	<i>Mrs. Francis King</i> . Giant, light scarlet.
<i>Chrysolora</i> . Golden yellow.	<i>"Octoroon."</i> Large, clear salmon pink.
<i>Governor McCormick</i> . Rose, mottled silver, gray and violet, white throat.	<i>Silvretta</i> . Cream-white, blotched carmine.
<i>Isaac Hendrickson</i> . White and pink.	<i>Wm. Falconer</i> . Large spikes, light pink.
<i>Jessie</i> . Rich, velvety red.	
<i>Kunderdi Glory</i> . Cream pink, ruffled.	

Princeps, "King of the *Gladiolus*." Individual flowers are $5\frac{1}{2}$ inches in diameter. Brilliant scarlet crimson flowers. Gold Medal, St. Louis Exposition, 1904.

Shakespeare. Large early, blush white, with rosy blotch.

WHERE TO PLANT GLADIOLUS.

To obtain the prettiest effects from *Gladiolus*, they should be planted in front of shrubbery, the rich colorings of the flowers contrasting strikingly with the green foliage. Plant large quantities of the bulbs for they are inexpensive and are fine for cutting.

CHAPTER XV

The Dahlia

Although a native of Mexico the Dahlia is now grown everywhere, commercially as well as privately, for in our cool autumn days it is now recognized as having no rival—not even in the Chrysanthemum which requires heat and glass protection to develop its beauty. Be-

cause of its stately habit, its profuseness of flowering and gorgeous coloring, many call it the “Queen of the Autumn.”

Its growth is so variable that we now have several distinct forms—each one beautiful and necessary to complete a collection. Its range of coloring, too, is great, but no attempt will be made to describe each of the many hundreds of varieties or to account for the history of each group. Only a few characteristics will be given for each class and some of its more desirable varieties.

Single—This is the simplest form but by no means the least striking or any the

less important, for in this class are found some of the most gorgeous colors from self to the pencilled markings of some of the “Century” group. A single row of petals characterize these and most of them have a center of yellow. These early flowering kinds are particularly valuable for cutting—the flowers being of large size and very graceful on their slender stems.

Some of the most desirable sorts in this class are:

Gold Standard—Pure Yellow.

Merry Widow—Deep Scarlet, immense.

Praxiteles—Velvet Purple, Tipped White.

Pres. Viger—Rich Claret with a row of petals surrounding the center, which classifications place it in a distinct set—a “Collarette.”

Scarlet Century—Bright Scarlet.

Twentieth Century—Rosy Crimson Pencillings on a White Ground.

White Century—Large Snow White. **Pink Century**.

Single—Praxiteles

Peony Flowered Dahlias are those having irregularly curved and twisted petals and are as beautiful as odd. A trial of some of the following will convince one of their merits.

Germania—Bright Carmine.

Glory of Groeneken—Orange Yellow.

• **La Riante**—Deep Pink.

Mannheim—Soft Orange.

Paul Kruger—A beautiful White and Red.

Queen Emma—Hollyhock Pink, the inner petals margined Gold.

Queen Wilhelmina—Pure White of largest size.

Cactus varieties have long twisted petals and are the most numerous embracing all colors and shadings. Being less formal than the Decorative sorts they are most deservedly popular.

Peony-Flowered—Glory de Groeneken

Ambassador—Pure White.

Aurora—Delicate Pink, golden in the center.

Countess of Lonsdale—Beautiful Apricot, very early and free flowering.

Frau Hermine Marx—a La France Pink. **Gunther**—Pure White.

Golden Eagle—Fine Canary Yellow.

Holsatia—Orange Scarlet, very free.

Lawine—Pure White.

Master Carl—Bright Amber.

Parsifal—Pure White.

Perlebilde—White Center Shading to a Blush Pink.

Rother—Dark Velvety Crimson. **Pink Pearl**—New Pink.

Strahlenkrone—Cardinal Red.

Volker—Beautiful Canary Yellow.

Winsome—White Shaded Yellow.

Decorative varieties have flowers of thick flat petals and are intermediate between the Cactus and Show types. Their flatness and substance make them good shippers.

C. W. Bruton—Golden Yellow.

David Haruiri—Orange Scarlet.

Delice—Bright Rose Pink.

Henry Patrick—Pure White.

Jack Rose—Jacqueminot Rose Color.

Jeanne Charmet—Bright Violet Rose.

Kaiserin Augusta Victoria—Pure White.

Lyndhurst—Cardinal Red.

Manzanita—Deep Velvety Scarlet, very large.

Souv. de Gus. Doazon—Orange Red, very large.

Sylvia—White shading to Soft Pink.

Virginia Maule—Beautiful Shell Pink.

Wm. Agnew—Intense Dazzling Red.

Cactus—Aurora

Yellow Duke—Pure Canary Yellow.

Pompons have the same form as the Show varieties, but are dwarf in habit and have small button-like flowers. They are very effective in clumps and for cut flowers are valuable, being such free bloomers.

Little Herman—Deep Red, tipped White.

Elegante—Lovely Pink.

La Petite Barbara—Pure White.

Few realize that seed germinated in a shallow box or pan in March or April will produce sturdy plants and an abundance of these blooms in one season. Varieties, however, cannot be reproduced true in this manner, a division of tubers or cuttings being necessary.

Our short season makes it imperative that the plants be started into growth early else they will not reach the flowering period before

Show Dahlias are of a solid color, compact and round as a ball. Excellent as cut flowers.

A. D. Livoni—Soft Pink.

Black Diamond—Velvety Maroon.

Crimson Giant—Deep Crimson.

Grand Duke Alexis—White Shaded to a Shell Pink.

Miss May Lomas—White suffused Lavender.

Princess Bonnie—Creamy White.

Red Head—Deep Red.

Storm King—Pure White.

This class is often made to include those varieties of essentially the same form, but with stripes and blotches of color known as Fancy.

Ethel Schmidt—White Flushed Pink and Streaked Crimson.

Frank Goodman—Rich Purple Tipped White.

frost. The latter part of March or early in April separate the field clumps so that each tuber has at least one eye and sprout them in either sand or loam. The young shoots may be cut off and after rooting in sand, potted; or the whole tuber may be potted. Don't use soil too rich else the plants will not be vigorous and will suffer when set out. Aim to produce roots and short stocky plants.

Transplant outdoors only when all danger from frost is over so as to give the young plants no check. Being a gross feeder a strong

rich soil is desirable but many have good success by planting in less favorable locations as the Dahlia readily adapts itself to almost any soil or situation except dense shade and wet sour soils. The ground cannot be too carefully prepared and the manure must be thoroughly mixed. Lay the tuber horizontally and cover to a depth of 4 to 5 inches. The distance between plants and rows will depend upon the ground to be covered, but usually best results are to be had by placing the rows 3 to 4 feet apart and the plants 2 to 3 feet apart in them.

We say "plants" advisedly for experience has shown us that fully as good results are to be had by planting them as tubers—popular opinion to the contrary, and we do not hesitate to recommend them.

Decorative—Delice

Cultivate often and deeply at first, but shallow when the plants commence to bloom. The great secret in growing Dahlias (and almost any other garden plant) is frequent and thorough cultivation, never allowing the soil to become hard or baked on the surface.

As soon as the shoots appear from planted tubers, remove all but the strongest one and pinch that off, which will cause it to branch at the surface of the ground. This not only concentrates the strength of the root in this shoot but removes all of those first imperfect flowers common to some varieties, and also makes a strong bushy growth, thereby obviating to some extent the necessity of staking.

During a very dry period it may be beneficial to give the plants water, but we believe that it is more often the case that artificial watering of this and other plants is harmful rather than helpful, in that it is generally so insufficiently done. Water thoroughly or not at all.

Constant stirring of the surface soil will go a long way toward supplying the necessary moisture, in that it will prevent the escape of what is already there.

It is necessary to stake the plants well. The stalks are very brittle and are easily broken by strong winds, especially after the branches become well developed and full of flowers. Unless this is attended to you may have your plants ruined by a sudden storm. Tie the stalks to the stake with raffia. As the plants begin to show their buds, a slight top dressing of fertilizer (sheep manure is good) well stirred in, will then prove beneficial. This will go to the making of fine flowers and not into the growth. Care must be taken not to commence this too soon, as over-fertilization often produces a rank, sappy growth with inferior flowers.

Show—Gloire de Lyon

Never cut blooms during the heat of the day; they are then in a semi-wilted condition. This work should always be done in the morning or the evening.

After the tops have been killed by frost, take up the stalks and leave them in the sun for some days to dry. Cut the stalks off about six inches above their point of union with the bunch of tubers. Do not break the bunch apart when you store it away; wait till spring when you get ready to start your plants into growth to do that. The Dahlia winters well in any cellar that is suitable for potato-keeping. It should not be damp, and it should not be too warm, but it should be frost-proof. It is a good plan to store them away in boxes of perfectly dry sand. This keeps the tubers from shrivelling. Too dry a room causes them to wilt and then harden. Too damp a room induces mold. These extremes should be avoided. A frequent examination of the roots will enable one to ascertain the condition they are in; whatever attention seems necessary to secure the proper conditions can be given.

The Dahlia has been considered a difficult flower to grow, but there is no knack in its culture. One must study the plant and meet its requirements to be successful.

CHAPTER XVI.

THE TUBEROUS BEGONIA.

This plant is rather new among us, but in England it has become immensely popular and great attention is given to its culture. It is superb as a bedding plant, and for the greenhouse has no superior in brilliancy of color and freedom of bloom. Much has been said of the ease with which it is cultivated; its sturdiness of character and its fine profusion of flowers, and all deservedly, we believe. Yet in the matter of climate our English friends have an advantage over us in the cultivation of

this charming plant, which rather fears the broad glare of the midsummer sun and midsummer dryness. To counterbalance this we must be sure to make our bed of Tuberous Begonias where it will be shaded during the hottest part of the day, and provide it with plentiful moisture when growth is well started.

If to be used in beds, start the tubers in small pots, in April, and keep them growing on steadily till the coming of warm weather. Do not keep them in too warm a place, as that induces a "leggy" growth. A temperature of 60 degrees is about right. When warm weather has arrived, plant

SINGLE TUBEROUS ROOTED BEGONIA.

hem out, setting them about a foot apart in the beds. All through the summer months they will bloom in wonderful profusion. In brilliancy of color they are quite the equal of the geranium. The largest grower of them in this country makes the strong claim for them that they are able to stand our frequent and trying changes of weather better than the Geranium or Verbena. They continue to bloom up to the coming of frost, if the seed-pods are cut off as fast as they form.

After frost comes, take up the tubers and dry them off in the sun, and then wrap them in paper and put in paper bags, and hang them in the cellar or frost proof room over winter.

For greenhouse or sitting room culture, start the tubers into growth in spring, using light compost of leaf-mold and sand. Put in small pots at first. Shift as fast as the roots fill the pots, until you have them in pots six or eight inches across the top. If proper attention is given to shifting as required, and as advised, they will be in pots of the size named about the first of June. Do not disturb them after that.

Do not give much water until the tubers get well started. Then increase the supply. (Be sure to provide for good drainage.) When well under growth, syringe all over daily, and give plenty of air.

Give partial shade after the first of June.

After the last shift is made, and the plants begin to flower, apply liquid manure or some other fertilizer once a week, putting it on the plants at night.

After the plants have completed their season's blooming and the foliage begins to turn yellow and fall off, gradually withhold water until the soil becomes dry. Then set the plants away under the benches of the greenhouse or in some room where they will be dry and free from frost, and leave them there until spring, giving no water. Then shake the tubers out of the soil, repot, and start into growth again as advised above.

By a judicious selection of varieties the greenhouse or garden beds can be made a blaze of beauty all through the summer months. The single varieties are doubtless preferable for bedding because their flowers are larger and showier, but for greenhouse or sitting-room culture I greatly prefer the double kinds. Some of these are as double as the Rose, and from the arrangement of their petals they greatly resemble the Rose or Camellia. The flowers are borne on branching panicles, and last for a long time. They are thrown well above the foliage, which serves as a background against which they can display their brilliant colors most effectively. The range of colors is large. Crimson, maroon, yellow, orange, fawn, pink, white, salmon, canary, chrome, terra-cotta, apricot, cinnabar, flesh, magenta, white and vermillion—surely in such a list there is variety enough to suit all tastes.

The brilliant effect which can be produced by filling a bed with such flowers can be imagined, but imagination falls short of reality in this case. The great flowers of the single varieties seem like butterflies hovering over the plants. All who grow this flower will be delighted with it, and I venture the prediction that it will soon be one of our most popular flowers for summer use.

Free Flowering Tuberous Begonias.

Bertini. Grows 10 to 12 inches high. Single, brilliant coloring.

Cristata. Single, with good sized flowers, petals having a curious crest.

Cardinal. One of the best sun resisting Begonias. Single flowers, dark rosy scarlet, 2½ to 3 inches across. Plants 12 to 15 inches high.

Graf Zeppelin. Dwarf habit, 6 to 8 inches high. Flowers double, scarlet.

Lafayette. Flowers double, scarlet, excellent bedder.

CANNAS.

No class of plants has made so great an advance in the past ten years as this. From tall growing kinds with green or light brown foliage and with few or insignificant flower spikes, the entire character of the plant has been greatly modified. The average height is now 4 feet while it was formerly 7. The light brown foliage of the colored varieties has been changed to deep wine color.

CANNA, KING HUMBERT.

Height, 4 feet. Bronze foliage.

Flowers orange scarlet.

The few insignificant flower spikes have been multiplied many fold and the individual flowers greatly enlarged and increased in number. The grand flower spikes of the present improved forms now rival the Gladiolus in brilliancy and coloring and the end is not yet. While there are a large number of improved dwarf, large flowering varieties at present on the market (as will be seen by our list below), far sighted growers, with the great recent advances in view, hope for further improvement in this flower. New seedlings are continually being produced which show more or less advance. The best authorities now discourage the addition of new names, except seedlings which show decided improvement over the present magnificent kinds. The Society of American Florists

at its last annual meeting appointed a committee on Cannas, that the new candidates for popular favor might have their claims relatively considered, to the end that unworthy or inferior seedlings might be rejected and never offered to the public nor disseminated. Much good must result ultimately from this. Madam Crozy, the first very distinct and handsome variety is still one of the best, the petals very often being $1\frac{1}{2}$ inches wide and having the excellent habit of making lateral flower spikes freely. This is undoubtedly destined to remain the standard variety for some years. The ideal Canna as viewed by experts at the present time should have a dwarf, compact habit of growth, with flower stalks held well up and above the foliage, yet not so high as to appear spindling. Flower stalks should branch freely and the flower spikes set closely together on the stalk with individual flowers fairly close on the spikes and with petals of good firm substance. The plant should have a strong robust habit and flower freely, beginning early in the season. Flimsiness either in flower or foliage must be discouraged.

RED FLOWERING, GREEN FOLIAGE

Adolph Grimmer, 4½ ft. Brilliant Light Carmine.
Beaute Poitevine, 3½ ft. Dark Crimson.
Chas. Henderson, 4 ft. Bright Crimson.
Comte de Sachs, 4 ft. Clear Crimson Scarlet.
Fanal, 3½ ft. Brilliant Fiery Cinnabar Red.
FIREBIRD, 3-4 ft. The Best Scarlet.
Garam, 3¼ ft. Fiery Carmine.

CANNA FIREBIRD

Julius Koch, 3 ft. Most Brilliant Blood Red.
Matador, 4½ ft. Scarlet, Marbled Cerise.
Milwaukee, 4 ft. Dark Maroon.
New Chicago, 4½ ft. Brilliant Scarlet.
The Express, 2½ ft. Scarlet Crimson.

BRONZE LEAVED VARIETIES.

David Harum, 3½ ft. Vermillion Scarlet.
Egandale, 4 ft. Currant Red.
Graf Waldersee, 4 ft. Orange Scarlet.
John Farquhar, 4 ft. Salmon Red, Streaked Orange.
King Humbert, 4¼ ft. Orange Scarlet—the finest to date of the Bronze-leaved.
Leonard Vaughan, 4½ ft. Bright Scarlet.

New York, 5 ft. Deep Bronze foliage, rich Scarlet flowers.
Wm. Saunders, 3½ ft. Deep Rich Scarlet.

PINK SHADES, GREEN FOLIAGE

Hungaria, 3½ ft. Purest LaFrance Pink with Satin Sheen.
Mrs. Alfred Conard, 4 ft. Beautiful Salmon Pink, large flowers.
Venus, 3½ ft. Soft Rosy Pink with Cream mottled border.

VARIEGATED RED AND YELLOW SHADES, GREEN FOLIAGE

Mme. Crozy, 3½ ft. Vermillion with Gold border.
Multiflora, 4 ft. Bright Vermillion with Yellow border.
Queen Charlotte, 4 ft. Orange Scarlet, Gold band.
Souv. de A. Crozy, 4 ft. Crimson with Yellow band.

YELLOW SHADES, GREEN FOLIAGE

Buttercup, 3 ½ ft. Clear Golden Yellow.

Charles Lutz (Improved Burbank), 4 ½ ft. Very Large Yellow.

Dwarf Florence Vaughan, 3 ft. Same color as Florence Vaughan but not so tall.

Florence Vaughan, 5 ft. Yellow Spotted Crimson.

Gustave Gompper, Golden Yellow, lower petals, Splashed Red.

ORCHID FLOWERING CANNAS

Allemania, 4-5 ft. Green Foliage. Scarlet and Yellow.

Burbank, 5 ft. Green Foliage, Clear Yellow.

Frederic Benary, 5-6 ft. Green Foliage, Red Yellow throat.

King Humbert, 4 ft. Bronze Foliage, Orange Scarlet.

Long Branch, 5 ft. Green Foliage, Bright Crimson bordered Yellow.

Louisiana, 6 ft. Green Foliage, large Vivid Scarlet.

New York, 5 ft. Bronze Foliage, Rich Scarlet.

WHITE SHADES, GREEN FOLIAGE

Improved Mont Blanc, 3 ft. Large Pure White.

VAUGHAN'S CANNA BED COMBINATIONS

We recommend the following as most desirable for beds of solid colors. For round Canna beds 7 ft. in diameter, 19 plants; 10 ft., 37 plants; 13 ft., 61 plants, set 18 inches apart.

Beaute Poltevine
Buttercup
David Harum
Egandale

King Humbert
Milwaukee
Souv. de A. Crozy
Firebird

Dw'f Florence Vaughan
Florence Vaughan
Mad. Crozy
The Express

CANNA BED No. 1

Round, 7 ft. across. 1 **Florence Vaughan** (for center); 6 **Egandale** (middle row); 12 **Mad. Crozy** (outside row). One of the prettiest possible beds.

CANNA BED No. 2

Round, 7 ft. across. 1 **David Harum** (for center); 6 **Dwarf Florence Vaughan** (middle row); 18 **Salvia Zurich** (outside row). One of the prettiest possible beds.

CANNA BED No. 3

Round, 10 ft. across. 19 **King Humbert** (for center and two rows); 36 **Pennisetum Longistylum** (outside row).

CANNA BED No. 4

Round, 10 ft. across. 19 **Florence Vaughan** (for center and two rows); 18 **Milwaukee** (outside row). This makes a good combination.

CULTIVATION AND CARE.

The Canna being a native of sub-tropical America, requires in general a warm temperature. If grown from seed they should be sown in heat during February or March. If soaked in tepid water for 24 hours the germination will be more rapid. A mixture of sand and leaf mould is the best, covering $1\frac{1}{4}$ to 2 inches deep. The Canna is a good feeder and the soil can hardly be too rich and porous—equal parts rotted manure and sand forms a good soil for them. If the seed is planted singly in small boxes, all the roots will be intact and will prevent dividing when taken out of the seed boxes. The growing plants should be kept in a temperature of 60° and shifted as often as necessary into larger pots. With proper care they will fill 6 inch pots the 1st of May. The first of June is about the proper time for planting out of doors where they should have rich soil. They do best in a sunny place, but should not be exposed to severe winds which are liable to damage the flower trusses and leaves.

Before the stalks are badly frozen in October, the large clumps of roots should be lifted and stored away in boxes covered in part with dry earth or sand in dry, frost proof sheds or better under the greenhouse stages where they should be examined occasionally to see that they are not too dry or too wet. The temperature while in storage should not go below about 45° . Severe chilling is very apt to start decay in the stalks which is difficult to arrest, therefore, a temperature inclined to promote growth is safest even if some sprouts are thrown out prematurely.

NOTABLE CANNA NOVELTIES

Firebird—The best Scarlet Green-leaved Canna in commerce.

Ehrenfels—Fine Orange Yellow, deep Green foliage.

Charles Lutz—Massive foliage, and immense Yellow flowers.

Gustave Gompper—A grand Golden Yellow, splashed Red.

Aigle—Foliage Green, tipped Bronze, large clear Crimson flowers.

BORDER PLANTS FOR CANNA BEDS

Centaurea Gymnocarpa—12 inches, finely cut silvery gray foliage.

Coleus—12 to 15 inches, small leaved varieties are best.

Panicum Plicatum Fol. Nives—18 to 24 inches, variegated grass-like foliage.

Pennisetum Longistylum—24 inches. Graceful white plumes—grass-like foliage.

Pennisetum Ruppellanum—similar to *Pennisetum Longistylum*.

Salvia Zurich—12 to 24 inches. Brilliant scarlet flowers, dwarf.

CHAPTER XIX.

MISCELLANEOUS BULBS FOR SUMMER GROWING.

THE CALADIUM.

A very effective plant for the summer decoration of lawn or garden. Its foliage is very large and showy, leaves often growing three feet long and eighteen inches wide. It is generally planted with Cannas, Musas or other showy foliage plants for which it makes an admirable setting. Such a bed composed of a center of Cannas, either foliage sorts or the large-flowered Crozy varieties, with a border of Caladiums, has this advantage over any other bedding arrangement, that it is not dependent on a flowering season for its attractiveness, but is always handsome.

These plants should only be planted after danger from frost is over; give rich soil and

CALADIUM ESCULENTUM.

considerable moisture at the roots. Keep the bulbs from frost in winter, storing like a Gladiolus.

The fancy-leaved Caladium is of more delicate habit than the common variety and needs a high temperature to bring out its full beauty. We know of no more beautiful foliage than this, combining various shades of green, rose and milky white, scattered in blotches or veinings as fine as lace-work. These bulbs require careful attention and should be grown in a warm conservatory or hot-house with plenty of moisture.

HYACINTHUS CANDICANS.

This plant is better known, perhaps, as the Cape Hyacinth. It is classed among the hardy bulbs by many dealers, but I do not consider it so; at least not sufficiently so to

FANCY LEAVED CALADIUMS.

feel warranted in calling it a hardy bulb, though I have had it come through all right in the open ground in a very mild season. The safest plan is to take it up in the fall when you lift your Gladioli and winter it in the cellar or some frost-proof room. It is a useful plant on account of its tall and stately habit. It throws up a stout stalk three or four feet in height, and bears a spike of drooping, bell-shaped white flowers. On account of its tall growth and its color, it is very pleasing among scarlet Gladioli. It is fine for planting in groups among the border. Placed where it can have a background of evergreens its white bells are displayed to excellent advantage. It needs no support, but is most effective when planted in clumps. It likes a rich, sandy loam.

HYACINTHUS CANDICANS.

some respects, but wholly distinct as regards its flowers. They are star-shaped and vary from white to yellow. Desirable.

ALBUCA.

A bulb of recent introduction, resembling *Hyacinthus candicans* in

BESSERA ELEGANS.

A Mexican plant with grass like foliage. Flower-stalks a foot in height, bearing clusters of scarlet bell-shaped flowers, marked with white. The stamens of the flowers are blue. An exceedingly free flowering little plant.

MILLA BIFLORA.

A very charming flower of the purest white; large and borne in small clusters on stalks a foot or more in height. The petals are thick and waxy, and the flowers last for a number of days after cutting. Very desirable for pots. One bulb often sends up four or five flower-stalks.

A very pretty plant which should be treated like the *Gladiolus*, when grown in the garden, as it is not hardy. Excellent for pot or garden culture. Flowers in long spikes.

CHAPTER XX.

THE AMARYLLIS.

Few plants are more popular in sitting room or greenhouse than the *Amaryllis* when well grown, and few plants seem to be less understood.

AMARYLLIS.

I often get letters from persons who write that their *Amaryllis* have never bloomed. They tell me that they have tried all kinds of culture with the same lack of success; their plants produce leaves but no flowers. Inquiry generally shows that they keep their plants growing the year round, simply because some of the leaves remain green, and this is the cause of failure to secure flowers in nine cases out of ten.

The *Amaryllis* can be grown successfully by almost any one if the habits of the plant are studied and understood. It is with this as with most plants—intelligent observation is required. Watch the plant. By doing this you will soon become familiar with its wants. When the habits and requirements of a plant are understood, it is comparatively easy to grow it successfully.

The "knack" of successful *Amaryllis* culture consists in giving alternate periods of rest, (which should be as complete as possible), and growth. When new leaves appear, increase the

supply of water. Give warmth and plenty of light, and, if needed, some liquid manure. When the production of leaves ceases, and some of the foliage turns yellow, you are to understand that the growth for that period has been completed, and the plant desires rest. To gratify the wants of the plant in this respect, withhold water almost wholly. Put the pot away from the light and aim to keep it dormant until another period of growth begins. You can always tell when the plant has rested long enough, for it will begin to grow, even if in an almost dry soil. As soon as signs of growth are seen, give water, warmth and light as directed. Once a year the old soil should be removed from the top of the pot, and fresh earth made up of loam, leaf-mold or turfy matter and sand, in equal parts, substituted for that removed. Have the pots well drained, as too much water about the roots of the bulb soon injures them. Young bulbs are produced about the old plants. These should be removed, and all the strength of the plant thrown into the flowering bulb. When eared for in this way most varieties will bloom twice a year, and oftener, in many cases. Each flower-stalk will bear from three to five large, lily-like flowers, very rich in color and marking. Some are a rich crimson, banded down each petal with white; some are a rich rose-color, and in some white predominates. The flowers last from a week to ten days if kept in a cool room after they expand.

This plant does not like to have its roots disturbed often, therefore a partial removal of the soil is better than complete repotting.

The following are some of the best:

Belladonna Major. Blooms in the fall, and is a beautiful free-flowering variety of great fragrance. Color, shell-pink.

Burbank's Vittata Hybrids. Unnamed seedlings produced by the famous hybridizer, Luther Burbank. The flowers are unsurpassed for their richness of color and markings. Spikes are usually from 2 to 3 feet in height, bearing from 3 to 5 enormous trumpet-shaped flowers, measuring ten inches across. For real distinctiveness in the *Amaryllis*, these hybrids are unequalled.

Formosissima. One of the best of the *Amaryllis* family, having beautiful dark scarlet flowers, strangely marked. If planted outdoors after danger from frost is over, it will flower during the summer and can then be lifted in the early fall and carried over the winter like the *Gladolus*.

Johnsoni. The old favorite, and almost too well-known to need description. The immense trumpet-shaped flowers, which measure 6 to 8 inches across, are borne on strong, fleshy flower spikes, and are of rich, deep velvety crimson, each petal having a broad white stripe, contrasting beautifully with the deep red color.

Crinum Kirkii. Flowers very large, beautiful and very fragrant. Petals pure white, banded with violet through the center. Each cluster contains from eight to twelve flowers, and each bulb generally sends up two flower-stalks at each period of flowering.

Essentials of Success With *Amaryllis*.

Start bulbs growing in late fall, repotting in good soil and bring to full light. After blooming in winter or spring, induce the strongest growth possible by applying fertilizers. When all possible danger of frost is past, plants may be plunged in the soil, in a shady situation. In the early fall take the pots from ground and gradually dry off bulbs and rest until wanted to bloom.

CHAPTER XXI.

THE CALLA.—(RICHARDIA ÆTHIOPICA.)

One of the most popular of all house plants. Few collections will be found which do not include it. It is very ornamental even when not in bloom, because of its large green foliage, borne on stout stalks from two to three feet high; when the great, white, waxen flowers appear, the plant is doubly attractive. It is admirably adapted to the ornamentation of rooms, the flowers lasting a long time. They are often called Arum Lilies, and are a favorite Easter decoration for churches.

CALLA

It should be potted in muck or loam enriched with old and perfectly rotted cow manure, to which some sand should be added. I do not advise keeping the pots standing in a saucer of water. I have long grown this plant very satisfactorily by planting it in the above compost in well drained pots. Water liberally, using warm water after the first of November. I prefer to apply all the water the soil can take up daily, to keeping its roots standing in mud, as they must if it stands in a saucer full of water. I am well satisfied that stagnant water injures its roots and interferes with blooming. If a porous compost is used and the drainage of the pots is perfect, the soil will never retain enough moisture to cause souring.

In June set the pots out of doors, turning them down on their sides and give them no further attention until September; of course the foliage dies off. In September take the roots out of the old soil and repot, and as soon as water is given they start into growth. In this way one can always succeed in growing fine plants which will give fine flowers in winter. The plant is a native of the Nile, where it blooms during the time of rains. After the rainy season is over, the soil in which it grows becomes dry. The treatment I advocate imitates the conditions under which it grows in its native country.

The Spotted Calla, (Richardia alba maculata), is a variety of the Calla

having foliage of a rich green, thickly marked with white; the markings more in the form of splashes than spots. It is of smaller habit than C.

Aethiopica. The flowers are pure white, with dark throat. The foliage makes it an interesting plant for the window garden.

The Black Calla, (*Arum Sanctum*,) is a native of Palestine, and is chiefly valuable as a curiosity and for its associations.

The Little Gem, is a miniature but perfect white Calla, originated in Jersey, and which has had a great success. It is as free of bloom as the ordinary Calla, and is altogether a very attractive little plant.

The Yellow Calla, (*Richardia hastata*,) is another comparatively unknown member of this family, and should be one of every collection; it is diminutive in size, and a pretty companion

SPOTTED LEAF CALLA.

plant to the Little Gem Calla.

Elliotiana produces immense, rich, lustrous golden-yellow flowers of great beauty, individual flowers often measuring 4 to 5 inches across. The foliage is similar to that of the spotted calla, but more abundant, the dark green leaves, with their translucent, creamy-white spots, being longer and more vigorous in growth. It comes into bloom about 12 to 14 weeks after planting, and is the best of the yellow callas.

The treatment of all the species of this family should be similar, and their blooming periods are nearly or quite the same.

FIELD CULTURE OF BULBS.

A large grower of Callas says that he plants his dormant bulbs in the open ground after the 20th of May, and obtains a remarkable growth of leaves and flowers in less than eight weeks, many single bulbs having four splendid flowers, and others following. In the fall the bulbs are harvested like potatoes, the tops mowed off with a scythe, the bulbs lifted are well ripened, then placed in a cellar until May.

CALLA BULB.

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