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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Preface - explain author's background, offers + indebtedness - also his bias!

How to use Bulbs in Gardening, incomplete?

What makes a bulb "popular"?

The Beauty peculiar to bulbous flowers.

A - Z.

Achimenes -	Freesia	Puschkinia
Allium	Fritillaria.	Ranunculus
Amaryllis (not Hippeastrum)	Galanthus (Pagea?)	Rigidella (omit?)
Anthoxyza (not written?)	Galtonia	Schizostylis (Romulea)
Babiana.	Gloriosa	Scilla
Bessera	Habranthus Hymenia (Zeus)	Sparaxis
Bloomeria	Hyacinthus. (incomplete)	Sprekelia
Brunsvigia (omit)	Hymenocallis	Sternbergia
Brodiaea	Ixia	Tecophilea (n.w.)
Bulbocodium.	Ixia	Tigridia
Calochortus	Ixiolirion	Triteleia
Camassia	Lachenalia (rec.)	Tritonia
Chionodoxa	Lilium Lapeyrousia	Trophaeolum
Chlidanthus	Lycoris	Tulbaghia
Colchicum (n.w.)	Milla Metasphaerula	Tulipa
Cooperia.		
Cyclamen (n.w.) (n.w.)	Montbretia	Vancouveria
Crocosmia	Muscari	Watsonia (omit)
Crocus (revise)	Narcissus (inc.)	Zantedeschia
Cyrtella	Nemastylis	Zephyranthes.
Cyrtanthus	Nerine Ornithogalum	
Erythronium	Oxalis	
Eucharis	Phaedranassa	
Eucomis (nw.)	Polianthes	

Preface –

Gardening at best is a personal matter, circumscribed ~~by the~~ in its scope by the zeal of the gardener, the fluctuations of his purse and his skill in working on his own plot of ground with its peculiarities of terrain and under his own skies that measure or reflect the weather about which he can do nothing much very little.

The writer holds no brief for his excellencies! His gardening is like most gardening, done nights and holidays, sometimes with zest, sometimes with grim resolution and sometimes too late or not at all. His mistakes have been legion, many of them incredibly stupid. Some must be accounted for as due to his insistence on doing things that were not suited to his region, like foolhardy trial of plants that had a slim chance even of survival in his climate & or his resources.

Most of his garden life has been spent ~~there~~ near Washington DC where winters are variable but may bring sub-zero temperatures, when spring always brings some late frosts, where summers are wet & humid with torrential thunderstorms, where autumns are rather fine with a killing frost about October 10-15 and then fine weather well into December. Ha

The garden plot which in no way merits the term "garden" has been dedicated chiefly to his two major hobbies, narcissus and the azaleas of the Obtusum sub-series, (has also) been the scene of endless trials carried out to satisfy his curiosity. More than one series of plants has been brought cherished for several years & then either given away or dumped nice notes and photographs has been gathered. This naturally does not make for a calculated beauty but

in its broken terrain, very little altered in contour, with its essentially southern slope that gives good drainage both in soil and air, one area after another has been deeply dug, enriched with as much garden compost as was made and as much commercial fertilizer as the season allowed,

~~Preface~~ - Preliminaries -

Gardening at best is a personal matter, circumscribed in its scope and activities by the zeal of the gardener himself as he works in his own particular plot with its peculiarities of site and terrain and modified by the climate of the region. It has been so for the writer of this book, who probably has been as slow in arriving at understanding as any other gardener anywhere. Indeed if there is any merit in what is to follow aside from the data gathered generously from books and fellow gardeners, it is the fruit of his mistakes that have been legion.

Most of his garden life has been spent in the neighborhood of Washington D.C. a region that comes in for considerable derision for its climate and which is known to its gardeners as an area in which the soil as we come to it, is by no means ready for immediate use. To old residents' complaints against the climate seem somewhat laughable since there are other urban centers on the Atlantic coast that show almost identical conditions in temperature and humidity.

The soil, however, does not seem so laughing a concern. It responds quickly and generously to care and intelligent treatment. What the gardener has to do therefore, here, as anywhere, is to learn the limits within which he may alter natural conditions to his advantage without unreasonably upsetting the natural patterns, since it is only wise to work with and not against nature, if one wishes a not too arduous life.

Although there have been three plots on which he has worked, most of practical experience has come over some nearly thirty years on one first originally purchased because it was at hand nearby to receive ~~nearby~~ and because the soil seemed basically good and because the terrain - a gentle gradual slope to the south seemed favorable to other things than hills in which he was even more interested.

Like other plots of land in this area, traversed by low

ridges, with small ravines & narrow flats through which run streams, gentle enough ordinarily, but raging torrents in times of summer thunderstorms, the soil is by no means uniform. The whole ridge, once heavily wooded, but cut over before his purchase, is basically a mica schist, is a deep, easily dug reddish soil full of sparkling mica bits, darkened to deep brown in the areas where years of humus had formed, and in the bottom flat leached to pale coffee color, and starved by the long invading roots of elm and locust growing beyond the fence and outwitting all attempts to keep them in check. Occasional long veins of quartz and iron stone run through it all & give me added labor in deep digging.

As for all soils in this area, and particularly for the growth of ericaceous plants, his chief concern, this soil naturally acid in reaction cried aloud for more & more humus. Leaf compost have been used in all the areas that have been specially dug over and in hope [illegible] the possible profit of compost, commercial peat has been bought in as large amounts as the current prices allowed. After some experimenting it was easily shown that it was better in the end to apply both compost and peat lavishly, altering in this way, one area after another. In the earlier days ~~before the auto motor driven vehicle had supplanted other forms of locomoting~~ animal manures were available and were used, particularly as reservoirs for thrift planting and in trenching areas for show daffodils. Bonemeal and is very limited amounts ordinary commercial fertilizers have aided him over the barren years when compost & peat were limited.

Very little has been done to alter the terrain and no native growth was removed until something else was to be put in its place.

The main purpose of the area, which does not merit the

term of garden, was to allow the writer to grow as many kinds of plants as his curiosity and means permitted. These plants, literally hundreds, have come and mostly gone, the failures composted, the successes, either moved into permanent locations or given away to others who might want them permanently.

Aside from the continuous and ever increasing preparation of soil areas, the major problem on the site, has been the handling of the trees as they developed, a problem that relates to gardening through root competition and shade. It is to mistakes in the latter that most ~~of our~~ failures can be laid.

The region by nature is one of mixed hardwoods with various oaks the dominant genus. Maples, liriodendron, hickory, gums, + beech are the more frequent genera with elm, hornbeam, locust, sycamore in smaller numbers along the creek bottoms + weed trees blown in from God knows where, ~~etc~~ such as box elder, paulownia, catalpa – a bird sown like the pestilential mulberry and bird cherry follow closely. Of smaller trees or near trees, the flowering dogwood is dominant, with shadbush its runner-up + lindera along the creek.

Few trees of any size were on the place at purchase time and they were individuals not worth the felling in the opinion of the former owners. Between them and almost completely covering all were the stumps of dogwoods roughly cut down when the timber was cut. Because of their greedy, + ~~fa~~ invasive roots all the tulip poplars were felled save three large specimens that have grown larger and fatter at the expense of garden soil preparation. The oaks + gums were cherished, as slow growing and deep rooted. The dogwoods were carefully pruned, reducing the stump sprouts to one or two, rarely more + digging up dozens that were too thickly sown.

The basic error in this treatment has been the too generous preservation of dogwoods. This shocks those who have never gardened with them. They respond to care quickly & generously. Their eager roots will and do make a mattress of fibrous feeding roots that will invade in one season all the deep dug beds nearby. Their tops will thicken & broaden & have so grown, that now the ubiquitous gray squirrel can travel from top to top, nearly from one boundary to another. Meantime the shade has reduced the flowering of nearly everything beneath them. Furthermore, the upward canopy of bloom is best seen by the neighbors!

The property is shaped like a T with a winding path, once an old cart road, kept for service from the leg of the T across the entire area to the far top of the letter. Whatever lies to right or left of this has been put there — perhaps at the whim of the writer, but in dogwood time, as thousands of daffodils are going out of bloom & thousands of azaleas are coming in, there is a unity of conception that will satisfy the captious and unwelcome visitor who sees only a composition & cares not for detail.

There are no buildings on the area, save an old tool shed, now falling to ruin under the continued onslaughts of the small troupe of uninhibited small fry, a small range of cold frames and a little pit greenhouse with no heat. A fence with a locked gate in theory prevents visitation and was erected only to protect the study collections from the same uninhibited small folk and equally uninhibited adults who have collected not only plants but their permanent labels as well.

The major work collections are of azaleas chiefly of the Obtusum sub-series and narcissus. There is no need to record all the other things that have been planted, but it is against this background and treatment that most of the writer's experience has been worked out and it is to this site that he refers in the following text unless there is some specific reference to another, for like all gardeners, he has gardened

Wherever he has lived, even in one dismal season in New York city when he planted his bits of roots of roots forsythia in the faces of a great rock cut just below the dull apartment where he existed. Foolhardy - of course but? Four years in California brought a violent contrast in every factor & a garden by proxy in the Gulf region of Mississippi adds other bits of knowledge.

Like any other gardener he is endlessly indebted to many persons & their gardens. Miss Hunkwardt's garden at Wellesley Farms, Massachusetts, suffered his visits for all of the two years of his Cambridge living. To it, & to her, his debt is without measure. To his professional office colleagues he is also obligated and happily records it. The U. S. Plant Introduction garden at Glenn Dale, Maryland has not had much to show of bulbs "hardy" for that region, but its cold houses have been filled at times with the bulbs from Africa or South America that are or could be the particular delight of the Pacific Coast gardener and to some degree as yet unproven of gardeners from Southern California eastward across Texas to the Gulf.

If further testimony of his indebtednesses are needed let them be covered in the one statement that he himself recognizes his gardening for the poor thing that it is, with his small successes due in every case for the learning & wisdom of others than himself. If indeed he is justified in presuming to write a book, a project he has feared to consider as a frightful responsibility, it lies in the fact that gives values of sinners confessions, a warning to others who probably will not heed - or the dearer hope, to the chance that he may be able to quicken in some reader, a sharper vision of the loveliness that resides in all nature.

To this confession also may [illegible] more quibble as to what all this may have to do with his own small plot, possibly city town and overshaded

by houses rather than trees, the answer is easy though possibly not immediately simple.

Each one must start with what he has. In order to intelligently and reasonably modify it, he must know his own soil & its possibilities, his own climate and the true nature of the plants he means to grow, before he can translate another's testament.

A word about this last seems important. One is likely to consider his plants first of all like any other commodity that he buys of a merchant. And as is so often the case with other store bought things, he is prone to consider the store & the shopkeeper, in this case also the nurseryman & his nursery as the pattern beyond which he need seek no further. This is not often true and in the field of bulbs, our immediate concern now, it is most unfortunate. It is too easy to believe that because one may buy a neat package of sound bulbs, almost as easily as a tube of tooth paste, their use is as obvious. Two other generalizations current in much writing, are harmful, namely the use of the terms "spring flowering bulbs" and "Dutch bulbs".

Bulbous plants are by no means limited to genera that flower in spring and for some parts of these United States, genera that flower later are more dependable — for reasons to be ~~enumerated~~ set forth later.

It is no slight to the marvellous nurserymen of the Netherlands that we cavil at the use of the term "Dutch bulbs". Probably not one of all the host they grow so magnificently well, was native to that extraordinarily well husbanded country. Few in all probability would be forever happy if abandoned to the ordinary processes of nature in that land.

This thought need not disturb us too much & we can take comfort if we consider that our own United States are not particularly rich in bulbs. Think it over — a few lilies, dogtooth

Zephyranthes, Hymenocallis

violets, Camassias, Brodiaeas, Calochortus, and then we comes to the endless procession of small fry, none of them too startlingly beautiful in themselves. We do have many other perennials with root systems modified one way or another until they serve many of the same functions of the strange modifications of the true bulbs. ¶ Shorely we must therefore face the cultivation of bulbs, should we want them, with the same sort of intelligence as the Netherlands growers? The difference is this: there they are grown as a crop, for the annual harvest & merchandizing of their roots; here, we try to incorporate them into the permanent but usually quite artificial plantings that we call our gardens for their flowers.

Except in that somewhat dubious and certainly most difficult form of gardening usually called the "wild garden", all gardening is highly artificial. In it we substitute for the plants native to the area those that we elects, whether for the beauty of their flowers or for the value of their fruits. In most gardens these are plants far removed from the plants that once grew on the land before man put in his appearance. They may be wild things from other parts of the world, long domesticated but suffering no other improvement than that of their original selection or they may be the end products of man's work, whether, of selection, crossing or actual hybridization. In such they are often far removed from their ancestors and no longer capable of comfortable living without man's further interference and aid. The lily is a good example of the wild plant that has been brought into gardens for better or for worse, but to some selection and more recently, treated to the processes of crossing & hybridization. The tulip is a fine example of the wild plant long given over to man's processes. Should one doubt it, he need only compare the current races of garden tulips with their putative ancestors in so far as we know them.

Since the average gardener does not limit his gardening to any one type of plant material, using the convenient classification of tree, shrub and herb, it ~~must~~ devolves upon him to find out how he may use bulbs in his mixed gardening in such a way that those conditions suitable to the life of a bulb can be had ~~the~~ adjacent to the same conditions that suit plants of other types and growing cycles.

Perhaps the easiest way to approach this phase is to assume as a working hypothesis that the ~~vegetative~~ growth cycle of the bulb is of short duration and to remember that within that short period of time, the plant must come not only to its desired flowering but must furnish itself with whatever it may need to assure flowering the next season, before it vanishes from the garden scene. They are largely but not in all cases, somewhat like garden annuals - transitory things, valued for their outburst of bloom. Unlike the annual that perpetuates itself by seed, the bulb must make enough food, ~~elaborate enough food~~ stuffs to refurnish the supply exhausted in the process of blooming. In some cases, as witness the narcissus, this means only an addition to the store maintained in part by the long-lived root system: in the tulip, it means the manufacture of an entire new bulb or bulbs, a process more commonly understood for the gladiolus or crocus, corms rather than bulbs.

There are gardeners who knowingly or unknowingly accept this situation and actually use some bulbs as annuals. In many parts of the country and in those gardens where one wants a specific type of garden effect, it is much wiser to use such bulbs as Darwin or similar tulips or Dutch iris as annuals, buying and planting anew each autumn.

For the other types of bulb be it hyacinth, daffodil or Spanish, the gardener must choose a site where the ripening leaves may decently finish their growth cycle and the

inactive bulb hidden in the earth suffer no damage from the cultural practices that go on above it, in due season to renew its root activities in the Autumn, before the cold of winter.

More will be said of this and of the idiosyncrasies of growth in particular genera or species under their separate headings, but one will recall from the endless books he must have read, the endless discussions about lifting and storing bulbs, about what may or may not be planted above them to hide the earth left naked by their ripening foliage, by the subterfuge of planting certain species in the rock garden in which if well done the unity is established by the rocks themselves and certain "ground covers."

All of these matters, are data that can and should be known to the individual gardener himself. He will know how long a growing season his region provides, whether or not rain will fall every month of the year, if killing frosts will come unseasonably in autumn, if autumn leaf growth to wreck autumn leaf growth on those species that come from areas where autumn rains after a dry summer bring on leaf growth and winter flowering. He will know also which of the gardeners practices he is willing to employ, artificial drainage, special soil mixtures, sites chosen for extra warmth whether it be of a sunny slope, a wall backing or even that not inappreciable warmth from the cellar wall itself. He will know also whether his garden design admits only of the formal use of bulbs for their flowering effects or whether, as on the writer's hillside, they can take their place happily or half-heartedly to fight with annual weeds, to pierce through the autumn leaf fall sodden from winter, to spread,

by seed in Holm, to brave the mid-October frost sometimes successfully, sometimes to disaster.

And so the reader of this book must measure what he reads against his own garden & gardening. Then he may safely embrace what suits well, modify what advice that need interpreting and refuse to have any dealings with the rest. He may also find that his garden will provide success for plants that are either unhappy or failures here, as will certainly be true for bulbs and corms from the South African and tender plants from the tropical Amazon basin or from the continual chill of the South American Andean plateau.

Beauty?

Although it has been better said by others that beauty is incommunicable, and I have proven it before this, there is for me ~~such a~~ so special a form and expression of beauty in many of the bulbous plants as they push into flower that I must – perhaps fail once again to find the words to set out what I see.

It is possible to set aside the emotional response one feels on finding the first flowers in early Spring, even in late Winter, for should one wish to be coldly rational, he can, indeed he must remind himself that many a member of the mustard family has been ready to flower all winter, that more than one forget-ful viola has bloomed, short-stemmed or stemless, that naked jasmine, Thunberg's spirea, Japanese quince, forsythia, the 2 most fragrant honeysuckle, all have borne flower bud bursting & fatness waiting for a few warm nights, that the gray or brown odorous or pollen bearing flowers of wood & field & swamp have all been ready – skunk cabbage and alder catkin, elm flower and stamen-extruding maple. It is all this. With or without emotion he can say – ~~the~~ these all wait for the sun & warmth, and so they do.

But so in fact do the bulbs themselves, the pushing sheathes of snowdrops, crocus, Iris histrioides and its kin from the Near East.

The difference, if there is one, lies in the fact that among the bulbs it is the whole plant that lies waiting, ~~eagerly~~ eager to push through, with the tender flower often ~~pushing~~ ahead of the enfolding leaves. The entire plant gambles on its flowering, its bloom – no cautious, temperate single ~~flower~~ one here, one there, with little lost if snow fall or frost destroy – but all at once – lavishly.

The very quickness of the response makes possible the observation of growth's movement in a fashion that is difficult later in the year when growth may be almost as swift though far less obvious. ~~Motion~~ Movement involves motion, one of the lesser attributes of the plant world, since it is never free motion but movement

from a fixed point, like certain forms of dancing in which the stationary figure suggests all by the movement of the body, & the hands.

The movement is always upward, always, even if later the equilibrium must pull down the tip to stabilize the ascending curve or curves. The rising column of hyacinth leaves, their tips almost interlocked to shield the fat bloom stalk within, push upward, part, fall back their tips toward earth while the column rises, the flower buds packed tight against the stalk but all upright in their placement. The height reached, the bells, like the leaves beyond, fall back from the stalk to form the full bloom inflorescence; then later with the withered corollas unloosed, the growing seed pods pull back against the stem. The stalk topples, the leaves grown flaccid by warm June, fall also, the whole a tumbled mass to wither in the mold.

The crocus, far earlier, repeats this same pattern in a more simple form. First, the thin white enveloping sheath pushes up, bursts at the tip, sets free the dark green silver striped leaves that fall back, each in its own fine curve to earth, leaving the inner growing sheath from which rises the bloom, slim-pointed to burst into a patterned star (or flatter like the later garden crocuses to open with broad round segments to make a bowl, smaller in size but almost the reverse of the back curving leaves beneath it. and fall sideways as stars do

Snowdrops and later the daffodils, send up their green veined sheaths from which the leaves emerge, two-ranked rising ~~with the~~ close to each other until the pushing flower stalk parts them, with its upward thrust like the spear that it resembles - green in sheath with the vertical, translucent sheath at the head that first bows right or left and then breaks to set free the flower.

The snowdrops with their nodding blooms pull over the stalk and as the later seed pod develops bow down lower and lower till the green head touches the earth from which it rose so short a time before.

Not so the daffodil.

Here the flower head bows too, but with a keener thrust breaks the sheath & leaves the flower free, held at an angle that is often peculiar to species or variety, whether it be down-hanging as with the Angels Tears or the oldest white trumpets — or full faced as in most. One of the most beautiful moments in daffodil time on the little hillside is that time when down marching fans of leaves are cut across by the crane-like heads of the as yet un-opened flower sheaths. And being a captious and opinionated gardener, I find much [illegible] in this crossing of like the counter marching of some intricate ballet.

Then too the earliest days of narcissus life betray for those who like it, a wide range of growth movement in the leaves as they are pushed away from the central flower stalk. One can, if he will, find almost all the patterns that came to their formal static end in the ——-ornament of the Greeks ——, though nowhere has it been suggested that the narcissus had to do with it.

Later there are minor motions worth noting — not entirely peculiar to the narcissus. As the flower withers the head again becomes vertical until the seed capsule ripens and is ready to shed the seed. Then once more its neck is bent and the seeds fall.

Unlike these bulbs with their swift upthrust, the tulip on emerging suggests rather a spiral motion with each leaf

tip pointing at a different angle from its fellows and all curving away from the central axis. Later as the whole plant comes into its fullness, this divergent swing becomes less apparent and the whole columnar feeling of the flower extends to the entire plant. The symmetry of the flower itself the terminal, the finial if you will, of the axis, is so precise that it gives character to the whole; it gives in fact that marching precision, that makes the garden races of tulips so perfect an element for use in the formal garden, where free-standing elements must be equally beautiful from all directions.

The same sort of architectural unity is to be noted in the crown imperials where they condescend to grow: the strong upright column of the plant with its encircling sometimes whorled leaves, the bare bit of stem toward the top and then the crest - a tuft of small leaves below which hangs the ring of flower bells, the whole as perfect a unity in balanced equilibrium as one might ask.

These characteristics of the several plants, so conspicuous when a single plant is examined, become obscured as the plant grows with its natural increase about its base, the smaller units not being large enough to show all the details of maturity. Or they may be accentuated by the gardener in his planting designs, following the old, inevitable repeat patterns whether in single lines, the repeat pattern as in a flat frieze, or en masse, the repeat pattern in bulk as for a free standing statue. Who will say which manner to employ? The gardener himself, of course, and he will move according to whether he is more sensitive to simple form or to mass.

This concern about the beauty inherent in the plant as a whole is often forgotten in the enjoyment of the more obvious beauties related to color and pattern in flowers alone. It is this latter urge that leads one to "collecting" as such and

that makes difficult the naming of varieties to be recommended in any book.

Some families or genera of bulbs provide but limited range of color. Others seem richer and when pattern enters into the coloration, as it so often does, the chance of variation increases amazingly. Among the chionodoxas, for example, one has only the blue-pink anthocyanin colors to consider, that nature has disfriced with the redden tones in the flower stalk and those blue in the flower itself, not a true blue to be sure, but blue tending to gray or to lavender as the case may be. The books report "rosy" forms which is not to be wondered at, and others without color, white or faintly tinted white. As for pattern, there are the forms with the central white "eye", made so shown because only the tips of the petals are colored. It is not inconceivable that were one to raise an infinite number of seedlings of C. Gigantea luciliae he might in time, single out, individuals with petals of solid blue or entirely white, and a series between in which there would be every mathematical degree of increasing blueness and diminishing whiteness. Whether or not there could be a pure white flower barely tipped with deep lead blue is problematical, but it would be a lovely thing, particularly if deep pigmentation persisted in stamens & pistil as well. Whether or not there would appear the "rosy" variants that would lead to the same sort of slightly dulled pinks that are said to be had in both the English and the Spanish squill, seems probable but whether or not the colors would lie upon the spring earth with its warming browns & pushing greens, as gratefully as do the blue & lavender hues, we can only guess.

The Tulip - in its original wild forms presents a variety of patterns, familiar enough in the central exterior flame of

color on a contrasting ground in the Lady Tulip (Tulipa clusiana) or in its less familiar more eastern counterpart, T. stellata or in the charming yellow grounded parallel, T. chrysantha. The other pattern, of a deep central color scheme, diffuse or sharply laid on at the base of each segment, makes a ~~startly~~ startling pattern in the "oculis-solis" group and a vague glow of color in such things as T. dasystemon or T. biflora. Those other patterns, to be found in "broken" tulips no matter what the race, are more difficult to consider as patterns since they are never quite the same, segment by segment, or year after year, even when there is a tendency, overstated in some of the oldest engravings, that suggest a central or axial "flame" or "feather" in some or else an edging of solid color that breaks into lines that run varying distances into the lighter ground. This latter scheme recalls the other trick of tulips, as in Picotee or Inglescombe Yellow in which the opening flower self-colored eventually becomes overcast by a colored suffusion

that begins at the edges and ~~suffuses~~ spreads slowly inward. This in its turn recalls ~~in an~~ the pattern, in reverse, of such an early tulip, much loved and much defamed, Kaiserkroon, in which a light yellow margin almost regular in width sets off the scarlet centers. For all that other host, Rembrandts, Breeders & the like in which colors & hues flush and reflush over one another like some demented mother-of-pearl, nothing need be said. They are amazing close at hand, but only too often as dull in the garden as the "blended" bearded irises that have become so common since the first intermarriage of yellow and lavenders, with their respective pigments.

The garden tulips — mongrels all — also yield nice variations in form, from the comical parrot tulips, warted, speckled & fringed, its primmer derivatives like Sundew with a decent fringe but the same weak & drunkenly sprawling stalk,

the horned tulips, T. acuminata of the lists, with segments reduced to a minimum & modestly hugging itself as if half disgusted at its nakedness, T. retroflexa and its derivatives with pointed segments, recurving more gracefully than any Mantagon lily, the less pointed "egg-shaped" segments of the old "cottage" tulips, so beloved of connoisseurs and "revived" from time to time with an almost esoteric devotion, the fat square-shouldered Darwins & later Rembrandts, and now in still later years the new races with blood of T. Fosteriana and T. praestans, or the seedly variants undoubtedly arising out of T. Kaufmanniana. With the present enthusiasm for the wild tulips so absurdly referred to as "botanical" tulips; as if tulips cared for botany, one can only wonder what hand will set to work to stabilize the somewhat exigent demands of the more fragile beauties like T. viridiflora and who will have the courage to say bluntly that the genus Tulipa, like nearly all widely distributed genera, holds many dowdy and ugly species that need never concern the gardener other than the collector-gardener who is as deaf as the philatelist who cares only for irregular perforations!

The same vast & collectors madness touches the lovers of the "lily" and even more select company that gathered up the great numbers of fritillaries out of the Near East, to flower them [illegible] from adversity and find beauties in minutiae that needed not only a hand lens but a lover's vision to discover.

For the lilies themselves one can say much, for those wonderful trumpets that exhale perfumes to fill the garden air; for some of the garish cup-shaped lilies that will fill a garden with as raucous color as any host of Oriental poppies; for the flat-faced, striped and freckled auratums that one

chemistes so tenderly, because they are so difficult; but for the Mariagons, ever curling up upon themselves we wonders why they need be so beloved.

For many of the fritillaries nothing can be said to make up for the wide gamut of their bilious colors, dun, puce, buff, chocolate, ochre, slate greens, dull browns and the like, colors that recall root and shoot and not flower faces, for there are not the pure greens & browns of cypripediums – far from it.

Perhaps of course the worst collectors are those who gather up the infinite variety of narcissus. The plant in the wild has a wide range of forms and one marked source of pattern: the clustered tazettas & jonquils, the great trumpets including the hoop-petticoats with almost no perianths, the starry poeticus with their red margined discs, the fragile triandrus with fuchsia-like dependent blooms and perianths laid back like those in the mallet-shaped N. cyclamineus, not forgetting the armies of natural and man made hybrids and crosses that have been so endlessly worried and intermarried that the one-time neat but artificial classification scheme has fallen into an impossible state and a new scheme devised, more logical perhaps but still a matter to be upset in some future date. Beside forms, sizes & statures, an amazing variety of color hues have been evolved from the original white-yellow-gold, by the manipulation of the tiny red-pigmented rim of the poets narcissus. The end is not yet, and those who only a few years ago first scorned the icy-green whiteness of the carefully bred leedsii and white trumpets, now shudder over the "pinks" and ten years from now may have to cringe over pure reds and patterned trumpets.

Why collect? To pursue beauty, doubtless, but most frequently it is the anatomy of beauty that one finds in the collectors jargon and beauty itself, unarticulated by her votaries, still awaits individual apprehension.

Permanence -

Gardening is full of tales about trees and other plants that live to great age or to incredible dimensions, themes good enough for the trivia that sneak into Sunday magazines at times.

No such stepping stone can be found for a book devoted to bulbs for no matter how continuous in time the germ plasm may be, accidents do befall our plants whether in the natural course of life in the wild or the stupidities or ignorance of gardeners like myself - who rush ahead without even that fore knowledge that might be had.

Except for those relatively few cases of bulbous plants that come from seed, fill a specific growth cycle ending in blooming and seeding before death, practically all bulbs might be looked upon as everlasting. If they fail and/or die out, the fault is usually our own. Either we have asked the unreasonable, as for example when I tried to persuade Moraea glaucopis that the foot of sharp sand in the hottest-in-summer location that the garden has provided, might serve it (it did not.) : or we are careless, as I was when I allowed what I believe was a bolting tip or escape from some tulips to wipe out the best surviving colchicums : or we are ignorant, as when I planted some dark-looking bulbs of Lilium Imperials that were already quite dead at heart. The most conspicuous example of the "annual" sort of bulb is the Lilium giganteum with its kin, that makes a bulb from seed, swiftly if all conditions are favorable, less swiftly in adversity, flowers and dies, unless it may leave a small offset or two at its feet.

Assuming that we have the perfect site, properly prepared and have chosen a bulb type that was in all ways suited to our climate, we might equally assume that our planted, the plant would be as permanent as a tree or shrub. We are assuming obviously that the gardener-owner was skilled and nearly omniscient in the bargain. Almost any gardener will admit that this - permanence - does not

always follow; not even then the gardener-owner honestly does all he knows how to do. He will therefore, if he wishes to preserve the effects at which he first aimed, resort to various cultural devices some of which have already been touched upon, as in the matter of raising new plants from seed. Species within one genus, and from quite different climatic origins as in the case of the lilies, pumilum (once Pumiliflorum) and philippinense, of which there should always be seedlings in progress. If one wants to be quite sure of silver the sealing wax red maculations on the white trumpets stained darker & darker with purple as cold weather comes on.

The important thing to keep in mind perhaps is the manner of growth and renewal in the bulb itself, that once planted is not seen again until replanting either for division or feeding makes it compulsory.

The discussion that follows has been deliberately couched in somewhat in overstatement and there are details that may be challenged in the terms of reporting; the principle, however, it is hoped.

For the most part bulbs are compact affairs, tidily wrapped in their own coats or made up of scales that curve inwards on themselves to make an almost compact mass, even without the coat that holds them together. If one cuts through them vertically it will be seen that there is a basal structure from the outer, lower edges of which may cling vestiges of last season's roots. From its upper surface rise the masses of thin & fleshy scales that fit loosely or compactly together. If the section is made carefully enough with a sharp tool, there may be seen at or near the center, a small mass that represents the flower-to-be or the entire inflorescence. More detailed examination would show that it is attached to the basal plate, the most important portion of bulb, between the bases of scales, less often terminally. If one has the courage to make this cut while the bulb was in

active growth, he would discover that the feeding roots had pushed out in a thick mass all about the basal plate, below the point to which the bulb scales are attached, and should it happen that he had dug an old bulb, say of narcissus that had not been lifted for years, he might find that the basal plate was not a plate at all but a short columnar axis, the lower part of which though still attached was quite dead and easily broken off. He would also find that there were dead outer bulb coats and others that were extended above the soil line, the extension serving in some cases to form the ensheathing tissues through which still other extensions in the form of green leaves arose to light and air.

If the cut had been made in the horizontal plane of the bulb, he would have seen that the bulb scales were not all entirely circumferential and that there might be secondary axes rising within the mass beside the main axes. These in their turn would have enveloping scales, and ~~they would~~ even with no other examination it would be possible to foresee that there were the beginnings of what in time would be offsets.

We have, in this type of bulb an entity, in which the growth is upward as in woody plants, but with what corresponds to a shortened trunk (the basal plate) dressed tightly or loosely with scales (like modified leaves), producing from the axils (in the scales) from the basal plate) "branches" that in turn would become bulbs, in time separable from the mother bulb and capable of independent life.

This sort of growth comes closest perhaps to what one sees more diagramatically in another modified form, the rhizome as in the bearded iris. All gardeners are familiar

the plant grows away - horizontally - from the unit of rhizome first planted and knows how the leaf bases of the iris fold about the young point at the base and each other as the flower stalk pushes up through the folded "fan" of leaves. He will also recall, the beginning of lateral branches along the rhizome and the fact that in time the portion of rhizome that he brought and planted will die and wither. The comparison should not be pushed further, for there is a difference in the manner of the root emergence and duration. The main point to be brought home is that the bulb, in importance to the life of the plant, is as important as that of the entire woody structure of a shrub or tree and that its leaves and blooms are as transitory or as annual as those of a deciduous woody plant.

There is another type of renewal however that goes on at a much more hurried pace + is well represented by the tulip or the Spanish or Dutch iris. Here as before we have a base or basal plate, upward in growth and reduced in size. ~~Although not for~~ The bulb, made up again, of modified leaf like tissues, actually consumes these tissues in the production of the leaves, flowering scape + flowers to feed. For the renewal, it must develop a new bulb or bulbs each year from the growing points formerly inactive at the base of each of the few scales. If the tulip is comfortably at home and well fed it will produce one then grown two new bulbs as large as the bulb first planted and possibly some few lesser bulbs. If it is not comfortable, it will make a small bulb capable of producing only the single large leaf so common after for the second year. The same sort of thing goes on with the bulbous iris of the Xiphium group (sea page -) to which most of the bulbous iris in trade belong.

This is the type of renewal that goes on in the corm, although the structural proportions are modified and there are some other ~~major~~ structural differences. If one will dig up a crocus with care as the foliage is withering away, he will discover an obviously new corm and below it, quite withered & shrunken the remains of the corm he planted. This can be broken off. If he removes whatever coats may hide the corm he will find various growing points. Only a little imagination is required to realize their similarity in location and character to the dormant bud on a flowering branch - say of lilac or rhododendron! And certainly even less imagination will be needed to convince him that unless his corms, be they crocus, gladiolus, freesia, ixia or whatever are quite well fed and comfortable he will get no strong continuous growth and flowering.

If the gardener will not bring himself to cut through a flower bulb or corm, he can satisfy his major curiosity about the bulb structure in that of the kitchen onion, but there is no vegetable we eat to illustrate the corm.

There is the tradition that seeds once planted should never be dug up to see if it is germinating, and a similar tradition slightly modified about digging up bulbs. All good gardeners should disobey these traditions, trying first on some plant they may kill without regret. In time it will be easy enough to dig up the bulb, satisfy one's curiosity and replant it without injury or even much check. The only important thing to recall beyond being swift and dexterous, is to prevent the mass from drying and to take care not to break the new roots since most of them

have no capacity for restoring a broken tip, and only some seem able to produce a new crop from the basal plate. Which or how many I cannot say for I have not tried them all, having satisfied myself with irises, later with narcissus of which I have always had excesses, or with ornithogalums that I was bent upon destroying.

An appreciation of these structural backgrounds have shown gardeners various short cuts to vegetative increase. The traditional method of "scooping" hyacinths, involves two principles, the production of bulbs from leaves (in this case the upper mass of the bulbs) and the production of bulbs more swiftly & empirically for the many growing points in the basal plate, beside those axial points normally active. Later it was found that one could get bulbs from the green above-ground hyacinth leaves if taken at the right time and rooted under proper conditions.

The same sort of principle controls the sectioning vertically and radially of hippeastrum bulbs, so that each section represents in fact, a portion of the basal plate, a portion of the fleshy scales and with good fortune one or more growing points in the axils at the base of the scales. As with hyacinths, this operation requires almost hospitilization to prevent contaminations of the cut surfaces.

One might go on here with other details of propagation but these are better given with each plant. The important point to stress is that bulb structure gives the clue as to whether or not your plant is relatively permanent (and long suffering in adversity) or entirely dependent on the gardener for not only for annual blooming but for continuous life.

Bulbs from Seed

Like most gardeners the writer has succumbed on occasion to the somewhat dubious pleasure of growing various bulbs from seed. The chief requirements for success are fresh seed and patience. If one can gather seed from his own bulbs, sow it at once under conditions that will be permanent, then is little more to do but wait until the bulbs are large enough to lift and plant out. If one must buy seed, it may lie dormant through one winter, before it germinates.

In my own case, the quantities of seed were always small so they could be sown in a pot and the pot sunk to its rim in soil in an ordinary cold frame. The protection of a frame is not needed, but it is easier for me to care for a frame full of labelled pots, than for an open garden bed, where weeds will have to be removed much more carefully, in order not to disturb the tiny bulbs in the early years. It helps also during the weeks when germination commences, usually from late January to early March in this climate, as it prevents a certain amount of shallow freezing. Like most monocotyledonous plants, the germinating seed sends up but a single grassy leaf, and busies itself chiefly in forming the little bulb. The secret of success is to mind the frame enough that water is given constantly and this growth is continued as late as possible, ~~this~~ in order to prolong the growing period. This can be extended a month or more beyond the period when

the bulb would normally go to rest. Although this may be common knowledge the writer found it out by accident while growing narcissus seedlings and was able to keep them in green leaf through July, while the mother bulbs are dormant by late June, save in very rainy seasons.

The soil for the pots should be good garden soil with no manure. Fill the pot to within 1½ inches of the proposed level, cover it with a ½" layer of gritty sand, sow the seed & cover with the same soil mixed with one half its bulk of sand. Later when the time comes to remove the bulbs, it is possible by drying the pots, to lift off the top layer of soil like a lid & see the little bulbs sitting in the sand layer. If this is done after the second year, some of them will have grown downward into the lower soil layers particularly the amaryllidaceous species, in the effort to find their normal levels.

The amount of time that must elapse between sowing seed and the first flowering of the young bulbs depends very largely upon the species ~~itself~~ and the care given. Three years is a reasonable time for most common species, but plants that must form large bulbs will take longer. The time factor often alarms the beginner, but old gardners know that a few seed sown every year will provide an unending source of pleasure and always the possible chance for some variation ~~that~~ in form, size or color that will reward all effort spent.

The most important factor is that the place

given over to seedling raising should be such that it will need a minimum of care and can be permanent in nature. Many gardeners set aside one or more cold frames and use them, not only for the preliminary stages, but also for the first transplantings. In commercial work this may not be necessary except for extremely rare material in limited quantities. There are no advantages for the home gardener in broadcasting or drilling seeds into open beds unless he operates on a scale that approximates that of commercial operations.

The writer's own interest has been limited to crocus, muscari, snowdrops, puschkinia, scillas and chionodoxas, aside from narcissus which have been the main ~~crop~~ program in the garden.

Hardiness.

Whatever may have been the reasons
~~Possibly for no better reason than chance~~, many if not most of garden books that treat of bulbous plants have been written by persons who lived and gardened where winters were cold. It is only in recent years that we in this country have begun to publish regional texts that present in varying completeness the experience of those gardeners living under quite different conditions who had to resort either to their own interpretations of 'northern' texts or to encyclopedic works that gave chiefly the bare bones of ~~knowledge~~ the then known facts.

The first concern of any gardener must be, will this plant live and grow for me. Only too often he can find no complete answer to that question. He cannot find it even yet although there are beginning to emerge notions at least that are worthy of study.

~~Among~~ the common ~~divisions of~~ practices in discussing bulbs is to treat them as hardy or tender, as spring ~~flowering~~ or summer-flowering with some attention to the autumn-blooming genera and far less to the winter blooming species, speaking now of plants grown out-of-doors and not those grown under glass without consideration of the seasons. None of these groupings is altogether satisfactory. The Paper-White narcissus for example, that enlivens the sodium of a northern winter in the home, grows happily enough out-of-doors in the South = the pink flowered oxalis perhaps not needed as a pot plant in the North, becomes almost a pestilential, year round bloomer in the South and on parts of the Pacific Coast. The gladiolus that enlivens summer gardens in the North, will flower within so many days of planting in Florida, where it is cropped for cutting!

We know fairly well the plants that will not endure the months of frozen weather in the North, we begin to know those that must have cold to insure good growth & flowering, but

we shall do not know all the great intermediate territory that will eventually tell us how far south we may push the winter covers, nor how far north we may persuade those that do not like chilling, much less frost or freezing. No one would be more pleased than I, could I offer the answers. I cannot. All that I have been able to find has been mentioned in Chapter —, where various genera have been discussed from A to Z.

All that need be set down here perhaps is to remind us that in the North, mulches to prevent soil freezing are traditional and sound and that in the South, the element to watch is the production of foliage during those winter months when frosts may occur no matter how much regretted. Southern gardeners will know without reminder, that frosts are more damaging to foliage in immature growth than to leaves already hardened into maturity, a condition that can be noted even in the North when a late spring frost falls. But much can be done to prevent early foliage growth but the old Garden practice of a somewhat lean soil and excessive drainage may check developments. There is then only that final philosophic resolve not to grow those South-of-the-equator natives that never learn to forget that our October is not their Spring and to eschew those bulbs from occasional dry climates that start to grow in the season of cold winter rains to flower with the end of winter, swiftly make seed and wither to rest for their long months of dormancy.

If one looks, for example, at the other Parts dealing with many of the beautiful common plants of South Africa, he will find advice as to how they may be mulched or otherwise checked. To the hand of experts this apparently was successful: for most of us it is a burden not too likely to be rewarding. This also is the basis of failure with many of the charming bulbs for Southern California, most of which seem able to

tolerate our temperatures, but not our seasons, for if they do not perish from having their premature growth frosted, they die of our summer rains, no matter how much drainage we add.

It would be too bold and certainly not wise to suggest that certain areas in this county are suited only for certain types of hibernal material. There are exceptions and gardeners ingenuity rarely fails of new devices, even if they set in garden places of such mixed backgrounds that the ancestors would deny the progeny. It is quite safe to say, however, that the plant breeder still has before him a wide range of opportunities — many of them almost untouched.

The individual gardener should find considerable interest in studying the weather wherever he works and over enough years that he comes to have the same sort of instinctive knowledge that appears to have guided county-folk of legend, not of just.

To this he must have learning of his soil — not just its physical and chemical nature, but soil in the sense of soil in place, the terrain, the sense of the underground movement of soil moisture, of his own interference through grading operations, even in the building of his own house or [illegible] terrace, not forgetting streets cut through for the benefit of speeding motorist rather than for residents. The soil outside is not managed as nearly as the soil in a flower pot but one can come to a reasonable understanding if he thinks about it long enough.

My own gardening has mostly been on land of irregular terrain and I know from experience some of the advantages as well as the drawbacks of such a site. No experience

justifies opinions about gardening on flat land, but I do not forget a long year in Japan and the sight of many small city gardens, in which artificial hills had been made, not entirely to carry on the tradition of the landscape-in-miniature, but also with an eye to providing adequate drainage during those summer months ~~than~~ of torrential rains, that would have kept a level garden sodden with moisture. These city gardens are mentioned not because they are the only type for they are not. They are recalled because there must be areas in our South where a slightly raised planting area might mean the difference between success and failure with some plants.

It is with even more diffidence that I suggest that gardeners begin to study floras, not books but plants. It will be a dull business many times requiring patience to learn the technical ~~aspt~~ vocabularies of the botanists, soils men and geographers since these specialists, who so often write for one another, are more often concerned with the identity of what they find than its behavior as a living thing, as in the scene [illegible]. Most of them are not skilled in descriptive writing so that visual images do not come easily to the uninitiated. Traveller's tales are less to be valued since either they are taken up with landscape on a large scale, or the writers are carried off by their emotions on beholding their prizes. Sooner or later, however, there emerges some idea of the plant life of other parts of the world and one begins to sense, what portions are most like his own and later to have courage to challenge some of the garden dicta that need challenging, especially for outlying areas — and above all in our concepts of hardiness.

in complete?

Nearly all books that deal with bulbs venture a chapter on how they should be used in gardens, a most perilous undertaking since each garden is its ~~own~~ problem and represents the compromise outcome between the wit + skill of the owner and Nature herself. Too often such chapters are given over, in the hope of safety, to generalities that serve well enough as points of departure, but usually are as stupid ~~like~~ as most generalizations. Obviously sound advice for myself might be and probably is utterly worthless for another. What might serve for Maine could have little significance for Oklahoma and even less for Washington. Furthermore when one remembers that all Maine is not alike, that Oklahoma has a wide range of conditions and that the fog drenched area about Puget Sound has not much in common with the southeastern corner of the same state, one must realize ~~the~~ any author's predicament.

As is implicit in the folk term "spring bulbs", one of the chief uses of bulbous material, is to provide flowers early — on the heels of departing Winter, when only those trees and shrubs that flower before they put forth their leaves are making any show. The stereotype procession of snowdrop, crocus, squill, chionodoxa, narcissus, hyacinth, tulip ~~etc~~ and so on is well known and the gardener's enthusiastic response has been celebrated often enough by better men than I. Were I gardening in ~~Mississippi~~ the deep south, however, the coming of spring would have little to do with these genera, many of which could not thrive there for lack of winter cold and my own response might be more ~~to~~ temperate after watching the winter flowering Asia Minor forms of narcissus, the annual battle of the weather with camellias, azaleas + the Japan quince that never knows completely the moment for flowering. There I should be more concerned to satisfy my curiosity with

later blooming things for the long hot summers, many of them plants with some ~~affinity to~~ predilection for almost marshy sites. In middle California I should recall the magic return of green to the brown hills and the excitement of finding Brodiaeas coming up – and later gorgeous calochortus flowering with the harvest brodiaea in fields already turning brown for summer dryness. But could I manage them within a garden, one of those eternally watered gardens that bring verdure where none was before? There it would rather be to plants from Mexico high table lands, or South Africa, or with good fortune some of the coastal or Andean things from South America – many of them with no connection with the Spring.

But to return to the familiar advice – one finds the inevitable group, the lawn, the border, the rock garden, the woodland, or the shrub border. There is something to be said for each one.

There is something very enchanting about flowers in a lawn. Poets have had their say and doubtless will repeat in years to come. The flowery mead is immortalized alike in tapestries and Persian miniature painting. The rich tender green, fresh spring green dotted over with colorful flower faces open to the sun, has intrigued mankind for centuries. The gardener in these parts, at least, has no great luck with duplicating it, however, unless he is willing to have a lawn that would not score high if measured against an English turf or a putting green. Now that we have learned, we of the warmer parts of the country, to cut our grasses high, and know that we are not in England and that we do not have to maintain ~~putting~~ golf course standards, finds our chances are better than once, though the odds are still in favor of the grass. There are three problems from the practical point of view. Will the flowering bulb have time to complete & ripen its foliage before the lawn is first mowed; will the competing grass roots be too vital for permanence of the bulbs, particularly those that increase best by natural seeding; will the summer watering given to keep the lawn verdant be too much for the dormant bulbs beneath? There are no positive answers; each is attended by its

own exceptions, made and interpreted by the owner.

The first cutting date may become a matter of family discussion. If the lawn is well tended and goes into the late autumn reasonably well shorn and if the grass species are well mixed, spring growth should not be too irregular and one could postpone the first cropping, unless the area is some very formal unit of design in which case one would probably not want the bulbs. or could afford to replant annually. It is only fair to confess, however, that the only "lawn" known to the writer on which each spring there are sheets of siberian squill, several species of chionodoxa, eranthis, some snowdrops & hundreds of crocus — is, as a lawn, so poor a thing that those passionate lovers of good turf would not even suspect that it was called a lawn. It is however, for its particular site, a delicious combination not only of true grasses but even some careces (rushes, sedges) and no annual mowing ever quite destroys the green velvet of moss and algae. Everyone stops to look and envy but no one emulates it, forgetting its other chief virtue, that it requires few cuttings during the long hot summer that follows.

For larger areas, more nearly meadows in fact, areas rarely found in small home sites, where mowing is done not more than six or seven times a year, taller stronger bulbs are used. In these parts they are chiefly narcissus of one sort or another planted very deep to check their rate of increase. One would like to try camassias in such a field or even some of the greater squills, should the grasses not be too coarse. Were this meadow in California, I should like to try those brodiaeas & calochortus known to enjoy thin grass land and summer baking and I should venture other things,

preferably commons, rather than bultons – but privately as I do now behind my clover fence until I know the outcome. Were colchicums cheap & easy & to be had, I should like a chance to prove these; and there is a rough patch of grass, mown like a meadow where soon we hope to try hundreds of red spider lily (Lycoris radiata) for its late summer, early autumn flowering. Sternbergia lutea would push me further south than I am now but not too far south, where some of the native Zephyranthes or the Argentinian tritelia might take over, provided the grass were not too thick, and if no one were watching the first trials and the land were right, I should like to try Cateshy's lily – Prudence cautions a rein on imagination.

The use of bulbs in the border succeeds or fails chiefly on the skill of the gardener.

The border, you recall, is an invention imported from abroad conceivably filled with bloom from the earliest possible date until the last. It has gone through several periods or phases; formal a graduated plantings from dwarf to tall – a Jekyll & Hyde into informal plantings with an occasional giant on the margins; arranged in color schemes, whether gradations of a single color through its hues & tones & close derivatives, or in combinations of colors that accentuate their mutual beauties, not forgetting the prismatic effects that start the border in one color scheme and end it in another. Originally its inmates were only herbaceous perennials, but by degrees the gardners & the amateurs outwitted the purists & annuals and bulbs came in, with an occasional shrub, like such as a golden-leaved philadelphus; until some broad-leaved evergreens also appeared to take off the curse of the bare winter.

Practically now-a-days, one does as he pleases, which is the chief reward of personal possession of a garden.

To manage bulbs in the border, one must first determine if they are to be treated like annuals or made permanent

residents. Of transients, that is annuals, tulips and bulbous iris of the Spanish or Dutch types are ideal, and can transform the inner margin of the border through May and June. For summer transients gladioli, montbretias (both corms) will make as brave a show as may be wanted while tender-to-cold bulbs like tigridias, galtonias, even hymenocallis are not to be forgotten. Of the bulbs are to be permanent residents, as permanent as the herbaceous perennials or more so, since in the best borders a fair percentage of the perennials themselves are dug & reset annually, there is not so wide a range in cold areas, but daffodils and hyacinths, squills & muscari are effective forms in the foreground, while lilies fill the central portion and if you are rich enough, eremurus enliven the background.

The treatment is simplicity itself. Of the bulbs are transients you dig them up the moment the petals have fallen, fertilize the space & plant in your favorite annual & cure the void. Of the plants are ~~perennial~~ permanent, you choose a location where they will not be overshadowed by an herbaceous perennial that grows up too quickly in spring and beneath whose developing ~~green~~ greenery the withering bulb foliage may be neatly hidden till it is gone — not cut off. Of old the major problem was to arrange to give the annual mulch of manure where it was needed on the perennials without touching those bulbs that resent it. ~~In this antemotive time, the problem diminishes.~~

Whether correctly or not one is likely to believe that "the" perennial border is a British invention. Be that as it may, the examples that seem most fully to accomplish the concept are either from those rain drenched islands, the cooler parts of the European continent and in our own county those favored areas where nights are cool — regions the writer has

never known. 9 As one moves into warmer climates, longer growing seasons or wet-dry climate, the border as such undergoes changes and more shrubs, bulbs and annuals creep in. The writer would like to design a border that would feature crinums, not hardy north except precariously in the species C. longiflorum and its hybrid progeny, C. x Powellii, with other neater amaryllidaceous things to draw attention away from the usually untidy foliage masses of the crinums, and on the (smaller part of the) Pacific Coast, it would be a pleasure to build a border about the beautiful Amaryllis belladonna and its hybrid kin, jointly with nerines for company. If their strong reds are not too vivid or if more tender color forms were available. Again prudence advises caution.

On the subject of bulbs in the rock garden, one writes tremblingly, never quite knowing whether to fall in with the purists or to observe acidly that the rock gardens of the less critical often make the braver show. For practical purposes it may be noted that many plants are [illegible] rock gardens that had no association with rocks in their native haunts. Considering rock gardens from still another point of view, they may be defined as gardens in which all manner of small and precious things can be cultivated cheek by jowl without fear of loss or invasion by other plants and that as a result of this system, the whole becomes a great display area where one worships on bended knee and often with aching back as well. It is an area where the gardener's skill can and does provide an infinite number of sites, with drainage of equally variable degrees of accessibility, hidden rocks to provide cooler root runs, upstanding rocks to give shade by noon, or morning or by afternoon and so on.

Personally the writer is too lazy a gardener to worry much with rock gardens, and anything he writes should be considered with suspicion. What bulbs there may be that would relish extra drainage and a sunny slope in a rock garden rather than the same things in a sloping garden border he does not know. As far as he can tell, this narcissus species from North Africa and the Iberian peninsula, the

brodiaeas, bloomerias + some of the calochortus from our Pacific Coast, and many small tulip species, used to being baked in Asia Minor (and under glass in the Netherlands) have been as happy as one could want on a little garden bank, sloping sharply to the south with drainage dug into each planting hole. The only trouble that ever came, was tulip blight (fire) not checked in time, that took all the calochortus and many of the tulips.

He does go along with the purists however to record his own private anathema for the use of garden races, be they hyacinths, tulips or his own beloved narcissus, in rock gardens. They do not belong and no matter how they might thrive, mark them owner for what he is.

Bulbs in woodlands are quite another matter. It is perfectly true that our native woodlands do not display lavish and colorful sheets of bulbs in nature but the do at times and in some states give us great reaches of color. In my own county here, there is a weedy senecio, that makes great sheets of pure gold in moist woods while wild geranium + Phlox divaricata will lay a lavender carpet for acres or did before universal housing took over.

Which species to plant and how depend largely upon the place and the man. In my own thin woods now hold chiefly masses of daffodils overflow from choicer plantings, hundreds of the variety Excelsior of Scilla inscripta, lesser hundreds of a few crocus species, self sown from smaller planted colonies, chiefly Sieberi, Tomasinianus and Imperati, Siberian squill, various chionodoxas, all snowdrops I could find but chiefly the Elwesii-group, sternbergias no longer happy in the shade, Lycoris radiata, not many muscari though they were happier in pre-dogwood days, as well as odds and ends left over from ~~too~~ one-time experiments!

Tulipa sylvestris grows into a larger colony of leaves each year and yields an occasional flower. All the Pacific Coast erythroniums are permanent but also not much given to reseeding. The Argentinian tritelia spreads eagerly but blooms less well than once because of the summer shade. Most of the brodiaeas have departed for the same reason, but fritillaries, both the European *meleagris* and such of the Pacific coast species as could be had live on, not too happily and most often as mere leaves.

In planting, plant as many as you possibly can of enough sorts to give a dominating unity to the whole. If there is a color choice, let it be a simple pure color. Subtleties can always be marginal.

Since what you are doing is laying a seasonal sheet of color on the ground, choose a site where the terrain is interesting. The aerial photographs of bulb fields in bloom, whether here or abroad are quite breathtaking, but they are not beautiful. One marvels at their extent & their mechanical perfections but that is all — and that is all because the earth there is flat. If you can then, chose a woodland that is uneven and plan the paths, the viewing places, so that you look up toward the masses.

One often wonders just what it is that makes a plant acceptable as a "popular" garden plant to be cherished and enjoyed and above all grown so commonly that nurserymen will always stock it? No person who has had to do with bringing plants into cultivation can ignore it but no one seems to be certain of the answer in advance. Inquiries yield a mass of widely varying opinions.

From these one finds, by deduction, rather than openly expressed dicta that any plant that will (in season) produce enough brilliantly colored flowers to hide its normal greenery meets the prime requirement. After that one finds chiefly that, for the gardener-consumer, it must be easy to grow i.e. is permanent according to its fashion with a minimum of difficulty and that, for the nurseryman-producer, it must be easy of propagation and of marketing. Obviously all of these are relatively stable factors save permanence and that is or may be influenced even determined by local conditions, assuming of course that the gardener himself is entirely capable.

There are several exceptions to this generalization; one, those plants that are grown chiefly for foliage colors or patterns, that may produce only inconspicuous flowers.

There are also those genera in which there is an enormous amount of variation in flower color or marking. Should they be susceptible to cross or hybridization so that these points may come under the presumably refining hand of the plantsman, they become admirable collector's flowers & should they in addition be hard to get, long-lived, slow to come to first flowering and equally slow of increase, they are even more beloved, and of such economic worth that they represent an investment value that almost removes them from the plant world.

The tulip mania in the Netherlands of course had relatively little to do with tulips as such. The whole performance partook of the excitement of any financial deal with one added

hazard that lifted it above mere money-making, the unpredictable variability of the living bulb, which might or might not exhibit the perfections of last season and so might or might not maintain its value. One gambled twice—once with Chance and once with Nature.

There may be, are solid virtues in collecting, however, namely the education of one's taste. If one consults lists chosen from varieties current at the time, one often has an index to the taste of the list's author. He will presumably unless otherwise pointed out, choose only such plants as have vigor enough to grow well in the garden of the type. He will, if there is a diversity of form in the group, choose examples of all types, but he will also unconsciously put into his choosing something of himself unless either from cowardice or bravery he enumerates the list on the basis of "they say" these are the best.

Some individuals never rise above their personal emotions as related to color, and will overload any list with lack of concern of any different preference or more rarely, with a proselyte's vain hope.

Others, who can look beyond the mere emotional value of color — for in most collections per se, one need not consider the pictorial value of color —, will choose on the basis of perfections of form, which can be arrived by any one who can & will study, & intuitively the equilibrium expressed in fewer forms. Their appreciations become more & more acute as he lives with his collections. The only problem for most will come from the continuing choice that must be made among the armies of novelties produced each season from behind scenes where plant breeders — and occasionally, geneticists work.

It is for this reason more than any other, that in this

book there will be very few lists of named varieties among the garden forms of the more popular genera. The writer has been guilty of collecting chiefly among the named garden forms of narcissus and has been at it ~~long~~ years enough to know that the "choice" things gathered together twenty-five years ago are almost entirely superceded now by ~~later~~ others produced later that carry on the same essential form, color or pattern and yet have new perfections that do not exist only in his own evolving vision. He still remembers with something of amusement an order of bulbs sent abroad, that hid ~~within~~ among the varieties priced at what seemed ~~t~~ a proper range for his beginner's purse, two varieties specifically praised ~~there~~ by the then living Rev. Joseph Jacob with prices that seemed immoderately great. He still recalls how eagerly their flowering was awaited and received and confesses now that one, Challenger is long since lost in the limbo of uncherished sorts hidden "in the woods" and the other "Seville has been multiplied to a small "stock". It however is banished to the wood margin, from whence its flowers can be gathered in bud to be opened in a cool shed, thus preserving the still lovely but perishable "tangerine" color of the flat eye and allowing the perianth to unfold itself without too quickly reflexing as it will do in the garden. In other words it is pure sentiment that saves Seville!

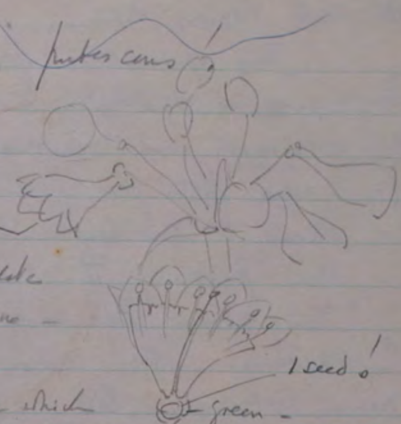
It is most probable that the discussions of narcissus elsewhere in this book will betray the writer with other examples of his soft heartedness.

For the other kind of gardener who has no wish or intention in becoming involved in the snares and delusions of ~~collecting;~~ varietal collections, and who is willing to look upon his bulbs just as he would consider his shrubs or his perennials, the

decisions as to what will be for him the showy to complete in the garden picture with peonies, phlox, iris, lilacs, roses or even with the annuals that will fortify his seasonal bloom. He will have his own preferences, ~~but~~ his own opinions and will need no advice from anyone.

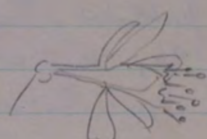
BM 2099 — some error - Mussaenda pubescens

BM 2100 - Calostemma purpureum
Appears to be an Amaryllid —
Strap-leaves — main nerve depressed —
½" wide : bare scape — 10 fls on plate
Pale rose pink, darkening to carmine — on edges —



"We were favored with the plant from which our drawing was taken by Edward Barnard Esq, of the Colonial Department who flowered it in July last (1819) at Bexley in Kent, by setting the pot halfway up in water. It was discovered in the Expedition to the south-westward from Port Jackson, beyond the blue mountains, and was sent to Mr Barnard, together with a drawing by Mr Lewin, under the name of Pancratium Macquaria given to it in honour of the Governor of New South Wales. But Mr Robert Brown had long before found the same species upon Mount Brown at the head of Spencer's Gulf on the southwest side of New Holland, and published it in his Prodromus, as above quoted, under the name we have adopted." (p. 298 of Prodromus)

BM 2101 - Calostemma luteum — Much like last but perianth segments flare out leaving center almost like daffodil trumpet - pale yellow —
Same locale — as last -
Stem (scape) twisted as in Leucojum? leaves ditto?



BM. 2124 Nerine rosea

"This species was found wild at the Cape, & the imported bulb flowered at Spofforth in 1815" — Descr. distinguishes it from N. sarniensis — one curious bit: "xx ; the (the leaves) lie flat upon the ground, not at all erect as in sarniensis" —

There is considerable quotation from Herbert MSS —

One part of it is of interest — see Eurycles

"The genus Nerine is widely separated from Amaryllis and Cyrtanthus. It is nearly allied to the bulbs proposed to be named Coburgia, but in its cap & seed it approaches nearer to Calostemma and the Pancratiums of the western Hemisphere; the European & Canary Pancratiums forming a distinct genus with small black seed like Narcissus, and the Amboyna Pancratium being of an equally different genus, which presents the singular phenomenon of a perfect tunicated bulb formed in the capsule. Nerine is probably confined to South Africa. xx"

W. Herbert, MSS —

Footnotes on p. refer to Lycoris & Amaryllis (& Coburgia)

BM. 2133 Crinum flaccidum Macquarie Crinum.

Rather nice — general type of C. longiflorum. "xxx a native of New Holland, and was discovered in the same expedition that produced the purple & yellow Calostemmas, before published, "under the Macquarie Range in East Longitude about 146, and about 33 of South Latitude."

(Syn? C. australasicum?)

Gastronema

omit

2291

BM. ~~2291~~ Gastronema clavatum

A charming plant. Discussion relates it to Cyrtanthus but! Dull plum colored bands on an off-white ground.

No statement as to where in "Cafe" it had been gotten.

Herbaria

H. pulchella – BM 3826
Mex – Buenos Aires –
~~Lee – Remarks ?~~
Cyphella ?

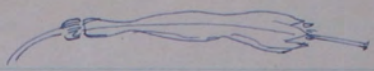
Phycella : grex var β glauca. BM. 2687

Valparaiso ! + Santiago

Looks like a Veronesson except for leaves — or better still a Phaedranassa

Stenomesson —

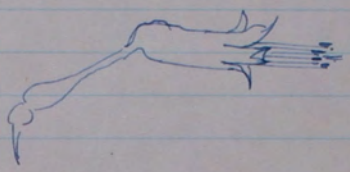
BM. Stenomesson flavum

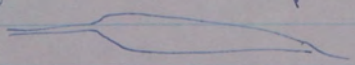


Root yellow, fresh veins, not much. Affs – leaves petiolate

BM. 7640 S. curvidentata

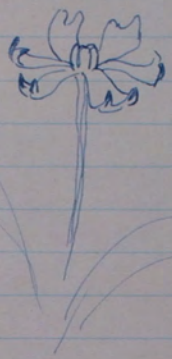
Perm – dull yellow – closes on itself as fades. leaves petiolate





Syringodea pulchella

BM. 6072



Charming thing - Get it?
Cape Bulb. leaves like
Crocus - flo - pinky lavender,
purple tipped on back -
"Plains amongst the
Smeerenberg hills at elev. 4000 ft.
flowering in April.

Tecophilaea cyanocrocus – Rev. Hort 1900: 70
S. Mottet –

T. cyanocrocus is the "deuxième" species of the genus – (dedicated to Tecophilaea, daughter of botanist Billoi) Tecophilaea, established in 1836 by Bertero on T. violacea Bert. not introduced & alt. till 1862 by Leybold – "et son introduction remonte déjà à 1872. All two live in the mts of Chile. fam. Haemodoraceae, (repr. in coll. by Anigozanthus, Haemodorum & Wachendorffia). – Genus & order between Irids & Bromeliads –

–

Later many shipments of bulbs were rec'd in Europe particularly by M. Godefroy-Lebeuf – who furnished plants for cult –

Since not known in French publ – gives detailed descr. of Leybold – (orig. see Bonplandia X (1862) p. 370: Baker Journ. Linn. Soc. XVII (1879) p. 496: Regel, Gartenflora t. 187,

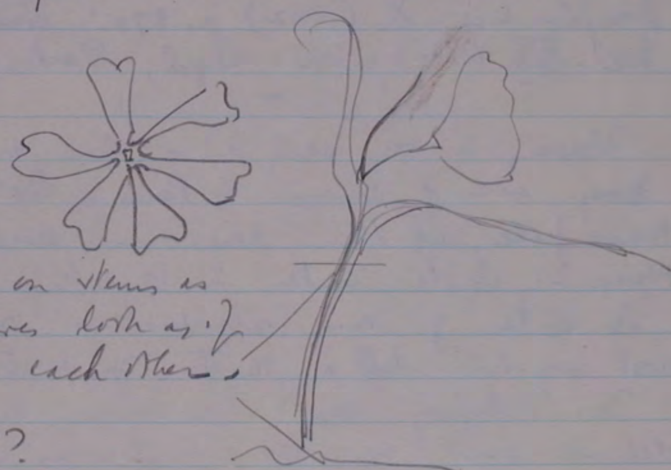
–

Flowering is very early & in open air from March to May acc. to season in Paris. Color variable at times pale, at other times as deep as in Gentiana verna – white center is variable – white varies also –
In spite of many introductions one sees only the most recent – not a matter of winter cold.
Mr. Godefroy says "This charming bulbous plant with delicate scent, is native to Chile: one finds it there as compact clumps in the mountains. The seed fall

at the base of plant & germinate in time. The young plant produces a long filament that penetrates the soil to 8-10 cm. & then forms a bulb. At this depth one finds the old bulbs & the bulbils coming from the old bulbs. The whole is not close to form a solid mass. This would suggest that the plant does not care to change its "place" (site - locale)"

Mottet continues: From this we may deduce that it would be wise to plant T. cyan— in autumn in compact tufts) clumps at the depth indicated in rich well drained (saine) soil, where it can remain during rest period.
(Note on potting — lift — or direct.)

In regard to propagation, we can say nothing at present not knowing how the bulbs are remade after flowering, as is the case for crocus & gladiolus, nor if the plants make seed in cult.



Flowers weak on stems as illus. Leaves look as if they clasped each other.

Also solitary?

Tecophilea

Tecophilea cyanocrocus Leyb. G. 37: 183. Rev. Hort. 1900: 70.

var. Leichtlinii, Hort.

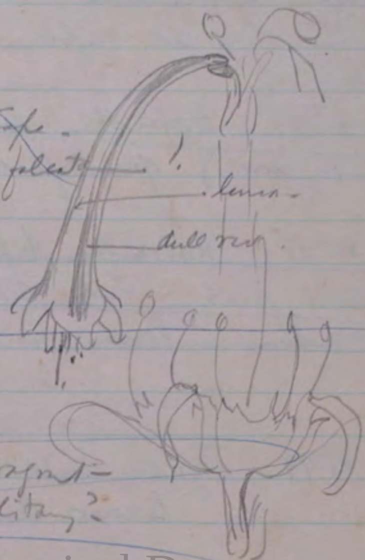
var. Regelii Baker.

A. Gray Hubbard in Bailey Cyc. p. 3318. very hardy but not persistent in NYC. ~~but~~ "they ought to do better further South".

Look up distribution in Chile. altitudes?

~~BM 2531 Crinum [illegible] (β) Blush colored form –~~

BM 2534 Cyrtanthus striatus –
His with leaves –
No data on locality in Cape.
Sent to trade by Mr Lee as Cyrtanthus falcatus !

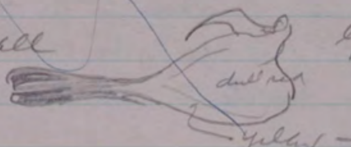


~~BM 2537 Zephyranthes rosea. Nice~~

BM 2538 Pancratium zeylanicum – Nice.
Native of Ceylon – slightly fragrant –
July fl. at Spofforth – fl. solitary?
erect?

Dry Tax. Acuminata W.H.

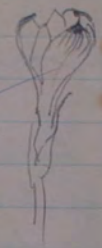
BM 2539 Gloriosa virescens –
The green from base of ovary extends up to where
limb expands
Otherwise like all Gloriosas, margins
not much ruffled.



BM. 2583 Zephyranthes verecunda –
"xx consisting of a few seeds & bulbs, brought by
Mr. Bullock from Mexico." —

BM 2592 Crinum elegans – one of the most beautiful with
all segments almost upright – white – faint pink
on filaments.

BM 2593 Zephyranthes striata
The other plant brought by Bullock
with Z. verecunda which see—
Also close at night—



BM 2594. Habranthus carinata — also mexico
now Z. grandiflora?

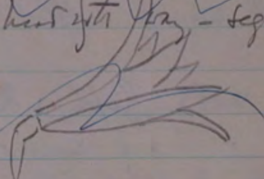
BM 2597 Habranthus bifidus—
Dull pink— looks like
Habranthus— Buenos Aires!

BM 2599— Tigridia Herbertii —
Buenos Aires— Cypella?

BM 2607— Zephyranthes candida— Peru — Buenos Aires—

BM 2621. Hymenocallis littoralis δ — ~~variant~~

BM 2635 Crinum strictum — one of the } unknown sources—
nasty heads but not too bad } poor things!
BM 2636 C. humile — another nasty head with long - segments



BM 2639 Habranthus angustus—
Rather stiff & poor looking. dull pink
2-fld. Buenos Aires—

BM 2640 Stenomesson curvidentatum —
Peru — dull yellow. closes in
itself as fades; leaves

Eurycles.

E. sylvestris Salisb. (E. amboinensis Loud.)
BM 1419 (Pancratium amboinense)
BR 715 (P. australasicum)
Rev Hort 1879 p. 456 & 457 (as E. australasicum)

allies of Hymenocallis & Pancratium
2 species?

Wasn't there a picture in ~~2 HM~~? 7. Jes

1 acre = 43,560 sq. ft.
1 mile = 5,280 ft.

CHAPTER .....

In writing descriptions of plants, the gardener who knows his material from years of association is handicapped by that very knowledge, forthe mere mention of a plant name will conjure up for him a clear visual image. The result is that he is prone to leave out some details that are needful for the newcomer. This has been a problem for me, although I cannot claim to long years of association with some of the plants that follow. To meet it, at least in part, I have adopted several not altogether satisfactory devices, basing them on the assumption that even the veriest beginner either knows a few of the most familiar plants or could easily find them.

It is difficult to imagine, for example, that there is a person who has not seen a narcissus plant, since even those who might not grow them out of doors, could and probably has grown the tender Paper White in bowls of pebbles and water, for his winter gardening. He will recall that when the plant pushes into growth there first appear several white to greenish bits that serve as a collar through which the leaves push up. He will remember that the leaves are commonly flat and that in time they are pushed apart into two nearly equal lots by the developing flower stalk. This division into two parts becomes more and more apparent as the plant grows on to maturity.

It is an arrangement that is very common among the members of the great order Amaryllidacaea to which the narcissus belongs, so that if one should say that Cooperia, Lycoris or Zephyranthes had bulbs something like those of narcissus with two-ranked leaves, even a person who had never seen them would not be far wrong in his imagining. As he came to know the order better, he would realize that the chief differences in structure among them all would be in the position of the flower scape in relation to the leaves, for in some cases the stalk does not arise from the center.

As another example, one feels certain that almost all gardeners have seen a gladiolus with its leaves folded over each other at their bases but allowing the flower stalk to arise through them. This habit is common among the Iridaceous plants, may serve him as a pattern when he reads of ixia, cypella, montbretia and the like, the differences being chiefly in number and dimensions, with other variants in the arrangement of the flowers on the stalk.

Again the hyacinth is common enough. Its broad leaves arranged in a not too obvious spiral encircle the flower stalk that rises stiffly in the center. This furnishes the basic pattern for Camassia, Chionodoxa, Puschkinia, Muscari, Scilla and the like.

When one comes ot other bulbs, those that send up a tall stem bearing leaves arranged more or less like those of any other herbaceous plant with flowers variously produced toward the top, it is less easy to be explicit, and one finds patterns that cross more than one natural order. It is not difficult to see the relationships between lily and fritillary, in gross plant habit or to note the similarities between tulip and colchicum, or babiana and tigridia, in general habit.

But these generalizations cannot be pushed too far and I have often had to have recourse to comparisons with other non-bulbous plants for details of leaf or stem.

The descriptions that follow are arranged lamely enough in alphabetical sequence with no arbitrary assignment of roles, for what might be the prima donna in one garden area might be quite useless elsewhere. Some suggestions have been risked in the several descriptions to point out those bulbs that will or may dominate any garden scene and those others that will always be secondary in mass effect though by no means subordinate if the plantings are properly designed.

No final suggestions are offered as to which bulbs are best for any one area, much less for any one person. That would be sheer foolhardiness, for no one can ever predict the full measure of another's pleasure and even the oldest gardener will admit that the boundaries of our knowledge of plant use, are constantly being altered, sometimes with surprising extensions into once forbidden areas. No good gardener ever believes slavishly any garden advice. He follows it long enough to learn the presumably sound basic principles and then ad libs to his own joy or later sorrow.

In my own case, the failures have been as many and as varied as the successes, but some ofthe failures came from pigheadedness and some of the successes were born of ignorance. I make neither boast nor apology for either but urge the gardener to plunge ahead as he sees fit, remembering only the basic climate pattern of his garden as compared to that of the home of the plant he aspires to grow, a useful criterion in any gardening operation.

Achimenes

These delightful mid-to late summer blooming plants from Central America have no true bulbs in the strict sense of the word and most writers dodge the issue by speaking only of their roots, having in mind the over-wintering catkin-like storage organs that structurally seem not unlike lily bulbs save that the axis on which the scales are placed is more elongated. Like many another charming plant from this hemisphere thay had 'their day' in the mid-1800s and now are suffering a revival as pot plants for the North and as border perennials where winter cold is not serious and rainfall is not too continuous.

Traditionally they were pot plants so used that their somewhat weak sprawling branches might hang downward from pot or hanging basket. In borders they should be planted in company so that they may clamber up over something more upright than their own lax stems. The only out of door planting known to me was of Achimenes longiflora in its typical blue lavender color form, that grew in company with the larger periwinkle Vinca major over which it sometimes clambered into nearby azaleas. Whether some of the less vigorous clones would do as well one doubts. The roots may be left permanently in such borders unless one needs to increase his stock. They are slow to show growth in the Spring, waiting until the soil warms to wither in the Autumn as nights become cooler and cooler.

Most of the clones available in this country are perhaps of mixed blood with a preponderance of A. longiflora and A. patens both of which show the clear blue lavenders that one associates with the Pallida irises. There are others than the white forms that show deep purple venations pouring out of the slender throats like the patterns of some petunias. The red and pink flowered forms usually have smaller blooms but very brilliant hues, especially in such as Little Beauty.

The plants are somewhat coarse and hairy and produce the flowers in the axils of the leaves most of them on long pedicels so that the flowers stand free of the mass. The flowers somewhat resemble those of petunias to which they are not related, with a longish tube and a flat but tilted face, some with a fairly wide opening for the mouth of the tube, others narrow almost to being closed.

On receiving the most unpromising looking roots, one may well follow the old horticultural practice of placing them on moistened sphagnum moss in a warmish place until the sprouts appear. Then the plants of equal vigor may be planted at equal distances in the pot that is to be their home. The young shoots should be pinched to induce branching as one would do for chrysanthemums otherwise the main shoot would lengthen immoderately before it started to make branches normally. The pieces that are cut off are easily rooted in sand or a sand-peat mixture in a close frame with mild bottom heat, often making flowering plants before the original.

Any rich soil full of humus to retain moisture and sand enough to insure against stagnation will serve.

Once flowering begins it continues until the plant is ready to rest, in fact there are almost as many flowers as one expects of a petunia. They are not substitutes for petunias, however, except perhaps in shadier places than petunias relish.

There are about thirty named varieties listed in catalogues of the present time but some are practically identical in effect if not in fact; the best advice is to grow them all, as they are cheap, and then decide which are most to your taste.

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The flowers appear in the axils of the leaves, mostly with long pedicels; long tubes widening very little to the mouth and the face of the flower tilted at a sharp angle.

The old horticultural device of putting the dormant roots in a layer of moist not wet sphagnum moss until they sprout gives one the advantage of later transplanting to uniform distances those shoots of equal vigor. The shoots themselves can & probably should be pinched back as for chrysanthemums, so that each plant will have more branches than the normal single leader and its later side branches from below. The pieces cut off are easily rooted in sand or sand-peat with mild bottom heat and often make flowering plants before the original.

Any rich soil full of humus & yet well drained seems to suit them well. One cannot imagine them supplanting the marvellous petunias of to-day, except for those semi-shaded lush spots where petunias might languish.

Some pioneers will have to determine how much cold the plants will safely endure & live with any degree of vigor, and it is to be hoped that some one will arise, to gather seed and sow it, as for begonias, ~~to~~ once again to diversify the named clones, lost from neglect or change of fashion.

List the named clones, now offered in trade?

Parks -

Rollins -

Windham

Hayward.

Allium

The American gardener who would like to experiment with the flowering onions must turn for his source material to dealers in native plants and to those who specialize in rock garden plants. Some he may buy as a dormant bulb, others he should buy as he would buy chives for his vegetable garden, a living clump to be set in place and established with the same care he would offer a phlox or primrose. He will also look, if he must in seed lists, mostly European, that offer a fairly long list of names. Then remembering Farrer (wonder) which if any will be worth the effort and perhaps leave off the whole matter, goaded by some friend or relative with the scornful reminder that whatever else may distinguish them, all with few exceptions give off the unmistakable odor of the family when bruised, a scent that it is fashionable to despise.

The family is wide spread and embraces species that are very hardy to cold as well as others that are quite impatient of it. They differ widely in form and habit, including many species that have no bulbs but rather spreading rhizomes that look like those of an iris in miniature.

The writer's experience with the ornamental onions began by collecting in the near by Potomac Valley, Allium cernuum, a plant that has maintained itself happily ever since, flowering and seeding but not producing any multitudes of offspring. As a plant for the rock garden it is quite properly set aside by Dr. Clay in his 'Present Day Rock Garden' written in 1937 as a supplement to the earlier Farrer 'English Rock Garden', but he need not have given it so summary a treatment. Here it is neither tall nor coarse. It is true that the fascicles of flattened green leaves soon lose their pattern as the clump increases, but the foot high stalks overarching to bear a nodding umbel of pale pink flowers, white in the bud, have all the best grace of a bursting rocket. The further movement of each flower on its pedicel is well worth watching but is not peculiar to this species.

A somewhat half-hearted attempt to gather up other native species followed with the usual additions from kindly or derisive friends. Very few of the species persisted more than five years but the fault was mine since sloth has allowed the garden hill to become far too shady and pure cowardice prevents the slaughter of more dogwoods even if in fact they are weed trees for this area.

Conscience insists alsoaon a further fonnfession. While I value many species and found great pleasure in them,not one would take the place in the herbaceous border to rival phlox or peony and only a few of those known from experience would focus swift and keen attention in a rock garden mass. In other gardens, in other climates this might not be so,but I know from painful experience that no contriving of my own - heat,starvation,alkalinity or whatever, can hold the effect of species that are small,are compact,are brilliant "in wide carpets in open and often alpine passes . . . . "

The individual bloom is beautifully made and often beautifully marked or tinted. Moreover they wither very decently, some becoming as papery as any immortelle, others drying invisibly about the developing seed pod. The color range is wide, strawy to golden yellows,whitesthrough various degrees of pinkness, with and without lavender overtones to deep vinous purples and crimsons - some blues - mostly of the gray or lead blue persuasion, and unfortunately and undesirable array of dull pinks that may appear even brownish in some lights. These usually are found in species that are neither frail nor retiring. And some, worst of all, bear bulbils in their flowerheads making them one with the invasive garlic in esteem.

The Rocky Mountain, A. recurvatum is not distinct enough from A. cernuum to hunt for it. A. Geyeri from Colorado proved to be white with a pink line and not 'rosy' and altogether second flight in my soil. Of the Coast species, A. anceps, Brandegii, Breweri, Cusickii, falcifolium, Tolmei, unifolium and validum, all planted in another garden with a sunny gravelly bank of soil neither too rich nor too poor, with validum at the base in a 'moister' spot, the only one that I should hunt for again, and again would be falcifolium. This I should seek out for its curious glaucous green leaves, sickle-shaped and more or less hugging the ground, its low stalks of large starry flowers of a brilliant purplish rose, neither pink nor rose as some would have it. It is a fine color, pure, strong - and uncompromising. Unifolium was lovely but not permanent and validum as far as I am concerned may stay in its moist upland meadows! The rest are all very well but not 'first loves' even for the rocky place that will flower in the Spring and then bake all summer. From Idaho came A. acuminatum though its range takes it further west, to live happily and send up its 6 to 8 inch stalks with fine pinky white flowers that dried neatly and held their color until the seed capsules grew fat. It flowers here about the same time as the Aethionemas and enjoys as spare a soil. A. stellatum from grows to a good 18 inches with fine heads of lavender rose flowers in mid-summer. While tolerant of some shade it finally gave way to the dogwoods.

Of the alliums from European sources, the old A. caeruleum (azureum) is still preferred to the much touted Beesianum or cyaneum though they are quite different sorts of plants. The old blue onion makes a sparse enough plant of no special charm but its round head of dull lead blue flowers darkened by the shadows of the innermost undeveloped buds makes a fine note, the sort of thing one wishes for in Eryngium and does not always get, save in books. I never grew it in my own garden but in the lighter soil of the other place it eventually died out, probably for lack of leafy company at soil level. It is the sort of thing one would wish to plant in mixed company to accent other hues and flower forms.

Both A. Beesianum and A. cyaneum are smaller more tufted plants with heads of flowers that seem pendant rather than erect. In our hot summer sun they merely 'tended' to be blue and more often appeared ashen, which means only that they are not for us but for some chillier, foggier clime.

The onion named for George Forrest, A. Forrestii is more or less the same sort of onion, with nodding rosy purple flowers that are a poor thing compared with the color of A. falcatum.

Of Farrer's favorite trio, A. Ostrowskianum, A. oreophilum, and A. narcissiflorum, I knew only the first and it is a delightful thing. Its small bulb produces a scant tuft of flattish leaves in Spring, followed by a goodly head of clear bright pink star-shaped flowers - and vanishes by late June. Neither seed nor bulbs of A. oreophilum were ever found and sowing after sowing of seed of A. narcissiflorum yielded without exception examples of the dull pink and dowdy senescens tribe.

From a neighbor's garden came bulbs of A. flavum that produced a plant not unlike our native wild garlic but threw up a flat-bracted inflorescence that spilled out a cascade of small, slightly greenish yellow flowers. Its exact counterpart in purplish pink came from another garden as A. pulchellum, now considered a variety of flavum. They were long permanent, but flowering in the season of May to June when borders are at their gaudiest, they were noted only by the most observant.

From foreign sources came bulbs of three species, more curious perhaps than beautiful, A. giganteum, A. albo-pilosum and A. Schubertii with a fourth of the same category from an old garden in this country, A. karativiense. The first suffered in our climate because of its tendency to push premature leaf growth, soft and pale yellow green, and as surely injured as most plants that would start such growth with autumn rains. The five foot stalk with a huge head of dull pink flowers on long green pedicels is a startling thing and photographs even more amazingly well. The next two, alike and not alike, are striking chiefly for the arrangement of the flowers in the head; for the pedicels are so long that one gets the same effect one would have if a seed head of dandelion were hugely enlarged and the glistening dandelion silk were replaced with dull pink onion stars. But like the Giant, they are uncertain in our climate and for the same reason, a memory of autumn rain and a long cool growing winter. A. karativiense for which Farrer had no kind word and properly so since it is no rock garden plant, has very broad convex leaves of a fine dull, or better matte, glaucous green often with a tint of dull crimson as a line on the very margin. Two leaves to a bulb form the crown from which rises the short stalk topped by a two inch globe of dull pinkish buff flowers, a hue that could be given a more fashionable name, but that would remain dull none the less. To see this species at its best, the bulbs should be planted closely together to simulate a clump in natural increase or else one must wait. The ultimate foliage masses pile up and make a striking unit, as decorative a note as does Hosta plantaginea the sweet 'August lily' of the southern gardens.

If one undertakes collecting allium species, he will sooner or later have recourse to seeds. It should be recalled that these like seeds of garden onions are short lived. Should one get scanty germination, he must pray that the few individuals will represent the species in its best color forms for then he can divide his bulbs to suit his fancy, a perfectly simple operation for the resting period of the plant. Seed requires no special treatment, but the good gardener will use a quick-draining mixture for all bulbs, of that happy type sought by rock gardeners, quick-draining but never wanting in moisture.

The American gardener who would like to explore the possibilities of the flowering onions must turn for his source material to dealers in native plants and to specialists in rock garden species. He will soon discover that many of the species are plants that are best bought as he would a clump of chives for his vegetable garden rather than await the moment when the bulb or root might be as dormant as a dime-store tulip. He will also, if he must, look to the seed lists, mostly European, that offer a fairly long list of names. Then remembering his farmer, he will wonder which if any will be worth the effort and perhaps leave off the whole matter. Perhaps by then some peeved friend or relative will remind him that whatever else may distinguish them, all the alliums with rare exceptions, give off when handled the unmistakable odor of the family, a scent it is fashionable to despise!

The writer's experience with this ornamental onion began with the collection in the nearby Potomac Valley of Allium cernuum, a plant that has maintained itself happily ever since, flowering + seeding but not producing endless myriads of offspring. As a plant for the rock garden it is quite properly set aside by Dr Clay in his "Present Day Rock Garden" written in 1937 to supplement the earlier Farrer "English Rock Garden", but he need not have given it so summary a treatment for here it is neither tall nor coarse. It is true that the fascicles of flattened green leaves soon lose their pattern as the clump increases, but the frost kissed stalks ~~with their~~ overarching to bear an umbel of flowers, white in bud pink on opening, have all the best grace of a bursting rocket. The further movement of each flower on its pedicel is well worth watching but is not peculiar to this species.

A somewhat half-hearted attempt to gather up other native species followed with the usual additions from kindly or derisive

friends. Very few of the many species persisted more than five years but the fault was mine rather than theirs since sloth has allowed the garden hill to become far too shady and pure cowardice prevents the slaughter of more dogwoods even if they are in fact weed trees ~~for~~ the region.

~~In~~ Conscience' sake also requires a further personal confession that while I value many species and found great pleasure in them, not one would take a place in the herbaceous border to rival phlox or peony and only a few of those known from experience would focus swift and keen attention in a rock garden mass. In other gardens in other climates this might not be so, but I know ~~from~~ from painful experience that no contrivance of my own – heat, starvation, alkalinity or whatever can hold the effect of species that are small, are compact, are brilliant "in wide carpets in open and often alpine places xx"

The individual flower is beautifully made and often as beautifully marked or tinted. Moreover they wither very decently – some becoming

as papery as immortelles, others drying invisibly about the developing capsule. The color range is wide – straw to golden yellows – whites through various degrees of pinkness, with and without lavender overtones, to deep ~~to~~ vinous purples & crimsons – some blues – mostly of the gray or lead blue persuasion – and unfortunately ~~and~~ an undesirable array of dull pinks that may appear even brownish in some lights. These moreover belong in species that are not either frail or retiring ~~species~~.

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check against MSS

that I showed hunt for again - and again comes to falcifolium with its curious glaucous green leaves, sickle-shaped & more or less hugging the soil, and low stalks with large starry flowers, of a brilliant purplish rose - ~~and not~~ with pink now rose as some would have it. It is a fine color - pure, strong - and uncompromising. Uniflorum didn't care for us and validum as far as we are concerned can stay in its moist upland meadow! The rest are all very well but not "first loves". From Idaho came A. acuminatum that sent up its 6 to 9 inch stalks with fine pinky white flowers that ~~stood~~ arose neatly & held their color while the seed capsules grew on. It flowers here about the same time as the Aethionemas and enjoys as sparse a soil. A. stellatum grows to a good 18 inches with fine heads of lavender rose flowers in mid-summer. While tolerant of some shade, it has finally given way to the dogwoods!

Of the alliums from European sources, the old A. caeruleum (azureum) is still preferred to much touted A. Beesianum or A. cyaneum though there are quite different sorts of plants. The old blue onion makes a sparse enough plant of no special charm but its round head of dull lead blue flowers darkened by the shadows of the inner mass of as yet undeveloped buds makes a fine note, the sort of thing one wishes for in Syngeniums and does not always get - save in books. I never had it in my own garden and in the hotter lighter soil where it was growing it eventually died out - probably for lack of leafy company at soil level.

Both A. Beesianum & A. cyaneum are smaller more tufted plants with heads of flowers that ~~seem~~ to be pendant rather than erect. In our hot summers seem they only tended to be blue and more often appeared ashen, which only means that they are not for us - but for some chillier, foggier, clime.

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From some neighbor's garden came a few bulbs of A. flavum that produced a plant not too unlike our wild garlic but that threw up a fat bracted inflorescence, out of which bunches a mass of small, slightly greenish, yellow flowers. Its exact counterpart in purplish pink came from another garden as A. pulchellum, now reduced to a variety of flavum. Both were long permanent, but flowers as they do when the May-June borders are at their gaudiest, they were seen only by the most observant.

From foreign sources came bulbs of three species, more curious perhaps than beautiful, A. giganteum, A. albo-pilosum and A. Schubertii, with A. karatavienseis from an old garden in this country but of their same category. The first suffered in our climate from its tendency to premature leaf growth — soft and pale yellow green — and as rarely injured as most plants that start with autumn rains. The fine fat stalk with dull pink flowers on green pedicels is a startling thing. The next two — alike & not alike, chiefly striking for the arrangement of the flowers in the head — on the long pedicels so that the whole has the very same effect as some giant dandelion in seed — with white or dull pink flowers in place of the glistening dandelion silk. But like the last they are

Allium

uncertain in our climate, and for the same reason ⊙ A. karativiense for which Farrer has no kind word — and it is not rock garden subject — has very broad convex leaves of a fine dull glaucous green often with a tint of dull crimson as a line on the margins. Two leaves to a bulb and a short-really squat stalk with a two inch head of dull pinkish buff flowers. The color could be given a fancy name — but it would remain dull! To see this species at its best, the bulbs should be planted closely together to simulate a clump of natural increase — or else one must wait. Then the foliage masses pile up and make as striking a mass and as decorative a note as does Hosta plantaginea.

If one undertakes collecting allium species, he will sooner rather than later have recourse to seeds. It should be recalled that these like most other onion seed are short-lived. Should one get scanty germination he must spare that the few individuals will represent the species in its best color forms for then he can divide bulbs to suit his fancy. The seed would need no special treatment, but the good gardener always uses a quick-draining soil mixture for seeds of bulbous plants, quick draining but at that happy intermediate stage so well known to rock gardeners where drainage is always perfect and moisture is never wanting.

Should there be note that many ~~of~~ ones have almost a rhizome — not a bulb?

Amaryllis

The many plants commonly known as amaryllis do not belong here but mostly to Hippeastrum, or did until recently when the whole order of Amaryllidaceae has suffered an historical taxonomic reshuffling and restudy. To make matters merrier, those that were once Hippeastrum are now mostly Amaryllis and the long known Amaryllis Belladonna which is the sole subject of this note, is now a Brunsvigia. Whatever its Latin name, it is too widely know to be soon forgotten as the Belladonna Lily.

In this country on the Pacific Coast, it is an old story to gardeners so old a story that they are perhaps amused to imagine how breath taking a sight the stranger finds it when he comes on a fine old clump bursting into flower. The vigorous scapes seem to spring, to leap from the soil, naked of leaves and to shatter the red sheathing bracts to set free the beautiful clear pink 'lilies' often white deep in the throat and exhaling always a most delightful pungent scent, that fills the garden nearby. Later to be sure, these wither away and toward the end of summer the clumps of leaves appear strap shaped but often not flat nor altogether obviously two-ranked, to over winter and perish in the Spring, leaving again the bare earth from which flowers will rise once more.

The bulbs are large with tough coats that fray out along the upper edges in soft fibers, once known never forgotten. They are usually planted with a scant cover of soil. Increase is slow as compared with smaller bulbs but regular from the base of the bulb so that in time goodly clumps are formed.

Coming as it does from a region with marked dry and wet seasons, it is happiest in those warm parts of our country that have such climates. The writer has not succeeded with it in his garden but is probably somewhat to blame, for while it was planted at the foot of a warm bank facing south, it was not discovered until too late that drainage there was too slow. This with winter damage to the foliage did not suit our plant though it lasted longer than did Lycoris aurea of similar growth habits.

There are variants, chiefly in color, darker and paler, all of which are worth while. And there are various inter-generic hybrids that have gained in size and body but with the same basic habit and flowering.

All books agree that the plant is not happy in pots but it has not been tried here and I know of no one who has tried it so. Data also are lacking as to its behavior in the southeastern States but there one should go ahead with some caution for even in the milder parts there are cold periods when frosts do serious damage if the winter foliage of tender plants is too lush. As the bulbs are not the most expensive, it should be tried, possibly with a slightly raised bed into which some extra sand has been dug, if assured drainage is a factor.

Amaryllis -

To those gardeners on the Pacific Coast, to whom the old garden plant long known as Amaryllis Belladonna and still commonly offered under that name in spite of recent changes in taxonomic history, is a common and familiar thing, it may be difficult to imagine how breath taking is a first sight of a fine clump in bloom. The vigorous scapes seem to spring, to leap, naked from the soil and burst open the spathes setting free the beautiful clear pink lilies, often white deep in the throat, ~~that~~ & exhaling a most delightful scent. ~~that~~ to fill the garden nearby. Later, to be sure, these wither as must all bloom & still later, toward the end of summer the clumps of leaves appear, strap shaped but often not flat nor altogether obviously two-ranked, to overwinter and perish in the late spring, leaving again the bare site from which the flowers will rise once more.

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The many other plants commonly known as amaryllis do not

below here but mostly to Hippeastrum, another name involved in the taxonomic shifts already mentioned, but preserved here, not through obstinacy but sheer convenience.

Unlike these last two plants is not really a happy subject confined in pots!

Do we want reference to the inter-genera hybrid?

Antholyza Work sheet only.

This genus has been split up into several others. I have never had any except a few that were not truly bulbous, though the end of the rhizomes sometimes look almost bulbous.

They come from the Cape (Africa) and will be useful only in California but might find a place in parts of the South if they can come through the winters without too much damage to foliage.

Antholyza

This genus split up - see Hortus -
A. paniculatus = Curtonis ? - NHM Oct 1928 p. 154

BM. 418 Antholyza Meriana - now Watsonia?

Discussion as to whether or not this is a Watsonia! Named for "Sybilla Merian, the celebrated female Dutch naturalist so eminently distinguished for the productions of her pencil xx"
"It requires the same treatment as the Cape bulbs, succeeding well and produces plenty of offsets when planted in light sandy bog-earth" Fl. Fls in May & June, & is prop. by offsets. - First raised from seed sent to Miller of Dictionary fame, by Dr. Job Baster, few? 1756?

Babiana

It is with some trepidation that one whose gardening has been mostly Eastern writes of this South African genus, known to him only as pot plants and none too happy when over-wintered and flowered in the cool pit greenhouse. The same house served well enough for freesias and Tritonia crocata among other South Africans but the babianas never seemed entirely 'at ease'.

The corms grown originally from seed or bought in this country in mixtures, pushed into growth soon enough, sending up their fans of plicate leaves, usually soft with tiny hairs or down, folded as in gladiolus about the developing flower stalk. This in our plants barely topped the leaves. Since most of the material was supposedly Babiana stricta which is described as having leaves that barely reach the base of the flowers one feels that either the stock was poor or the culture was incorrect, possibly with too low a temperature range. Since other corms grown only from imported seed gave no better performance it was probably a cultural fault.

The striking thing about babianas with their charming flat-faced flowers is the combination of colors in which pink or red and almost pure blues are in striking juxtaposition, especially as in B. rubro-cyanea that wears a crimson throat with a deep blue face.

If one wishes to pursue the various species of Babiana, he probably must resort to seeds and if he needs encouragement and has access to Curtis Botanical Magazine for those years in which so many 'Cape' bulbs were shown, he will find his zeal mounting apace.

Nearly all the plates show plants that are much alike in their leafy characters, all with somewhat folded leaf bases and broad spreading blades, usually plicate and in various degrees of soft hairiness. The flowers are nearly all of one pattern, with the six lobes of the perianth irregularly arranged so that one sense an upper and a lower three, but with considerable variation in the length of the tube so that some seem more like stars flat against the leaf fans while others are more 'lily-like'. Nearly all have markings or some patterns of strongly contrasting color or hue, usually confined to the upper three segments but not always so.

What one cannot guess from the books is the manner of growth under natural conditions nor what companion plants would make best company. One note, from England to be sure, suggests that the flowers should not get too much direct sunlight as 'that will render its beauties of short duration'. Another plate that shows bulb characters reminds one that babianas are cormous plants that must renew themselves each year and so cannot have company that will steal too much food. Nowhere do I find a record as to how quickly the foliage dies off; here under glass it is gone by mid-summer. All agree, and it is our experience as well, that seeds are sure, requiring no special care or waiting once they germinate, and germination time seems to follow the time when the plants would push into growth at home.

Query ---- How far should I go to list names of species? I have the notes in work form.

Babiana

It is with some trepidation that one whose gardening has mostly been Eastern, writes of this South African genus, ~~that he has~~ known to him only as pot plants and none too happy, when overwintered in the same sort of cool pit greenhouse that served quite well for Freesias, ixias ~~Vaia~~ and Tritonia crocata among other South Africanders.

The corms planted in pots or flats pushed into growth quickly enough, sending up the broad, ~~the~~ leaves plicate or pleated and usually conspicuously hairy, folded as in gladiolus about each other and the developing flower scape which in our plants barely topped the leaves. Since most of our material was supposed to be of Babiana stricta that is described as having leaves that barely reach the base of the spikes one feels either that the culture was wrong or that the stock was poor. Since other corms grown from imported seed were no better in performance, the fault is probably in the culture.

The striking thing about the erect, open faced flowers is the combination of colors, in which pink or red + blue & purple are put in startling juxtaposition, especially in those with deep blue purple faces + deep red ~~tubes~~ throats.

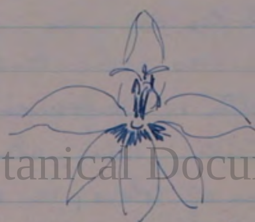
check further: Mrs Combs book
B stricta Bot. 583, 621, 637, 410, 1053
B. plicata Bot 576
B. disticha Bot 636
B. sambucina Bot 1019
B. socotrana Bot 6585

Check notes on perfume -
Culture in Calif -

BM 6585 Babiana socotrana
Disc by Balfour, Island of Socotra - 1879-80 - Small plant. Lavender. Dull netted bulb coats. Chief interest lies in location far distant fr Cape.

BM 410 B. rubro-cyanea (as Ixia)
Drawn fr plant — May 24, 1797.
"It is propt. in the same way, & succeeds with the same treatment as other Ixias; care must be taken when it comes into flower that it be not too much exposed to the sun, for that will render its beauties of short duration."

BM 576 B. plicata -
Cult at Kew 1778 - probably not as irreg. in corolla as sketched



B. 583 B. villosa - prob. B. rubro-cyanea.
The interesting thing about Babiana is the disproportionate size of anthers -
Does not look like Babiana to me!

B. 621. B. stricta - Cult in 1757 by Mr P. Miller - Said to have more uniform corolla, seg. ~~the~~ & more upright than B. plicata

If one wishes to pursue various species, he probably must resort to growing them from seed and if he needs encouragement and has access to Curtis Botanical Magazine for those years when it figured so many bulbous plants from the Cape, his good will doubtless wax high.

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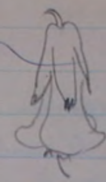
BM. 1020 Lachenalia tricolor β luteola —

color variant —



BM 1052 Babiana stricta (γ) Rose-colored fls —
referred to ~~~~ B. rubro-cyanea.

BM 1053 Babiana sulphurea —
"Leaves to us intermediate
between stricta & plicata" J.
Just "off" white — blue anthers &
faint blue stains — tube not very long — Strong

BM 1072 Watsonia rosea —
Tall 4 ft — looks like nice pale rose [illegible] form —

BM 1073 Crinum asiaticum —
One of those mop-heads — segments narrow & stringy as in
Pancratium, end of plants crimson

What is BM. 1088 — Gethyllis spiralis? — L.
Shabby loose scaled bulb — papery? — Leaves like Zephyranthes —
fl. ditto but long tube and flat arrangement of
segments on top — white — outer 3 reverse — dotted rose? —
syn. Papiria spiralis Thunberg.

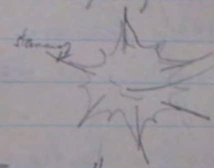
BM 1089 — (Amaryllis humilis (β) Nerine —
Long (?) synonymy of) that includes Zephyranthes
among other things.

Omit —

BM 726

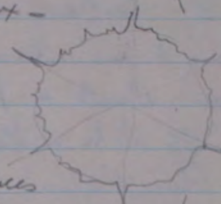
Pancratium caribaeum —

"A native of the West-Indies: said to have been introduced by P. Miller, in 1730." Small web — long segment —



BM 727 – Pancratium rotatum –

"is a native of Carolina," Michaux –



Large web. —

" x x requires a strong heat to make it thrive, & rich mould; produces abundance of offsets; the mother bulb itself often perishing after producing the bloom." —

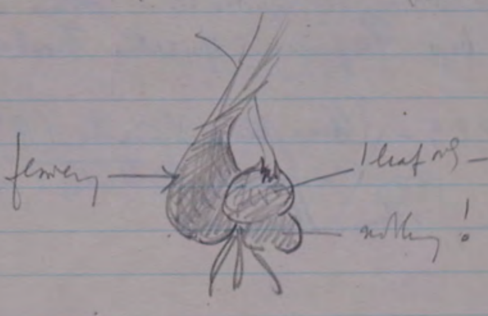
[BM 991 – Massonia corymbosa – what is this

Curtis' 23/136 = (1807)

BM 1019 – Babiana sambucina.

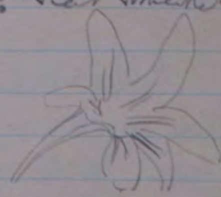
Apparently one of the smaller plants. Flowers with long tubes, dull purple – dark purple median stripe.

Details of bulb interesting —



BM 626. Babiana disticha.

"Flowers so exceedingly fragrant, that we do not know a plant on this account more desirable: scent somewhat like that of the Single Oriental Hyacinth, but much more exquisite. Native of the Cape."



Dull gray to blue white dull blue marks – anthers blue to blue black. Flrs more lily-like than most Babianas.

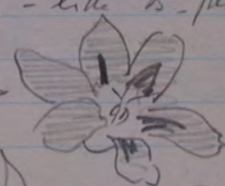
BM 630 Ixia columellaris – looks like color form of ... also

BM 631. Watsonia humilis –

"Raised originally in this country from seed brought from the Cape, by Capt Hutchinson to Miller in the year 1754." G.

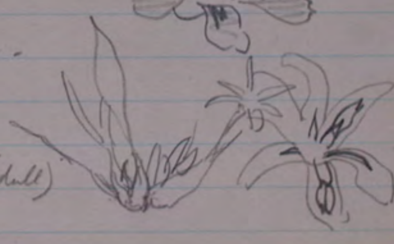
Looks like most – nice rose pink – said to be smaller plant.

BM 637 Babiana stricta – Dwarfish – like B. plicata but pointed blue – black spot – rosy base. Leaves narrower than most.



BM 638 – Babiana spathacea.

"Found by Thunberg at the Cape in Bockland + Hantam, flowering during the winter months – x x" Flrs lavender – (dull) white marks anthers black



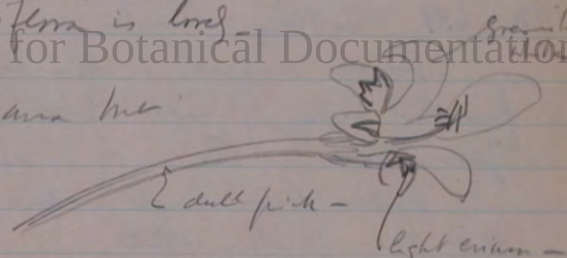
BM 672 – Geissorhiza obtusata – Long –

BM 679. Iris lusitanica –

Looks like a Spanish Iris – style branches – straw yellow – standard same – smoother to violet at base – blade of falls broad lemon yellow with same dark flecks as if with mosaic ?
G. regrets that the pure yellow color form is not given & says this is Solanders I. sordida
"Found by Clusius in rich spots, as well as on rocky hills, near the Tagus above Lisbon.

BM 680 – Babiana tubiflora is long –

Leaves look like Babiana but flower ?



Found by Thunberg at the Cape of Good Hope, in the district of Swartland. Intro into Kew Garden by Mr Masson in 1774.
Easily prop by seed & offsets.

Bessera

For no good reason other than procrastination, this bulb that used to be regularly offered in trade and now is coming back, has never been bought, even in those days when its kin the brodiæas were being assembled for trial. Although it is said to be closer ~~kin~~ to Androstephium a native of Texas that was tried and lost, that in turn is said to be related to Brodiæa so we have a close group at best. Brodiaea has free standing stamens, while the other two genera have flowers with the bases of the filaments ~~mmmm~~ united to form a crown from which the rest of the stamen rises free.

The common name, Mexican coral drops suggest the color scheme, for the perianth segments are red without, white within though 'usually with vermilion margins and center line'. There is more color on the outer three, as is so often the case. The habit is as in Brodiaea, with a few lax leaves above which rises the 12 to 18 inch scape terminated by a wide umbel of nodding flowers that wither apparently as neatly as do those of Brodiaea. Unlike these last, it is reported that the plant is not spring blooming ~~but~~ which suggests that it might be more patient of our summer rains though less patient of our winter cold.

Sometime doubtless I shall buy Bessera elegans to augment that great company of the dead that have proven to me that they will have none of my climate or my care. Meantime it would seem that all the States that border on the frontiers should have a look at Bessera and find out if their borders could not be enlivened with the graceful flower stalks hanging out over a mass of lower green.

Bessera

For no good reason other than procrastination, this bulb that used to be offered regularly in catalogues has never brought ours down, even in those days when curiosity was leading to attempts with Brodiaeas. Although it is said to be close to Androstephium a native that was tried and lost, that in turn is related to Brodiaea, so for this paragraph we may jump the gap

check with Blake in Hermosa

Both Bessera & Androstephium are separated from Brodiaea with its free standing filaments, by their filaments joined to make a tube.

The common name, Mexican Coral drops suggests the color for the perianth segments are red outside, white within though "usually with vermilion margins and center line," (Bailey page 496) The habit is as in Brodiaea, with a few basal leaves above which rises the 12-18 inch scape terminated by a wide umbel of nodding flowers, that wither apparently as readily as those of Brodiaeas. Unlike them, last, this plant is not spring blooming, which suggests that it might be more patient of our summer rains though less tolerant of any winter chill. Since it is once more offered in our bulb lists, it may be that a safe bulb production center has been found within our borders.

Look up orig. publication: Bessera elegans Schult. f.

Also Gard. & Forest 4:125
BR. 1546 (Phalangium fistulosum)
Flore de Serres 4:424 (B. miniatum)

Is there is any note as to range in Mexico & if so have we any elevation data.

Bloomeria

At the time when the brodiaeas were being tried under Eastern conditions, corms of Bloomeria aurea were purchased. Mindful of Mr. Purdy's specific advice as given in Bailey's Cyclopedia, they were planted in full sun on a little slope into which had been dug not only some coarse sand but some of the broken stones so common here about. Sweet soil is hard to keep on my acid hillside, but bone-meal had made aethionemas happy enough and more was added for these Californians—in-exile. As the best of a poor bargain, the corms were set, as for crocus, about three inches deep and with no winter cover.

The plants persisted for about five years with no other care than to be sure the rock plants did not encroach too much. As in brodiaea the foliage is not much, in this species a single leaf that grows longer and longer till maturity. The flower scape rises about eight inches and is topped with a wide umbel of starry flowers, to my eye not 'bright orange' but a better yellow than the somewhat similar stars of Brodiaea ixioides in which the yellow is further dimmed by the dull purple median lines. My plants never set seed and eventually gave up the struggle since our winter temperatures are always below the reported 15°F of Mr. Purdy's note.

This, perhaps, is just the sort of corm that would persist longer in a rock garden where it could benefit from extra drainage and a soil pocket more nearly to its requirements than anything I could fashion. It is a most delicate and graceful flower always worth a second look even from those visitors who could best see such plants as Tulipa Fosteriana!

Bloomeria

At the time when the brodiaeas were being tried under Eastern conditions corms of <u>Bloomeria aurea</u> were purchased. Mindful of Mr Purdy's specific advice in his note in Bailey's Cyclopedia, they were planted in full sun on a little slope facing south, into which had been dug not only some coarse sand, but some fine gravel. Sweet soil is hard to give on ~~our~~ my acid-hillside, but enough bonemeal had been added to make aethionemas happy; ~~so~~ as the best of a ~~bad~~ poor bargain the ~~bulbs~~ corms were set, planted as for crocus about three inches deep and with no winter cover.

The corms persisted with this scant care for about 5 years, yielding like brodiaeas, ~~scanty lax foliage~~ lax foliage, in this case a single leaf, and a moderately stout stalk ending in a many flowered umbel of starry flowers, to my eye not "bright orange" but a better yellow than the somewhat similar stars of ~~Brodiaea ixioides~~, in which the yellow is further dimmed by the dull purple median lines. As in B. brodiaea, the flower with neatly × My ~~bulbs~~ plants made no seed and eventually gave up the struggle for persistence, since our winter low temperatures are always below the reported 15° F of Mr Purdy's note ×

This perhaps is just the sort of ~~bulb~~ corm that would persist in a rock garden where it could benefit from extra drainage & a soil pocket more nearly to its requirements than anything I could fashion here.

Bowiea

This rather ugly bulb from the 'Eastern frontier of the Cape District' nearly always gets into books and collections because it is ugly. In more polite language it is the sort of thing / referred to in texts as an oddity grown chiefly under glass to show students concerned with botany rather than with blooming plants as ornaments! It comes to the same end;it is ugly. I have never grown it but saw it first as a 'student' and later had it in a collection of other tender things under my general care.

The bulb in time grows to a good size,and is made up of large scales that look green and succulent, almost as if translucent, could one dare to cut one in slices. From a rather navel-like opening on the top it sends up each year a green twining stem that branches and rebranches until it looks like some succulent gone wrong or some asparagus shorn of all its strength, leaves and thorns. The leaves as such are reduced to tiny scales and the greenish flowers follow the familiar pattern of monocots with their regular six parts. They produce seed that one may sow if he wants more of Bowiea volubilis! Since the miserable thing grows in winter and rests through the summer it could be used only in the mildest regions where winter flowering is possible and where most assuredly its minor charms would be obscured by more flambouyant neighbors.

Bowiea

This curious genus is usually referred to in texts as an oddity grown chiefly under glass for show to students ~~who are~~ concerned with botany rather than with blooming plants as ornaments. It needs scarcely more of a description than that and the writer knows it only in that role, never having grown it nor having had the least desire to grow it. Its curious green bulb that looks as if it might be semi-translucent, sends up annually from its central core, a twining green stem that branches + rebranches to form a mass that suggests some succulent gone astray and producing small terminal green flowers from the upper most divisions followed by small seed pods + seed that furnish propagating material if any one should want it. Since it grows in winter and ripens off in late spring to pass a dormant summer, its usefulness out of doors would be geographically limited to areas where more flamboyant bulbs would certainly obscure any charms that might be inherent in it. Bowiea volubilis.

Look up original description. + find out if possible who J. Bowie was, aside from being a collector for Kew. Was it named as a bad joke — like the malicious naming of Commelina?

BM. 5619 → "Eastern frontier of the Cape District"

Brodiaea

While it is probable that the brodiaeas will always be of more certain value in California and these other western States into which their natural ranges extend, they are by no means impossible of cultivation in other parts of the country, where winters are not too cold or summers too continuously rainy. This last is important for many of them come from localities where they are baked to adobe hardness for many months of the year. It is a genus that has been variously divided and subdivided by taxonomists, the separations based largely on minor details of flower structure.

The corms are generally small, some with shaggy fibrous coats, others smooth or hairy. All produce few grassy leaves that make no great show and that may in Nature begin to ripen before the inflorescence has finished opening all its blooms. This inflorescence is borne aloft on slender, often wiry stalks that are taller or shorter in some species according to the rainfall of the growing season. At the top are various bracts, in some almost as highly colored as the flowers ~~themselves~~ they shelter. These part and the flowers emerge, some on long pedicels to form umbrella like corymbs, some on shorter pedicels but still long enough to make an open head, others almost sessile as in Brodiaea congesta in which the flowers are pressed together tightly.

The writer has grown all the species he could find in trade with varying degrees of permanence, but eventually losing ground before the lusher growth of the Eastern herbage. B. lactea proved to be the most lasting of all.

Bearing in mind the gardener's usual devices for pampering plants of borderline hardiness, the places chosen for planting the corms were uniformly well drained with coarse sand worked into the bottom of each 6 to 8 inch pocket and the soil filled in, well mixed with sand and leaf humus. Very few of the species now kept in the genus Brodiaea failed to make their appearance the following Spring, but several trials were necessary before B. volubilis now Stropholirion volubilis decided to give me one season's trial; and the floral fire-cracker, B. coccinea, now Brevoortia Ida-maia thought even less well of all attempts, though a single corm of one late planting did flower grudgingly and die.

The wide spread inflorescence of B. ixioides sets off nicely the rather flat-faced starry yellow flowers that are dulled somewhat by the faint purple median lines on each of the six segments, darker without and showing through faintly at first but more clearly as the flower becomes papery on withering and closing over the developing seed pod.

B. lactea makes a taller scape and does not spread its smaller white stars so far apart. It is said that there is a stronger-growing lilac variety but our luck never included any but the white form with its sharp green central nerves.

The largest group, in the garden sense of the word, is made up of the species with scapes of varying heights, but all with wide spreading umbels, each pedicel bearing upwards a small blue-lilac to deep lavender trumpet-shaped flower between one and one half and two inches deep. As in all brodiaeas the outermost flowers open first forming a ring about the inner buds. As blooming progresses toward the center, the outermost flowers close neatly on themselves and the whole perianth becomes parchment like and translucent. If the stalk is cut at the right moment all the flowers will open and then dry, making a very interesting addition for a dry bouquet as the color holds well.

For the Eastern garden, B. laxa may be the best though B. candida is not bad and B. Hendersoni assigned here with its dull yellow flowers banded with equally dull purple contrasts well with the clear gray-blue-lavenders of the others, a hue ~~a hue~~ that often overshadows the proper whiteness of B. candida.

Somewhat of the same type though usually with a shorter scape, and in my experience with fewer flowers to the scape, is B. grandiflora that bears fine lily-trumpets of blue purple darkest at the tips and palest deep within the throat. Although this extends northward into British Columbia, it was not permanent here, nor could I blame it, recalling the dry California harvest fields ~~and~~ where it finished flowering and seeding after the base of the scape had dried to the corm level.

B. congesta with its red purple bracts and tight heads of crowded lavender flowers gives a very different ~~blooming~~ flower effect while B. multiflora fills in the gap, with flowers like those of the last but in the examples seen, short-pedicelled giving a more graceful open head. Both dry well and hold their color.

No corms were available for the Douglasii-Howellii-Palmeri triumvirate. This was regretted as they are all north of California limits though probably from the moist coastal ranges that provide very little material for use in the open in localities where there are no fogs to mitigate low temperatures. Nor was it possible to find B. rosea said to be rose red; B. Lemmonae deep orange or B. lugens, saffron color, though one could have a pang at planting all these for their doom.

As compared to many plants from wet-dry climates, these are slow to start leaf into growth and showed no disposition to make winter foliage that would have undoubtedly suffered and hastened their departure. So it may easily be, that barring extremely cold climates, the Brodiaeas could be more used than they have been. One hesitates to suggest the company they should keep, or the garden site, which should undoubtedly be a place that might be allowed to bake through the summer with possibly dianthus or such heat tolerant annuals as portulacca, calandrinia or talinums for ground cover, with not too distant candytufts or thymes as additional perennials, provided always that they did not crowd over!

No suggestions are offered either for Stropholirion that raises itself into the light by twining its flower scapes about strong grasses or low shrubs, or for Brevoortia that is described as if it needed cooler summers and milder winters than any place but the Pacific Coast might provide. These here, as admitted, were failures.

Mr. Purdy who championed the cause of so many western plants, writing in 1933 suggested BB. ixioides splendens, laxa Purple King, coronaria, grandiflora, stellaris, coccinea, pulchella and volubilis but wisely forgot to mention how each might be cozened into forgetting their western homes.

Fortunately the corms are not dear and a season or two of experimental failure will not cheat one of may dozen tulips!

Brodiaeas

Toccoa? + Seneca S.C.
reared.

While it is probable that the brodiaeas will always be of more certain value in California and the other western states in which their natural ranges extend, they are by no means impossible of cultivation in other parts of the country where winters are not too cold nor summers too completely or uniformly rainy, this last because they are accustomed to a summer rest period often under sun-baked conditions. It is a genus that has been variously divided & sub-divided by taxonomists, the separations based largely on minor details of flower structure.

The corms are generally small some with shaggy fibrous coats, others smooth & hairy. All produce few grassy leaves that make no great show and that in nature may begin to ripen before the inflorescence has finished opening all its blooms. This inflorescence is borne aloft on slender, often wiry stalks that are taller or shorter in some species according to the rainfall during the growing season. At the top are various bracts, in some almost as highly colored as the flowers they shelter. These part and the flowers emerge - some on long pedicels to form umbrella-like corymbs, some on shorter pedicels but still long enough to make an open head, others almost sessile as in B. congesta in which the flowers are massed together tightly.

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As compared to many plants from wet-dry climates, these are slow to start and here showed no disposition to make winter foliage that would undoubtedly hastened their departure. So it may easily be that barring extremely cold climates the brodiaeas could be more used than they have been. One hesitates to suggest the company they should keep, on the garden site, which should undoubtedly be a place that might be allowed to take untended through the summer with possibly calandrinia dianthus or such heat-tolerant annuals as portulacca, or talinums for ground cover, even candytufts, or thymes provided the cover did not lie too heavily.

No suggestions are offered either for Streptopolizon that raises its flower head to the light by training its scapes about strong grasses or about shrubs, or the Brevoortia that sounds as if it needed cooler summers as well as milder winters than any place but the northern Pacific Coast can provide. These here were immediate and complete failures.

The Purdy who championed the cause of so many Western plants writing in 1933 suggested BB. ixioides splendens, laxa Purple King, coronaria, grandiflora, stellaris, coccinea, pulchella and volubilis but widely refrained from suggesting just how each should be coaxed into forgetting their western homes.

Fortunately the bulbs are not dear and a season or two of experimental failures need not cheat one of many dozen tulips!

Bulbocodium

It is not often that the American gardener can find bulbs of Bulbocodium to buy and even less often that he can find seed with which to start a colony for himself. Though it may sound like a counsel of necessity, he need not mind too much unless he is busy with a general survey of the whole field of bulbous plants.

Most frequently this plant is spoken of as resembling the crocus, the one species that makes up the genus is more nearly related to the colchicums and once known one can see in Bulbocodium vernum for all its Spring flowering many similarities to Colchicum autumnale. Its rosy purple flowers have somewhat the same variations in color, the same slight irregularities in the perianth, the same weak neck that permits rain and wind to beat its flowers down to earth unless they rise through some supporting plant cover. In it there is nothing to compare it with the more robust forms of Colchicum such as C. Bornmuelleri or the starrier C. agrippinum.

Others feel that it comes closer to Merendera another bulbous plant of uncertain charms that Farrer damns with the ugly adjective 'squiny' in the sense that the axes are all out of line!

If one must have it and can come upon seed, that should be sown as one would sow seed of snowdrops allowing the winter to have its way in the seed bed tempered only a little so that precocious germinations need not be torn from their roots by thawing and freezing. It will be slow coming into flower but it will come in time and then one can wonder if this representative of the flora of the Iberian peninsula is worth the effort.

Bulbocodium

It is not often that the American gardener can find bulbs of Bulbocodium or buy and even less often that he can find seed with which to start a colony for himself. Though it may sound more or less like a counsel of necessity, he need not mind too much unless he is busy with a general survey of the whole field of bulbous material. Although it is most frequently offered as a crocus, and particularly so Bulbocodium vernum, the only "common" sort, the early flowers of rosy purple, sometimes paler, rather more like Colchicum autumnale, although they are likely to flop about at once instead of rising aloft like Colchicum on their perianth tubes to be beaten down later by weather unless supported either on the nearby herbage. There is nothing to compare with the showy or chalices forms of crocus, nor even with the great bowls of Colchicum Bornmuelleri for the first heat there in the checkered C. agrippinum, both of which, however, are autumn-blooming, like all good colchicums.

Its closest allies are said to be in the genus Merendera of which my garden has known only M. _____, a species of scant importance that might well be damned with Farrer's ugly adjective, squiny (squinys), in the sense that its ox are utterly askew.

Both Bulbocodium and Merendera are perfectly easy from seed using the same routines one would use for crocus or snowdrop - but safe guarding from severe cold,

Look up B.M. - 153

Also review of original description -

(over)

BM 153 Bulbocodium vernum L.

"The Bulbocodium of which there is only one species is a mountainous plant, a native of Spain, & flowers in the open ground at the same time as the Crocus, for a purple variety of which it might easily be mistaken at first sight; but it differs from Crocus in having fixed stamens & from Colchicum to which it is very nearly allied in having one style instead of three.

It is at present a rare plant in our gardens, which we attribute to its being liable to be killed by frost, & hence requiring more care than many be thought entitled to from its appearance.

Varies in the colour of its flowers.

Brinley's cut is copy

Calochortus

My first enchantment with calochortus came about in an herbarium, where while presumably attending to my own chores, I happened to see one of the assistants checking through the folders of Calochortus Kennedyi. Its amazing petals dried to the sheen and texture of thinnest silk, shone up from the dead sheets in purest vermilion with the blackish purple signal spot near the base of each. The assistant after years of sorting the dead was vaguely amused at my gardener's instinct and clipped me short with - "Well you can't grow it anyway, it's a desert species." True enough for long years afterwards I planted it, saw it bloom and then disappear never to rise again; for whatever opprobrium may have been heaped upon my garden plot, desert it is not and has never been.

My Eastern experiment with calochortus was, like most other such experiments, circumscribed only by the number of species and forms the market afforded, but there were enough offered to give a notion of the genus, except for the curious things like C. obispoensis and the species native to Mexico.

Following time honored suggestions, a site was chosen that would provide semi-shade for one end of the long raised bed and full sunlight until late in the afternoon for the other. The bed ran along under the greedy and invasive roots of a Berberis Julianae hedge, the notion being that the hedge would take up any superfluous water. For the Star and Globe Tulips as some sections are called, good supplies of well decayed leaf soil were incorporated into the site with sharp gravel for drainage; for the Mariposa Tulip types, a little grit but no humus. Then, with utter lack of artistic intent, the small corms that look more like bulbs than do the flattened corm of crocus or gladiolus, were planted alphabetically but according to groups, the only exception being the beloved Kennedyi that went to the very end in the driest hottest spot. Labelled with tombstone like precision, they called forth the usual jeers of those who less adventurous, never objected to poaching on my follies.

Spring came and with it the not too promising first signs of leaves, thin affairs without much thrust or push; ignorance on my part to expect such. As plants, that is masses of leaves, no species amounts to much but the species belonging in the Star

and Globe Tulip groups have broader leaves than the others and in my garden more tolerance of Eastern conditions.

Of the two groups, the Globe Tulips were the more showy in the vulgar sense of that word, for they grew as high as 14 inches, slender but finally firm and branching, with pendant flowers from the uppermost bract-like leaves. The other commonly current folk name, Fairy Lanterns, is easy to understand for the pendant flowers with three somewhat opaque outer segments/as well as three larger, inner segments nearly translucent, and hang overlapping to make a fragile, egg-shaped whole that picks up the light. The delightful C. albus remains my favorite, with scant regard for its pink variety, C. amoenus but more for the two yellow flowered representatives, pulchellus and amabilis.

The Star Tulips of books, more commonly known as Owl's Ears or Pussy's Ears, grew well enough with lower but upright plants in the case of C. Maweanus in its form major, somewhat less so in its form roseus; essentially warm tinted white and rose respectively. C. Benthami described as 'very flexuose' by Purdy, writhed on the ground but made a fair show of its clear yellow flowers, set off by blackish brown spots at the base of each inner segment.

Most calochortus flowers are furnished with hairs of one sort or another, some like silk fringe, some like gossamer fibers, some like fur. The inner surfaces of the Owl's Ears resemble uncut velvet, and give the name. None of the other species of Purdy's list, nor of his Section of Giant Star Tulips were available that year and procrastination explains the rest for they must go unreported.

All the remaining species in their typical forms are the lovely mariposas/, the Butterfly Tulips of some. Of the series, those grown were: nitidus, Greenei, Howellii, Plummerae (now C. Weedii purpurascens), Kennedyi, clavatus, luteus, luteus citrinus, Vesta, venustus in mixture, catalinae, Nuttallii, Gunnisonii, macrocarpus. They were by no means equally successful.

One of the difficulties, at least for the beginner, is that the corms when they arrive do not have that 'packaged' uniformity that one expects to find. A dozen corms, therefore, may not yield more than five large enough to flower well. This is particularly true of the rarer forms, probably as difficult in nurseries as in/ gardens.

In a way all the flower forms are basically alike;three outer,narrow and often not brightly colored perianth segments and three inner segments that appear to make up the whole flower,often brilliantly colored all over, or subtly colored and then set off by patches of color near the base, this patch being a gland often hairy as well as pigmented. The width,shape and general contour of the inner petals vary and those broad rounded forms that one sees best perhaps in C. venustus are most cherished.

The colors range from white pure or flushed with yellow or lilac, and then two series, one from yellow to deep scarlet red, the other through lavender pinks to almost pure purple, sometimes with a hint of brown.

With the gardener's perversity,I liked best the Coastal species(after the desert Kennedyi) especially those that become more abundant in the southern part of the State. It might have been wiser to have looked more sympathetically on the species that range westward over the Rocky Mountain Plateau to the western edges of the Great Plains; Nuttallii,Gunnisonii,macrocarpa, nitidus, with a fond hope that some corms might have been had from the lowest altitude range in each case. Instead I reveled in the Eldorado Strain,that like many another Eldorado was evanescent.

The flowers cut well and if one is satisfied with a decently modest length of stem, there is not much danger of impoverishing the new corm in process of forming. A single bloom is worth study, myopic consideration. The curious hairs, the signal patches, the strongly contrasted colors of patch and limb, the shell-like contours all provide deligats of fine details and in passing recall the beauties of some of the Oncocyclus Irises, or a few of the more metallic Regelias,with perhaps athought for auriculas and pansies for the velvet.

For the not too cold garden and for the not too cloudy or foggy area, all are worthy of an annual planting and other gardeners more expert, perhaps can win a better performance. Mine perished in time, with the longest life in the Star and Globe Tulip groups, and the coup de grace botrytis from tulips! It is to be hoped that some one,somewhere,in an ideal locale, will start to produce them as tulips are produced abroad,no longer bulbs but items of such and such circumference.

Calochortus

My very first enchantment with calochortus came about in an herbarium, where while presumably attending to my own chores, I happened to see one of the assistants checking the folders of Calochortus Kennedyi. Its amazing petals dried to the sheen & rapture of thinnest silk, show up from the dead sheets in purest vermilion with the blackish purple spot near the base of each. The assistant after years of sorting the dead was vaguely amused at my gardener's instinct and clipped me short with - "well you couldn't grow it anyway; it's a desert species". True enough for long years after I planted it, saw it bloom, and then disappear never to rise again for whatever opprobrium may be heaped on my garden plot, desert it is not & has never been.

My Eastern experiment with calochortus was like most other such experiments, circumscribed only by the number of species and forms the catalogs offered, but there were enough choices to give a notion of the genus, except for the curious things like Calochortus obispoensis and the Mexican species.

Following the time-honored suggestions, a site was chosen that would provide semi-shade for one end of the long raised bed and full sunlight until very late afternoon for the other end. The bed ran along under the greedy & invasive roots of a Berberis Julianae hedge, the notion being that the hedge would take up any superfluous ground moisture. For the star & globe tulips good supplies of well decayed leaf soil was incorporated in the site with sharp gravel for drainage; for the mariposa tulip types, a better grit but no humus. Then with utter lack of artistic intent, the small corms that look more like bulbs than the flattened corms familiar in the crocus & gladiolus, were planted haphazardly but according to groups, the only exception being the beloved Kennedyi that went at the very end in the

driest hottest spot. Labelled with tombstone like precision they called forth the usual jeers of those who, less adventurous, never objected to poaching on my follies.

Spring came and with it the slender & not too promising first signs of leaves, thin affairs without much thrust or push; ignorance on my part to think so. As plants, that is masses of leaves, no species amounts to very much but the species that belong to the groups popularly known as Globes and Star tulips have broader leaves than the others and in my garden more tolerance of general Eastern conditions.

Of the two groups the Globe tulips were the more showy in the vulgar sense of the word for they grew as high as 14 inches, slender but firm and branching, with pendant flowers from the uppermost bract-like leaves. The other commonly current folk name of Fairy Lanterns is easy to understand for the pendant flowers with three somewhat opaque outer segments, have as well 3 larger inner segments, nearly translucent, each long overlapping to make a translucent egg-shaped whole that picks up the light. The delightful C. albus remains my favorite, with scant regard for its pink variety amoenus but more for the two yellow flowered representatives, pulchellus & amabilis.

The Star tulips of the books, more commonly known as Owl's Ears or Pussy's Ears, grew well enough with lower but upright plants in the case of C. Maweanus in its form major somewhat less so in the form roseus; essentially warm tinted white & pale rose respectively. C. Benthamii described as "very flexuose" by Purdy — really writhed on the ground but made a fair show of its clear yellow flowers; set off by blackish brown spots at the base of each inner segment.

Most calochortus flowers are furnished with hairs of one sort or another, some like silk fringe, some like gossamer fibers, some like fur. The inner surfaces of the star tulip flowers

resemble mouse velvet — the source of the common name, owl's ears.
None of the other species of Purdy's list, nor of his section of Giant Star tulips were available that year and procrastination explains the rest.

All the remainder in their typical forms are the lovely mariposas, the butterfly tulips of some. Of the series, those grown were: nitidus, Greenei, Howellii, Plummerae (now C. Weedii purpurascens), Kennedyi, elegatus, luteus, luteus citrinus, Vesta, venustus in mixture, catalinae, Nuttallii, Gunnisonii, macrocarpus. They were by no means equally successful.

One of the difficulties—at least for the beginner, is that the corms when they arrive do not have that "packaged" uniformity of size and potentiality that one expects to find in purchased bulbs. A dozen corms, therefore, may not yield more than five that are large enough to produce ~~free flowering~~ plants. This is particularly true of the rarer forms, ~~that may be~~ possibly as difficult to keep in nurseries as in gardens.

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For the most too cold gardens and for the most too cloudy foggy area, all are worthy of an annual planting and then better Gardeners, more expert, perhaps can win a further permanence. It is to be hoped also that someone, somewhere, in an ideal locale, will start to produce them as tulips are produced abroad, no longer bulbs but items of so many centimetres circumference!

Camassia

When the camassias flower in the garden, it ~~as~~ always seems to me that they never quite live up to the reputation given in books whether from the partisan pen of Carl Purdy or from European journals that have lent glamour to so many American plants. Perhaps it is only Eastern captiousness that balks me.

As bulbs taken from a sack they are about as unprepossessing as one could imagine, not regular in shape with shoddy coats and a general appearance of having been bruised. This is not the case. Planted about 6 inches deep, either in good clumps so that they support one another or at wide regular intervals over a low planting, the effects are sound enough at flowering time and the broad grassy leaves wither away decently enough by mid-summer. The flower stalks grow up to some 30 inches on strong plants and bear flowers along at least the upper half. These are of good size, starry, the perianth segments never overlapping save at very the base.

Camassia Quamash is the western species that people usually gabble about since its bulbs are edible and were cooked and eaten by Indians and any one else who was hungry enough. Its flowers are said to vary from near white to 'intense ultramarine blue' but I have ~~mmm~~ never had the luck to have any well-colored forms and as for 'ultramarine', I wonder. It is a rare color in any flower.

C. esculenta again edible, I have never grown but as seen elsewhere it is not robust enough to compete with the far westerners nor vivid enough to hold its own with all the other May and June flowering perennials.

C. Leichtlini, ~~c~~ claimed to be the best of the camassias ~~mmm~~ was bought in 'blue' and 'white'. It is a good plant, robust and free-flowering but its white is creamy or else thinly washed over with greenish lavender; the 'blues' are all pale lavender blues to my eye with curious washes and lines of greenish blue, the same sort of contrast in 'blues' that one finds in some of the 'blue' hyacinths, which of course are no more blue than most iris.

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that one finds in some of the "blue" hyacinths, which of course are no more blue than most iris. Planted en masse among young plants of ~~Rhodo~~ the Korean azalea (Rhododendron ~~yedo~~ poukhanense) it flowered in mid-April and its curious blue lavender appeared to absorb some of the blue in the pale magenta azalea, leaving it pinker than it ever was in general effect. As the azaleas grew up, however, the bulbs succumbed to the crowding and shade. A few bulbs planted elsewhere, in much less well prepared sites have persisted with the same sort of permanence that typifies the Chlorogalums & the Zygadenus, to which it is not too closely related but which have somewhat similar pictorial value in an even more minor key.

C. Cusickii I have neither seen nor grown and book data would not give it any markedly visual differences save in size of bulb which is said to be largest of the genus. The same is true of S. Howellii (from southern Oregon a smaller plant)

Seed is formed regularly on C. Leichtlinii and a modest number succeed in germinating and growing on, under the very casual conditions given.

Mr Purdy writing in Bailey's Cyclopedia (p. 640) states that "The bulbs produce no offsets unless wounded" but elaborates no further. Since it belongs in the Squill Tribe, of which Ornithogalum, Lachenalia, Muscari and Hyacinthus, all propagate from leaf cuttings — one can only wonder if the injuries would cause the formation of bulbs from the wounded veins, or merely stimulate the latent interior growing points on the basal plate.

C. Quamash — BR 1486

C. Leichtlinii BM 6287

✓ C. esculenta BM 1574 (as Scilla)

Charming painting — fine pale blue fls — "The specific name Quamash that gentleman (Pursh) makes use of, is the appellation given to the plant by certain Indians in the neighborhood of the Missouri River, in whose country it is spontaneous, and where it serves them as a principal article of food during the winter xx"

Chionodoxa

This genus includes relatively few species of which only two are commonly grown, Chionodoxa Luciliae and its forms, and C. sardensis. They are quite distinct. All flower early, as the ground warms in Spring, beginning here at the end of February in most seasons. The flowering lasts about two weeks but the bulbs are not absolutely uniform in flowering so that it seems much longer. Nearly all set seed which ripens early about a week or ten days before the leaves begin to wither. By mid-June no vestige is left of leaf or seedstalk.

As is the case with most of the small bulbs from Asia Minor and the Mediterranean area, a fertile soil and abundant moisture through the late autumn, winter and spring seem the only requirements. Unlike the grape hyacinths, which are mostly impatient of shade, the chionodoxa or glory-of-the-snow grows fairly well in light shade but certainly does better in sunnier spots. It will survive rather well in grass if the grasses are not too robust.

C. sardensis blooms earlier than its larger later ally, C. Luciliae. The flowers are more nearly like those of the Siberian squill in size and stature but are a vivid, slightly purplish blue and show their open faces as those of the squill do not. Increase by natural offsets of the bulbs has not been rapid here but increase by seed has been better than that of other species.

C. Luciliae is both larger and later, and therefore showier. It is extremely variable in color. In the form usually accepted as typical the flowers are about an inch across, starry, with white centers and Delft blue tips. The scape as in most chionodoxas is reddish. The color variations tend toward pinkish lavenders and pinks rather than toward blue lavender and pure white forms have been reported. The writer has grown the commercially offered 'gigantea, grandiflora, Leichtlini, and Tmolusii' but does not feel that they need be sought after save by the collectors who enjoy possessing, more than the thing possessed.

The flowering season here usually overlaps that of the Siberian squill and one should decide before planting them near one another, if he will like the lavender blues of Chionodoxa muted by the greenish, purer blues of the squill. I do not.

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The flowering season here usually overlaps that of Scilla sibirica but one should decide before a combined planting is made, whether or not he likes the lavender blues of Chionodoxa muted by the greenish, purer blues of the Scillas.

Look up the Allen (English)
who worked with them as with narcissus

Chlidanthus

There is undoubtedly something curious about this genus, for no one among all my acquaintances admits having grown it save the late Mrs. Walker in Virginia, Mrs. Rowntree in California and Mr. Anderson in Mississippi. Yet bulbs are regularly offered in most autumn bulb lists. Perhaps everyone like myself has said, some other time, for after all it isn't hardy! This Chlidanthus fragrans and such a funny name!

The genus is not large and the species established by in , would suggest that it is better known to taxonomists than to gardeners.

Mrs. Walker who was particularly successful in growing plants a little further north than was reasonable to expect never talked with me about it. Mr. Anderson gardening in a sandy-humus coastal plain soil reports that it grows and increases but does not flower. Mrs. Rowntree on the Monterey peninsula in California reports that it blooms and self sows. All three were growing the same thing, a plant merely assigned to the Andes in most books but actually of somewhat wider distribution in Peru than the whole Andean ranges that vary considerably north and south of Ecuador.

The bulbs produce narcissus-like foliage that is evergreen(in Mississippi) and in the Spring send up a good stalk weighed down in time by one or two, sometimes even three trumpet-shaped yellow lilies that have as amazingly long and slender tube before the tips reflex as does Lilium philippinense. According to Mrs. Rowntree, the scent is 'narcissus overlaid with lemon verbena'. No one else has recorded so definite a diagnosis.

Since many of the west-coast-of-South-America plants do well in California better there than anywhere else in this country, since the terrain of Peru is most violently up and down, and since her coasts are bathed in fogs for which they have in Spanish almost as many equivocal words as one could wish, it would seem that Mrs. Rowntree may have had special wisdom in her choice of subject.

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Look up orig. description of Bonist species - Baker?
C. fragrans BR 640.
Flore de Terres 4:326
C. Ehrenbergii Kunth - Mexico ??? - where in Mexico.
What are the others -
Catalog Londonensis?

Colchicum

The colchicums, for the most part, are plants of the Near East, that almost outmoded term that may denote an area extensible at will in almost any direction save west! They are best known in gardens by one species that has been so long cultivated that it is grown in several natural clonal variants of color and in one clone at least of doubled flowers. Its direct claim for attention, like that of most of its fellows, is that it flowers in autumn, as betrayed by its name Colchicum autumnale.

In a gross fashion, the dormant bulbs of the genus look like those of tulips. One should order them well in advance, plant them as soon as received and be willing to wait for a second autumn for really top blooming, although good sized bulbs will bloom at once, even if left laying about as the absurd advertisements will remind you.

Here C. autumnale blooms in October, usually a short time before Crocus speciosus begins, but nearly always in time to be caught and beaten about by the rains that seem coincident with its flowering. Since the flowers rise naked from the ground, the long perianth tube carrying aloft the spreading corolla lobes, they are soon broken unless they grow through some small supporting but not invasive ground cover. This I have never achieved here but I recall one planting in Massachusetts where blue myrtle served in this role and the pale faintly lavender pinks of the colchicums were accented by late sprays of Eupatorium coelestinum planted nearby.

My own indifference is probably due to the fact that this is the colchicum for which I care least and because its perianth segments do not usually show the almost mathematical symmetry that marks some of the other species, of which I have grown only C. agrippinum and C. Bornmuelleri. The flowers wither and there is no further vestige of the plant till Spring, when there pushes up a group of leaves about a central stem that may carry them aloft some 6 to 8 inches, even more in lush plants. If the autumn weather is more favorable than mine usually is, there may be a seed pod or two deep in the axils of the leaves with seeds enough for a good sowing, no matter if the rate of growth be slow.

There are no special requirements for handling colchicum seed. One need only sow it promptly and leave the winter work its usual magic.

As I have never grown the named forms, Lilac Queen, Lilac Wonder and the like which presumably have something of C. autumnale as their base, it may be that some of my objections have been cared for. I cannot report on their improved size, hue, or substance, but better and more catholic gardeners than I approve.

C. agrippinum is a smaller affair with less tube so that its flower sits closer to the earth. When fully open, its six lobes make a very symmetrical star white or off-white well tesellated with dull reddish purple, but rather more of a pattern than one gets in the Guinea-hen fritillary. Those who like patterned flowers, as I do, approve heartily; those who do not, sniff.

It is quite eclipsed, however, by the large flowers of C. Bornmuelleri, that rise on decent perianth tubes to unfold their 6 inch lobes and make fine lanterns of pure lavender pink, somewhat patterned over like those of agrippinum with dull rose, not purple! This is a flower that makes the others seem trifling, though it is neither coarse nor gross.

One sometimes gets a chance to find bulbs of C. Sibthorpei another excellent large-flowered species, but one never finds here seed or bulbs of any of the spring-flowering species, including one yellow.

For the gardener, the problem in placing colchicums is always that of finding a spot that will permit the full growth to maturity of the rather ample foliage that always comes as a surprise in the Spring. It is handsome enough in its way and distinct, but most gardeners are impatient of it, since the seed pods are not showy.

At times one reads of these colchicums under the names of autumn crocus. This should never be for there are many species of true crocus that flower through the autumn and well into the winter where the weather permits. The value of these latter is so definite that one should not confuse them with the more robustous colchicums.

Colchicum

~~Even at the risk of making a false start,~~

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perianth segments do not usually show the almost mathematical symmetry that marks some of the other species, of which I have grown only C. agrippinum (spelling?) and C. Bommulleri - ~~of which not~~. The flowers wither and there is no further vestige of the plant till spring when there pushes up a group of leaves, about a dozen that may carry them up almost 6 or 8 inches. If the autumn weather was more favorable than mine usually is, there may be a seed pod or two at the base of the leaves which will yield enough seed to increase the supply, if gathered, sown promptly in the usual fashion. So far for me this ratio of increase has been slow.

C. aggripinum (shelly?) is a smaller affair with less tube so that its flower sits closer to the earth. When fully open, its six lobes reflex to make a very symmetrical star, thick well checkered over with dull reddish purple, but a rather more irregular pattern than one gets in the Guinea hen fritillary. Those like patterned flowers as well as I do, approve; the others, sniff.

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Look up notes for yellow flowered forms.
Check to see if there are any spring-flowering species.

At times one reads of these colchicums under the name of autumn crocus. This should never be since there are many species of true crocus that flower in autumn and winter in mild areas, and bring to the garden a grace that colchicums can never give.

Cooperia

The usual fate of Cooperia is to be dismissed as tender bulbs that resemble Zephyranthes. As most people have no very vivid idea about these latter unless they live in our South or grow them in pots or borders in the summer, this does not mean much. It is curious, however, that many persons living far outside the comfortable range do grow Zephyranthes carinata or rosea in the North, though they should probably know their plant under the name of grandiflora now that the genus has been recast in the light of more recent studies. It is one of those things that has had a vicarious life among house plants for many a generation along with other house plants remote from the hardy garden. Floridians, Texans and others living in the South could, should and probably do know other species, but mention of Cooperias is usually in relation to Texas wild flowers. How well they might do in pots, I do not know, though I have some now, pushing up their first leaves and doubtless wishing that they had never left the South.

Cooperias had another period of attention when they were crossed with some of the Zephyranthes species in India of all places to produce a race that combined the perfections of each species. A combination like this should be of great interest to southern gardeners for whom many of the bulbs common enough in the north are of no possible value.

The bulbs of Cooperia are rather like those of narcissus except that they have a much longer neck. The leaves are somewhat similar, flat and strap-shaped with a hint of pink at times where they leave the enfolding basal sheathes. They appear to be more or less persistent in the South and the flowers arise at intervals, sometimes stimulated by rainfall, a fact that has given them the common name of rain-lilies.

There are two common species, C. Pedunculata and its variety chlorosalen, and C. Drummondii with a new one coming into cultivation, C. Traubii. From experience I know only Drummondii with its white flowers faintly tinged with red on the back of the outer three segments. Pedunculata is said to be larger and finer while Traubii is described as more starry in effect, white with a tinge of rose.

The most interesting thing about them all is the habit of opening in the very late afternoon or evening and the delightful scent that they send out to pervade the whole garden. I do not recall at the time, if this character has been carried over into the bi-generic hybrids but one could hope it might be or try again until it is combined.

With the zephyranthes and some of the smaller species of Habranthus a genus not yet fully explored and introduced, the cooperias are plants that should be used generously in the South where they would give something of the effects to be had from narcissus in the North, with their low masses of graceful foliage and the nodding flowers that top the leaves. Until the time comes when one may buy them by the hundred at low prices, one can increase them by sowing the seed that is formed rather freely in most gardens. In the Mississippi garden that I know, the seed is not sown specially but allowed to come up about the old clumps and the small fry transplanted later on to the places desired. Since all amaryllidaceous seed prefers to be sown as soon as it ripens, and in the genera that come from warm climates, will germinate almost at once, the delays in working up a private stock should not be discouraging.

Cooperia.

The usual fate of the Cooperias is to be dismissed as tender bulbs that resemble Zephyranthes and most people have no very vivid idea about Zephyranthes unless it happens that they grow in pots or borders the large-flowered pink species ~~[illegible]~~ brought under many names, particularly rosea and carinata or remember Caterby's plate of the "Altamusco" (usually, now atamasco) Lily of Floridians & Texans, corms, should and probably do know some other species but not too well. All the same is true of Cooperia with its few species from Texas westward to New Mexico & southward.

? They came in for a moment of attention years ago ( ) when in made a series of bigeneric hybrids between

? Cooperia ____ and Zephyranthes ____ etc

A combination like this of course would not bring hardiness into the new plants and the same folk who had neglected the parents would overlook the children.

The bulbs are rather like those of narcissus, not very large, with leaves not unlike those of narcissus save that they are not quite so flat and often show a faint tinge of pink, as is the case of some other amaryllids with pink or red in their flowers.

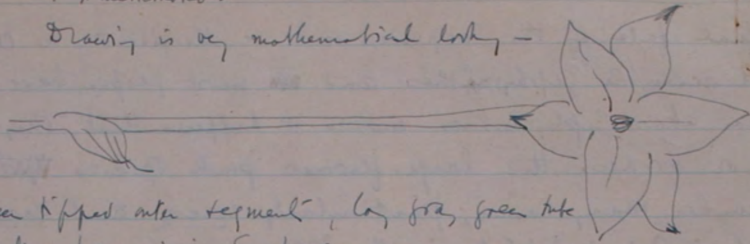
Cooperia Drummondii is described as white with a tinge of red outside. Its variety chlorosolen apparently differs chiefly in dimensions ✓ It is said to open in the evening. BM. 3452

C. pedunculata, also white with red tinge outside, is said to be a larger finer flower that remains longer in bloom than Drummond's.

And now we have also C. Traubii, again white, one finger nail ✓ with stamen not overlapping perianth segments. BM 3727 —.

✓ Look up original descriptions —
especially of C. Traubii

B.M. 3482. Cosperia chlorosolen – sent in as C. Drummondii fr Texas as C. Drummondii
Drawing is very mathematical looking –



green tipped outer segments, long gray green tube
winter flowering in England –
[Feb in Mississippi – & later]

B.M. 3727 Cosperia pedunculata –
Lovely – Sent fr Texas to England in 1835
Nocturnal flower – fragrant – hour to hour & half after sunset –
"primrose like scent" – white – pink tipped bracts

Crinum

No gardener whose experience is essentially northern can possibly know the crinums well, not only because there seems to be confusion enough in the botanist's opinions of them, but because grown in pots no matter how large, they cannot show their full character or viewed as a tourist sight, they are astonishing enough to upset his good judgment.

The only plant that has been tried out-of-doors here was called Crinum Powellii and came in both 'white' and 'pink' forms. Ones chief elation comes from having a crinum out-of-doors. As compared to most bulbs that are planted hereabouts, the bulbs were large, huge; as compared to what crinums can be in their own scene, they were pigmy. We chose a light fairly rich soil in which water drained away quickly, not because crinums are impatient of wet feet but because we had no faith that they might like wet feet in winter here. The necks were left above the soil line, but because it was a first winter, the sandy soil was ridged up along the row as one might do in cultivating potatoes. The next season saw it leveled into place. Not much leaf growth appeared that autumn and what did show was badly burned before Spring.

With the coming of Spring, leaf growth pushed up in a great rush and there was soon a mass of the somewhat flaccid gray green leaves that swirled about the central axis rather untidily. By midsummer the flower scapes were pushing up; at a little over three feet the sheathes burst to let out a crown of somewhat nodding lily-shaped blooms, pure white in one, pale rose pink in the other. More followed before our hot summer was over and foliage continued to pile up. First frosts made little impression on it all but winter freezing played havoc leaving a sorry mess of partially destroyed leaves.

This same sort of incomplete dying is one of the features that spoil the effect of many tender crinums one may have in the South and there seems to be no consistency in them, for one group that I know, apparently quite uniform will show individuals completely dormant, partly destroyed and others untouched.

This is unfortunate for when a good crinum is in fine condition it is a great sight even if there are no flowers.

It is probably a matter of personal opinion and prejudice but I find no pleasure in the many crinums, huge bulky plants of tremendous vigor that send up robust scapes, only to produce a mass of smallish flowers with narrow stringy perianths. For me they are the 'mop-heads' and I would want none of them, just as I could not recommend for ordinary gardens most of the hymenocallis that have stringy perianths and the tiniest of tissues connecting the bases of the stamens. Too much ado about nothing; for those who do want them, well enough.

There is another group, pictorially speaking, no less lush or robustuous that follows all the same lines, except that the flowers bear perianths with broader segments. On the afternoon before the flower opens, it hangs like a poised balloon quite lovely in itself, to open to a starry but salver-shaped bloom later that night and for a day or two thereafter. Most of these are white as seen, some with faint pink on the tips of the filaments.

The next step, again pictorially, gives one a group with flowers that have still wider segments, that open to a full face like an auratum lily, banded here with pale rose to dull crimson, deepbroon the outside but with no spotting
wet
Some of these, en masse, make an unforgettable sight. I recall one/ditch
lower
in/Mississippi, into which the commonest species had been dropped. Lush growth, of summer grasses and weeds filled up and hid the inequalities in crinum foliage, but nothing obscured the hundreds of scapes of heavily scented 'milk and wine' lilies. Which species? I dare not guess, ... perhaps? In a tidy garden, one could not risk the task of keeping such a bed weeded. In another garden, crinums of this type are used among shrubs, so that they are sheltered from the worst weather and some of their winter untidiness is hidden. Their long summer floweringtransforms the shrub masses in turn. The blue purple flowers of torenia, an annual that selfsows in the South in such near marsh lands makes a fine foil underneath or nearby.

Whether or not one should be intrigued by pictures is doubtful. I admit, however, that the painting of Crinum Schimperi (B.M. t. 7417) intrigues me more than any. J.G.Baker wrote the notes that accompany the plate and according to him, the species belongs to the group in which one finds C. latifolia L., C. zeylanica L., and C. longifolia Thun. the last being the only one in common cultivation in this country. Its flowers are white but look like magnificent trumpet lilies hanging down from the stout scape. Again according to Baker, it was sent to Schimper from Abyssinia in 1870(?). This plant if the trumpet-lily shape is correct is the most impressive of all, for the tube is reduced almost to nothing.

The hybridists have been busy in the group and there are now available named clones of the general C. longifolia persuasion, in pale rose and deeper. There should be more work done particularly for our Southeastern States, where gardening so often can include treatments of low areas, marshy at times, where summer months are five or six not three, and winters though capricious are not too bad. Some one should verify the habits of C. Moorei said to be very tender to cold but completely deciduous. If its deciduous character could be carried over into cold hardy forms, how much it would 'dress up' the crinum tribe.

No recommendations are offered as to what to buy. No advice is given as to which gardeners should be concerned. At their best crinums can be spectacular and their fragrant summer bloom will mean much in the garden; at their worst they can be unkempt, take up too much room and be generally disappointing. But they offer a good field for near pioneer activity and the gardener who starts to raise hybrids will have an almost untouched field with the further knowledge that should he care for it, special studies in vegetative propagation await him, if he wishes to hasten the multiplication of his chosen seedlings!

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With the coming of spring, leaf growth pushed up in a great rosette & there was soon a mass of the somewhat flaccid gray green leaves that swirled about the central axis somewhat untidily. By mid-summer the flower scapes were pushing up: at a little over three feet the heathers burst & let out a crown of somewhat nodding lily-shaped blooms, pure white in one, pale rose pink in the other. More followed before our hot summer was over and foliage continued to pile up. First frosts made little impression on it all but winter freezing played havoc, leaving a sorry mess of partially destroyed leaves.

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in the South and there seems to be no consistency in them, for one group that I know, apparently quite uniform in character will show individuals completely dormant, partly destroyed and others untouched. This is unfortunate for when a good cirrus is in prime condition it is a grand sight.

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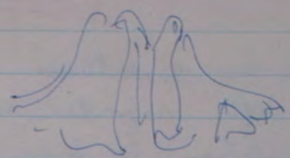
to raise hybrid seedlings will have an almost untouched field - with the further knowledge that should he care for it, special studies in vegetative propagation await him, if he wishes to hasten the multiplication of his chosen seedling!

BM 7417 – Crinum schimperi
acc to J.G. Baker, belongs to
group of C. latifolium L, C. zeylanicum L,
+ C. longifolium Thunb. – Sent to
Schimper from Abyssinia 1870 (?)
Drawing shows trumpet. fls like
Lilium sargentiae.



BM. 1073 Crinum asiaticum –
One of the mop heads. Segments narrow
+ stringy as in Pancratium., ends of
filaments crimson

BM. 2133 C. flaccidum – Macquarie Crinum –
Rather nice – General type of C. longiflorum. "xxx a native of New Holland, and was discovered in the same expedition that produced the purple & yellow Calostemmas, before published under the Macquarie Range in east longitude about 146, and about 3° of South latitude" – (syn.? C. australasicum?)

BM 2531 Crinum arenarium (B) Blush colored form
BM 2592 C. elegans. One of the mop-heads, with all segments almost upright – white – faint pink on filaments
BM. 2635 C. strictum – one of the mop-heads but not "too bad" } unknown success – poor!
BM 2636 C. humile – another mophead with wavy segments

Crinum   work sheet of –

Crinum giganteum Andrews intro. England 1780 native to trop. Afr., reported escape in West Indies, grown outdoors in northern So. Amer. B.M. 5205 (1860)

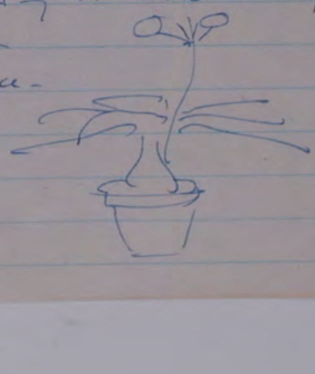
Dean Herbert calls it C. petiolatum v. spectabile = it is C. vanillodorum of Welwitsch – Amaryllis gigantea ait, A. latifolia Lam. A. ornata Jawl. A. candida Traut.

C Hope – Hbtm Ja 1938

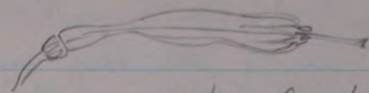
✓ Apparently one of the smaller crinums – Tender. Evergreen, slowing up a little in winter (cold) weather. Outside 6-8 fl. stalks per year. In pots one – Short neck. Leaves – petiolate – thin – deep veined – not long and messy as in many crinums – Scape 18-24" – late summer: 5-8 up to 12 fls. usually not more than 2 open at any one time. tube long – flowers bulge like lanterns before opening – segments nearly equal – almost strap like – withers poorly – 2-3 days – strongly vanilla scented. White –

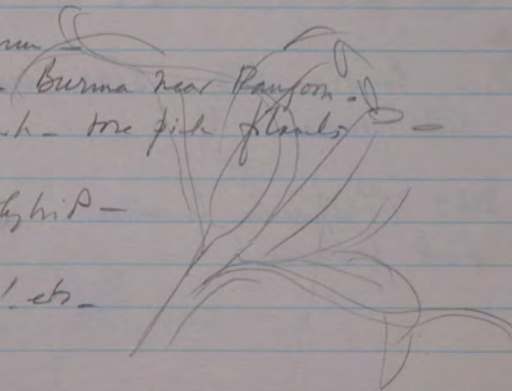
C. podophyllum.   C Hope l.c.

B.M. 6483 – first fls. "of a bulb sent to Kew Gardens by Rev. Hugh Goldie from Old Calabar, of Upper Guinea". – Said by some to be a small replica of C. giganteum – but this seems doubtful. Bulb smaller – longer neck – leaves with very strong central nerve – + reflexing to make a very flat top. Its rather like those of C. giganteum no ref. to fragrance –

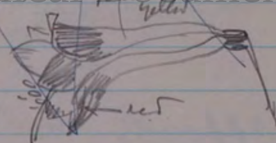


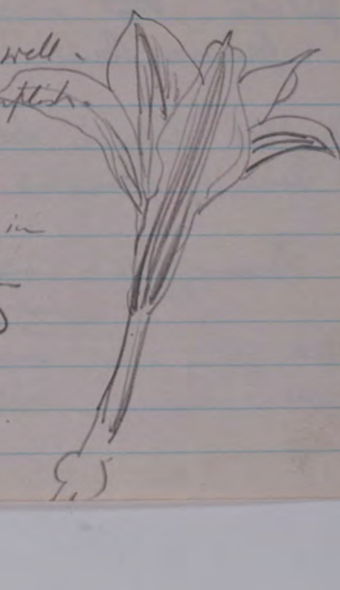
Both increase div. base – seed.

BM 2641 Stenomesson flavum.

Good yellow, green veins — not much — 4 fls — lvs petiolate

BM 2684 Crinum procerum —

Another huge mop — Burma near Rangoon.
Faint pink outside flush — rose pink filaments —
15-fls here shown
Long discussion of hybrids —
& several are named as —
zeylanico-pedunculatum! etc —

BM 2685 Ismene calathina — Brazil, Buenos Aires & Chile.

BM 2687 Phycella ignea var β glauca — Valparaiso! & Santiago —
Looks like Stenomesson except foliage & general
or better still Phaedranassa —


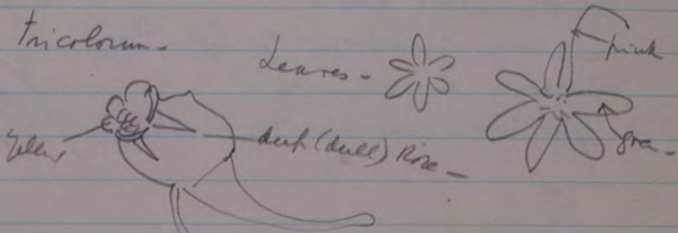
BM 2688 Crinum capense v. riparium

Huge show — lilies do not open well.
Heavily rose pink — fading dull purplish.

Coll. "Nu-garish, or Black River,
lat 29° 30' S. — long. 24° 48' E — growing in
situations similar to those occupied by the
common yellow flag (Iris pseudacorus)
Summer bloomer —
Lvs 4" wide. scape 36" tall —

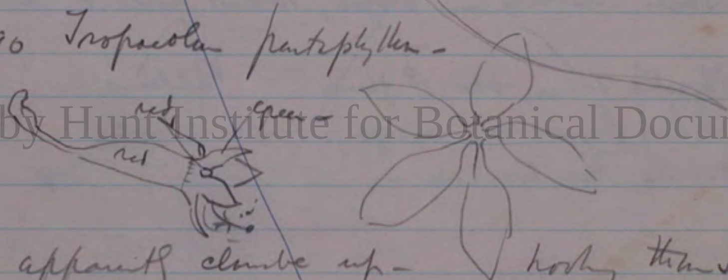
BM 2907. – New Series Vol III Crinum plicatum –
one of the large ugly sorts – pink filaments
scape 2½ ft – Close to Crinum asiaticum – ugly – said to
have come from China!

NB – Curtis BM 3100 series (Vol. 58) has
Alstroemerias!

BM 3169 Tropaeolum tricolorum –
Root tuberous!



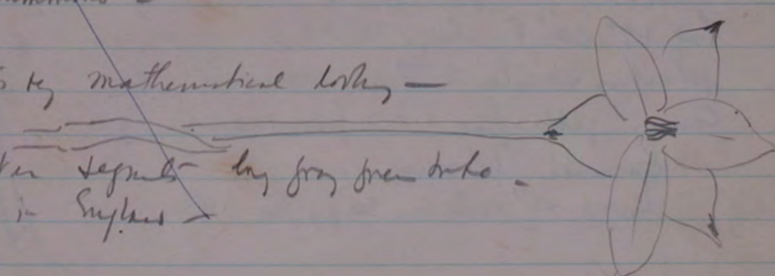
BM 3190 Tropaeolum pentaphyllum –



Both apparently climb up – hooking themselves by
petioles that in 3190 also entwine
Buenos Aires in hedges –

BM 3482 Cooperia chlorosolen – Sent as C. Drummondii from –
Texas by Drummond –

Drawing is very mathematical looking —



green tipped outer segments – long gray green tube.
winter flowering in England –

BM. 2208 Crinum ~~deflexum~~ defixum W.H.

"Bulb stoloniferous (!) oblong-spherical, about two inches in diameter above ground, when cultivated bright green; growing naturally in the deep mud of water-courses in Bengal, xx"

"Fragrant at night". "In our plant the germen and ripe capsule were absolutely sessile; in Crinum erubescens etc xx" — Flo thrice "July - Oct". — Long discussion over nodding of limb! Allied to C. capensis.

Long tube, ± erect — segments like those of a pancratium, narrow & deflexed — filaments carmine pink.

"Scape generally shorter than the leaves"

Looks like one of the less showy!

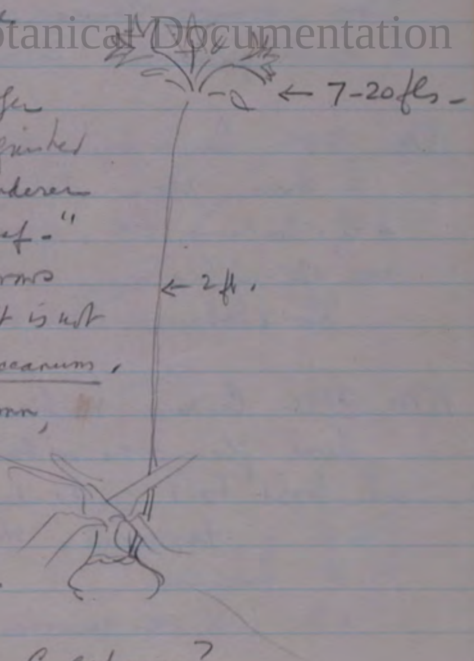
BM 2217 Crinum speciosum

"This species was first discovered by Dr Carey in the North of Bengal: in foliage it very much resembles Crinum moluccanum but is a plant of larger stature, and it may be easily distinguished in the young state, by a much slenderer and somewhat oblique point to the leaf."

"It requires the earth in which it grows to be kept constantly moist, though it is not so impatient of sunshine as moluccanum. xx flowers freely, especially in autumn, usually producing two successive scapes."

x x

Wm Herbert



White stained dull brownish pink on reverse only.

Close to C. capense?

BM 2231 Crinum declinatum w. Herbert text.

Another of these huge plants – with scape scarcely overtopping center leaves – flowers with narrow, strongly deflexed segments — like a stage terrier – up to 20 fls – filaments deep red –

"Some bulbs of this unrecorded species of Crinum, which I believe were received by Dr Carey from Silhet, were sent two or three years ago from Calcutta under the mistaken name of sumatranum etc –

Raised from seed from Sidney in New Holland!

BM. 2244. ~~Scilla~~ Puschkinia scilloides –

"This plant was named in honour of the late Count Apollos Mussin Puschkin by Dr Adams, and was first recorded in Flora Taurico-Caucasica by M. Marschall v. Bieberstein. A hardy perennial. Communicated by – etc – One plant –

BM. 2291 Gastronema clavatum

A charming plant. Discussion relates it to Cyrtanthus but! Dull plum bands on off-white –

No statement as to where in "Cape" it had been gotten!

BM, 2292 Crinum moluccanum.

Lovely fls. more or less like those of C. longiflorum but with broad bands of darker rose pink, inside & out. Plenty of taxonomic stuff for W. H. + remarks re similarity to C. speciosum

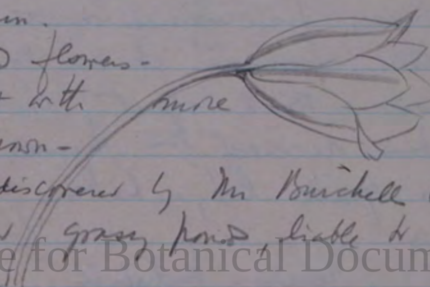
"x The bulb was received from Dr Carey, of Serampore

BM. 2301 Crinum ensifolium - One of the stringy ones with mop head effect - deep dull crimson tube - pink, reverse on outside 3 sep. - filaments rose -

"Of this species, a native of Pegu, and closely allied to ~~It is a smaller & more delicate plant than~~ C. Defixum from which it may be however easily distinguished by the point of its leaves being less erect & more acute - It is a smaller & more delicate plant than Defixum - etc - xx. It increases fast by stolones, but does not flower so freely as C. Defixum."

BM 2352 - Crinum aquaticum.

Rather nice pot-bellied flowers - White stained pink - & with



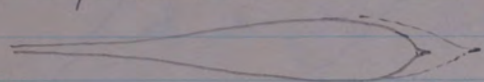
of pink inside as shown -

"This plant was discovered by Mr Burchell in the E. of the Cape Colony in shallow grassy ponds liable to be dried up in summer. xx

Much taxonomic [illegible] by W. H. !

BM 2355 Crinum arenarium.

This would be one of the mop-head except that the 6 segments are



Filaments stained to dark purple below anthers -

" xx collected on the expedition to survey the coasts of Australia, in Wake Island on the N. W. Coast, lat 14° 3' S and long. 125° E of Greenwich, at the entrance of Montague Sound. xx since coll. at Cape Flinders, lat. 14° 10' S, long 144° 18' E. WH

Bm 2397 Crinum augustum This should be spectacular for buds are almost crimson When fl. opens the reverse sectors are slightly paler inside – almost white with dim pale pink central band – – 16 fls in head

"It is very closely allied to C. amabile : xx –

"Roxburgh describes the scape of the Mauritian people bearing four heads of thirty flowers, three inches long – C. augustum though a little inferior in size is by no means inferior to C. amabile in beauty." WH –

"This splendid plant is supposed to be a native of Mauritius, from whence it was sent to Dr. Roxburgh at Calcutta; but it may be doubted whether it is indigenous in that island as no bulbs of it have since been received from thence. xx"

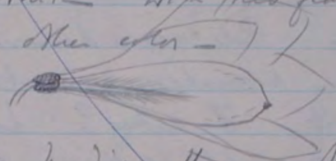
Its spike lily-like.

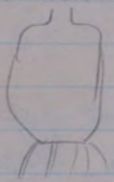
Bm 2467 Nerine pudchella
Nice pale pink → white –

Bm 2468 Hyacinthus amethystinus – (not Lamarck – which is H. patulus of Desfontaines & Scilla patula of DC : so the amethystina of Pallas is H. pallens of Marschall v Bieberstein –
Latin of Spain & Italy. Fls. May Jun –
Looks like poor scilla –

Bm 2463 Crinum submersum Not too lily like but one of the pink tanded type – "Discovered by George Hopkins in the vicinity of Rio Janeiro, growing in water in a spot, which, often in unusual course of dry weather, was still inundated – &c"
Likely to prove var of Scabrescens. WH –

BM. 2485 Habranthus versicolor – WH?
Again quite nice – see H. gracilifolius – Also from Maldonado – S. Amer. – White with red flames at base of lobes – and not much other color –
Bulb same curious affair with odd root production



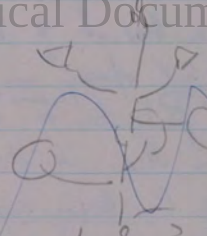


Fls naked – no hardier than other species –

BM. 2490 Eucrosia bicolor – Curious – see plate
S America – no locality –

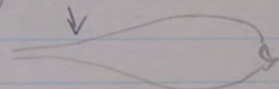
BM 2496 Conanthera bifolia bulbs edible – quite lovely dull dead blue-purple. Lobes up.

BM 2510 Ornithogalum nutbmense –
Quite open spike – White flowers green midribs –
(So France?)
Also Russia –

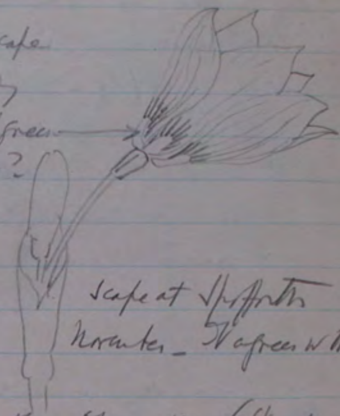


BM. Crinum – confertum
Native of west coast of Australia – sent in by Brown as C. angustifolium –
Could be a mop. head except for the shape of segments, not filaments.

Leaves rather narrow
fl. segments

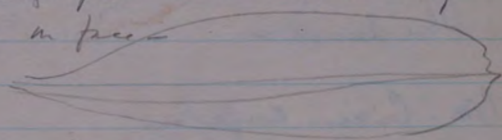


BM. 2464 – Habranthus gracilifolius –
Really quite charming – 2 fls. to scape as shown. Pale rose – darker veins growing still darker to make a zone above the dull green
Funny bulb – Hs naked? Leaves reedlike?



"This elegant little plant was imported from Maldonado in S. America.* The leaves having decayed in the summer, it produced one scape at Spofforth in September, & a second at the beginning of November – It agrees with no genus heretofore described." —
Long tax. descr. separating it from Zephyranthes, Oporanthus (Sternbergia) Hippeastrum, Amaryllis – Chlidanthus – WH –

BM. 2466. Crinum Careyanum –
"It is a native of Mauritius from whence it was received by Dr Carey who transmitted it to the Spofforth collection.
"Beautiful species" – stands at point of union between section Patentes (Crinum Crinum) & second section – not yet detached from Amaryllis where it does not belong – Hs much like those of C. Americanum] = Large pink stain backs Very little pink shows through on face –
Drawing shows blue shadows – as veins!



BM 2471 Cyrtanthus pallidus – nice pale (dull) apricot pink
(Cerost & C. ventricosus (angustifolius of Jacquin)

Lantern type – broad petal –	mop heads –	Lily shape	true lily –
C. giganteum –			
podophyllum	asiaticum –	longiflorum –	Schimperi
aquaticum –	elegans –	flaccidum –	
Careyanum –	strictum	apensa v. riparia	
	humile	moluccanum red stripe	
	procerum –	capense	
	plicatum –	speciosum	
	declinatum –	augustum	
	defixum –	amabile –	
	ensifolium	+ sumatranum pink	
	arenarium		
	confertum		

arenarium blush

Crocosma

This genus is represented by only one species, Crocosma aurea and is known to me only from books. It is included here because of the montbretias that will be discussed under that name even if they should not be. If one may judge from illustrations of this plant it has all the best characters of the best montbretias that have inherited from it! Again depending solely on the data of others, the character of this plant that was lost in the cross with Montbretia(now properly Tritonia) Pottsii, was its habit of irregular flowering so that it sometimes showed 'buds,flowers and seeds at the same time'. Whether an irregular flowering as compared with the rhythmic developments in Montbretia would please the gardener more,who can say?

Crocosma

This genus represented only by one species Crocosma aurea, is known to the writer only from books and is included here only because of the discussion of montbretias. If one may judge from illustrations practically all the best characters that are to be found in the best clones of montbretias are due to this plant. Again dependent solely upon other's data, the character of this plant that was lost in the cross with Montbretia (now Tritonia) Pottsii, was its habit of irregular flowering, so that it shows "buds, flowers and seeds at the same time". Whether an irregular flowering as compared to the rhythmic development in montbretia, would please the gardener more, who can say?

Look at all the Bailey references

Flore de Serres 7:702
B.M. 4335
B.Reg. 33:61 (Tritonia) (Lindley is ed.)
G.H. III 33:567 Journal of Hort. London. Series III. (from 1880)

Cross reference to Earlham hybrids.

Crocus Probably will have to be rewritten.

Although, as has already been mentioned, the crocus is a cormous plant and not bulbous, it is so common a feature of all gardens that depend upon bulbs that it must be included here.

It is a genus with a rather wide distribution in Nature, and a great variety of form, color and season of bloom, so that it can be made the basis of a most interesting garden collection if the gardener will increase his supplies by seed.

The common garden crocus are a garden race. It is very doubtful if all the steps that have lead up to the formation of the race commonly know as 'Dutch crocus' will ever be known, for they are not native to the Netherlands but have been bred, selected and multiplied in bulb nurseries of that country. It is the commonly accepted belief that Crocus vernus is the basis of all Dutch varieties except the yellows, that are said to have come from C. maesicus. At times, however, another species, C. aureus is sold as 'Dutch Yellow'. This last is a very handsome plant, with flowers of approximately the same size and shape as those of the white to purple races. Here unfortunately it does not flower with them so that one cannot plan a garish combination of gold and purple should he wish it.

The named forms are so uniformly good, that one can indulge his own personal taste or fancy in selecting. As is so often the case, the best procedure is to buy a sample of every one and then decide which you will buy by the hundred or thousand as the case may be. One may describe the color range as paralleling that of iris colors, in the white to lavender to purple sequences, with lavenders that tend to gray or pink and purples that are usually red purples that darken almost to black on the margins of some and at the bases of many. From my point of view there are no blues although that word often appears in catalogue descriptions.

Nearly all named clones are hardy and vigorous and if there are exceptions they are found among those that come most nearly to pure white. These are by no means frail.

One speaks first of all about color in crocus for the corms push up just enough of the white enfolding sheathes to allow the leaf tips to show and then the flowers push up, opening during the sunny hours to make a pattern almost at ground level. The leaves, deep green with a silver stripe along the midrib, grow more slowly and come to their full size after the flowers have gone by, ripening away in June here, sometimes before the seedpod has pushed up, burst and dropped its dull pink pearls of seeds.

Color appears in crocus as an allover hue that usually deepens at the base of the flower where the corolla segments unite to form the tube. There are some varieties in which the color lightens toward the margins, especially toward the tips of the segments and this gives a very pretty effect when the flower is closed. In addition, there is often a pattern of dark color, like a feather along the central area in the outer segments in particular. This may appear as a light veining or a heavy flame. I like them, many people do not.

The habit of opening the flowers to the sun has been mentioned. It is not without its addition to the pleasure one may take in crocus for the whole lavender to purple color scheme is enlivened in the spring flower by the stamens and stigmas of the flower that are always some hue of yellow and may include orange. There are species crocus that have other hues as well, but we deal now only with the garden races. As in other plants that have this habit, the crocus becomes less certain of closing as it ages and may of weariness stay open all day and night in the last days of its life.

Blooming here in late March and early April the flowers suffer little from the not infrequent light frosts but they are damaged by driving rains, should these fall. Since the crocus has no above ground stem to brace the flower they are often broken at ground line. The part that corresponds to the stem or stipe is underground and never appears unless a seed pod develops when it grows upwards with the maturing pod that breaks apart and sheds the pink pearl seeds.

Should one wish to save these he may gather the pods before they burst and let them open in a container that will save them all.

The easiest way to handle the seed is to sow it at once and sink the ~~fmmm~~ pot in the seed frame devoted to seeds of bulbous plants. Let Heaven water it for you and do not expect any germinations until the end of the following winter when slender but unmistakably crocus leaves will appear, usually only one the first season, but more thereafter. If you do not want to save the seed let it fall. It will probably wash about and in time crocus will appear in places you had never thought to plant them. The only other common garden plant that might confuse one, if he were so unfortunate as to have it in his place, is the common Star-of-Bethlehem, Ornithogalum umbellatum. This also wears a leaf with a central silver line, but the tip of the leaf is not sharply pointed like that of the crocus and a comparison of knowny plants will show this easily. The young corms grow on rather swiftly and flower even under poor conditions in three years.

There is a tendency on the part of those who have become collectors of crocus species to speak disparagingly of these garden crocus that they find fat and coarse. No one need heed all this until he is ready. In my own garden I have both the wild crocus and the garden breed, and from each I gather the pleasures particular to their forms and beauties.

Aside from C. aureus already mentioned there is only one other species that has been common in ordinary trade for many years. This is C. susianus for which the common name, Cloth of Gold has been invented. It is a small flowered but very floriferous thing that comes from , the starry flowers of deep golden yellow within but heavily stained and veined on the outside of the segments with a rich deep chestnut brown. It is a charming thing and should be in all gardens, even if the species-collectors will push it aside when they commence to grow the more-difficult-to-obtain yellows and oranges!

Of the species that have been reported by botanists, only about ..... are available in nursery lists. They do not lend themselves to any easy way of description except by enumeration which is often tedious and dulls ones enthusiasm before the end is reached. It can be said, however, that for us in this country they fall into two major groups, those that flower in the spring and those that come in autumn. In their native haunts the autumn-flowering species merge imperceptibly into the winter-flowering species and these into the spring, for winter in those 'favored' lands is usually a period, not of snow and ice, and entire dormancy but of chill and rain. Of the few species that I have tried none have been permanent. The failure seemed to come not so much from the actual temperatures, for the plants grew, but from the fact that the continued temperatures were so low that no normal leaf growth could be completed and the plants probably died in time of starvation. Perhaps if they had been grown in a frame or if the garden had been further south, though not too far, they might have survived. It must be remembered that all crocus need some winter cold and do not flourish in our South for example; there one must use corms that have had a cold storage treatment for an annual success, too great a price to pay when there are other bulbs that do like those climates.

If I were to be allowed only one crocus, it would be the Italian species, C. Imperati, although it has not come to establishing itself as completely as have both C. Sieberi and C. Tommasinianus that have self-sown like 'natives' and established themselves in quantity even in places of too great summer shade which is not recommended for any crocus.

Originally bought in some quantity, that lot was found to show nearly all the variations possible. The inner color of the flower is a warm lilac that is affected by the color of the buff outer coloring that may appear with or without dark stripings. In the cool mornings, the slender closed crocus of buff and dove color with their pencilled stripings of almost purple black give little suggestion of the warm lilac to rosy purple that their open chalices will show accented by the yellow to orange stamens and stigmata.

No effort has been made to single out individual flowers for propagation, or even for seed collection. Whatever seed was saved was gathered as it came, and was sown chiefly to be sure that I could do it! Most years, the seeds fall as they may and the progenies appear, usually down hill because of my terrain, but occasionally up hill as if some insect or ant or beast had started to carry it away.

If I had wanted to increase a particular corm, I should recall the advice given by Mr. E.A. Bowles when I was privileged to see his crocus frames years ago. He told me that shallow planting would encourage the formation not of one good corm, but of many small ones, that could be harvested and then replanted that is deeply, properly/to form large corms again.

Crocus

Rarde

Although, as has already been mentioned, the crocus is a cormous rather than a bulbous plant, it is so common a feature in all gardens that depend upon bulbs that it must be included here.

It is a genus with a fairly wide geographic distribution in nature and a great variety of form, color and seasonal range of bloom so that it can be made the basis of a most intriguing garden collection, one that will become more and more interesting if the gardener raises plants from seed.

It is very doubtful if all the steps can ever be traced that have led up to the race of crocus commonly known as "Dutch" crocus, not [illegible] because they have been selected and multiplied in the bulb nurseries of that country. It is commonly accepted that Crocus vernus is the basis of all the Dutch crocus save the yellow Dutch crocus which is assigned to C. maesiacus. At times, however, another species, C. aureus, is sold as "Dutch yellow". This is a very handsome plant with flowers of approximately the same size and shape as those of the white, lavender and purple varieties. Unfortunately here it does not flower at exactly the same season so one cannot depend upon a garish combination of golden yellow & purple should one want it.

The named forms that come to market are uniformly good so that one may indulge his personal taste or fancy in selecting. As is so often the case

the best procedure is to buy a sample of each sort and then decide which are wanted in quantity. One may describe the color range as paralleling iris colors in the white to lavender to purples sequences, with lavenders that tend to gray or to pink and purples that are mostly red purples. There are no blues in the strict sense of that word, in these or any other crocus seen by the writer, although the word blue often appears in catalogue descriptions. Nearly all named varieties are equally vigorous but those that approximate pure white are the least robust though far from frail.

Color appears in these crocus as an all over hue that usually becomes more intense at the base of the flower where the corolla segments unite to form the tube. There are some varieties in which the color lightens towards the tips, especially towards the tips, which is very effective in the closed buds. In addition to this color may also appear as a pattern in light or heavy feather-like patterns particularly on the outside of the segments. Some of the varieties with a white ground and deep purple featherings are particularly striking.

Crocus like many other plants bear flowers that respond to both light and heat, closing at night and opening successive days until they begin to age when they sometimes fail to close.

In the varieties just described, the leaves begin to push up from the inclosing almost white sheaths in early spring but they are soon cut stripped by the rapidly developing flower that soon pierces its own covering sheath and

Crocus - 2

comes to its full stature. If the corm is old enough and large enough it will produce several to many flowers that develop in some succession, so that each plant is effective for ten days or two weeks, if the weather is fair.

Blooming here in late March through April, the flowers suffer little damage from light frosts, but do suffer from driving rains that ~~often~~ ~~to~~ bend the perianth tube or batter the petals. Since the crocus flower is not borne up on a stem there is no strength to hold it erect. The part that corresponds to the stem or stipe is underground as is the ovary and no growth brings it to the surface unless the flower is fertilized. In this case the developing seed capsule matures, grows upward and there, in June splits open, scattering the almost round seed that look somewhat like small, dull pink pearls. Should one want to save them the capsules should be pulled gently before they burst open, and stood head down in some glass container until the seeds fall out. These should be planted as described elsewhere (p.). They should be warm all summer and frozen lightly in the winter. Germination begins early & the characteristic dark green leaf with white median line, like a dull silver inlay, is easily recognized in the seed flats. No commonly grown plant approximates it save the pestilential Star-of-Bethlehem

(Ornithogalum umbellatum) but once its duller green and more rounded leaf tip are recognized, if by unhappy chance it should appear. With good care, the corms form quickly to flowering size. In the writers garden, crocus of many sorts self sow and make surprise appearances in many ~~unlikely~~ spots where no one would think of planting them.

There is some tendency at times ~~to~~ on the part of those who have become crocus collectors, to speak slightly of all those because of their coarser larger forms and their paler, less starry open faces. No one need heed all this but he who is lead by the aesthetic refinements of some of the species, plants in many cases far less ~~tract~~ amenable to ordinary garden culture — and no less ~~permanent~~

Aside from C. aureus already mentioned, there is only one other species that has been common in trade for many, many years in ordinary catalogues, C. susianus for which the common name Cloth of Gold has been invented.

This is a small flowered but very floriferous species from ——, with starry flowers of deep gold, heavily stained on the outside of the segments with deep, warm chestnut brown. It is a charming species and well worth growing though it will not take first place among species crocus that can be had if one shops for them.

Of the —— species that have been reported by botanists only about —— (? one third) are available in nursery lists. They do not lend themselves to any easy way of

crocus - 3

of description except by enumeration which is often tedious and dulls ones enthusiasm before the end is reached. It can be said, however, that for us in this country they fall into two major groups, those that flower in the spring months and those that bloom in the autumn. In their native haunts the autumn-flowering sorts merge imperceptibly into the winter-blooming group and these into the spring, for winter in these favored lands is usually not a period of snow, ice, cold and entire dormancy. Of the few winter flowering species the writer has tried, none persisted and their failure seemed mostly to result not from temperature alone, but from the fact that they could not produce their foliage during the ~~cold~~ winter and so died of starvation. Possibly if they had been grown in a good frame, or if the garden had been in a milder climate, they would have lived. It must be remembered, however, that all crocus tried need some cold and do not flourish in our South, for example, unless newly planted after some cold storage, too laborious a task for so transitory a spring pleasure.

If the writer were to be allowed but one species, it would be C. Imperati, although it has not come as near to establishing itself as a "native" as have both C. Sieberi and C. Tommasinianus both of which have self sown, ~~and~~ established and maintained themselves even under conditions of increasing (shade summer) which is not to their liking.

Originally bought

Cypella

The cypellas are South American irids that have never been thoroughly tried out in this country as garden plants, perhaps as any sort of plant. A general idea can be had if one says that they are like very refined and slender plants of the type one knows in the Mexican tigridias, but usually taller and in dimensions that recall Iris dichotoma.

The only species I have ever seen was Cypella Herbertii that came not from its home in the great River Platte basin in South America but from one of the West Indies or perhaps even Puerto Rico, for apparently it was carried about by gardeners early in its history and has established itself by seeding in many parts. Our plant lived its life in a pot, not too happily but it did send up a fine fan of plicate leaves and a tall branching stalk that gave a fair number of its fugitive yellow flowers. They look much like irises but without the beauty of 'standards' and with the importance of the color pattern thrown as in Tigridia on the bases of the wide-spreading falls and the style branches. These markings in dark coppery browns and almost purplish blacks give the same sort of brilliant contrasts that one gets in some orchids. Seed was produced, even on our plant and like most iridaceous seeds offered no difficulty. Since the species is tender, the seed would not be sown where any frost would reach it. How much it could endure of cold soil, I do not know or guess. That is one of the things the South will have to prove for itself!

If there were indefinite supplies of corms, doubtless they could be stored and planted after the fashion of gladiolus but one would never dare surmise if the slender charms of Cypella would enlist such devotion.

Cypella peruviana I know only from the lovely plate in Curtis Botanical Magazine(t. 6213). It is apparently a taller plant with branching inflorescence and flowers about the size of those of Iris dichotoma, lemon yellow marked with a brown so deep as to be nearly black and the blades of the falls almost orange.

Cypella.

The only species of cypella ever seen by the writer is Cypella Herbertii that came, not from its native home in the great Platte River basin of South America, but from some garden in Puerto Rico? ? whether it had travelled by Heaven knows what hand. As a potted thing it made no great show with somewhat slender growth, iris folded leaves (more gothick reader the proportions credited to it in books) and its slender stalk, bearing the fugitive yellow flowers with dull purplish chocolate markings on its petals & style branches. The fibrous coated bulb, at first look something like the coated corms of South African irids, is really a bulb. In a grassy meadow its yellow flowers might star the sward in late afternoon & others by not midday.

The other species, in number are known only from text & but all appear to be fugitive in bloom & less showy than their relatives with which have also been confused in past times, like bulbous Tigridias and the non-bulbous Neomaricas.

Should one come on them, they would require planting much as for gladiolus, with non-winter storage in frosty areas and whatever treatment gladiolus are given in gardens in other, more temperate regions. This last is written so, since in our south gladiolus are planted as are beans, for their seasonal bloom, with less thought for effect.

As for most iridaceous plants, seed provides a reasonably swift increase, especially if it is sown soon after ripening.

C. Herbertii BR. 949 (Morrea)
BM 2099 (Tigridia)

plumbea ?
peruviana BM 6213

(over)

What are others -

Cypella peruviana which I know only from the lovely plate in Curtis Botanical Magazine (T. 6213) shows what appears to be a much taller plant with a more branching inflorescence. It bears the usual fugitive flowers of rich deep yellow, the bases of the falls + style branches lemon yellow marked with bars of brown color, nearly black.

Bot Reg 416 (Iris) martinicensis Cypella?.

"This species is a native of the West Indies & was introduced to the royal gardens at Kew in 1782, by Mr Alexander Anderson from St. Lucia." Note shows that it is not an iris - but more nearly allied to Morea martinicana (now Neomarica) Ref. is made to its culture at Kew.

Cyrtanthus

From their behavior as pot plants in a pit greenhouse heated just enough to be free of frost, it would seem that these charming South African bulbs of the Amaryllis Family might find usefulness out of doors in the South. The limitation would come from the same factor that determines the usefulness of other amaryllids that keep their leaves in the winter, namely the resistance of those leaves to freezing. If frosts do not break down the tissues, rot apparently will not touch them; if they are partly destroyed, decay may travel down into the bulb. Although there have been references in literature to suggest that one species, Cyrtanthus obliquus produces its leaves after flowering, this is either not correct or else our plants were so upset by their unnatural life that they forgot and kept their leaves when they should not.

Briefly the common species seen, C. obliquus, C. Mackeni and C. sanguineus together with what was probably a mongrel lot of seedlings all gave some leaves at flowering time which is mid-winter to very early spring. They were planted closely in pots of ordinary soil, plunged in peat on the benches. Some seed was produced without hand pollination but increase from offsets seems to be abundant if one judges by the new fascicles of leaves that appear.

The bulbs are not unlike bulbs of the smaller narcissus. We planted them with the neck at the soil line but the necks seemed to grow up above it and later found their own level. Leaves in due season, about the dimensions of those of the larger zephyranthes or of small narcissus appeared and after them the scapes, 10 to 14 inches tall and crowned with a few to many-flowered head of drooping tubular flowers. These according to the above species should be pure red, creamy white and crimson red; the mongrels showed every hue from pink to deep rose. If there were no pure yellows, dull orange or salmon tones it was because blood of C. was lacking!

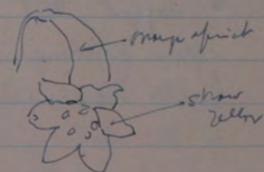
Since they are easily increased from seed it would probably be worth while to get seed of some of the species that have not been grown. They should be available from South Africa.

Of the species that I know only from colored plates, I particularly like C. Huttoni which has rather wider tubes and broader lobes, the tube being shown (B.M. t.7488) as dull apricot, the inner faces of the lobes strawy yellow. It is said to be 'more robust than C. angustifolius and its allies but not as C. obliquus' the chief difference for me being the wider tube as noted. C. striata is said to flower 'with the leaves' and has larger, longer flowers striped with —— on the —— base color.

Because they are essentially winter-blooming bulbs it is difficult to know what might be reasonable advice as to their use out of doors; theoretically it should be coastal southern California, practically it may turn out to be central Florida. Wherever it may be, it will be the work of a pioneer.

of course, that delay between harvest & sowing, always reduces the germination & that real increase may have to follow from home-grown bulbs.

BM. 7488 Cyr. Huttoni - J.G. Baker -
"More robust than C. angustifolius & its allies, but not as C. obliquus. Chief diff to BGh is in the shape of corolla. But shows 15 fls, Mr J. Hutton of Eastern district of Cape Colony. No scent



BM. 2471. C. pallidus -
nice pale (dull) apricot pink. (Closest to C. ventricosus (angustifolius of Jacquin)).

BM. 1534 C. striata
Fls with leaves no data on Cape locality -
Sent into trade by Mr Lee as amaryllis falcata
✓ C. Huttonii Baker BM 7488
? C. inaequalis O'Brien. Gard Chron III 37 = 261
C. Junodii Beauverd - - reference?

What was original description - Baker?

~~Cyrtanthus~~ Cyrtanthus

From their behaviour as pot plants in a pit greenhouse, where they suffer from frost, it would seem that these South African bulbs of the Amaryllis Family, might find their usefulness out-of-doors, limited by the same factor that determines the usefulness of Zephyranthes & Cooperia, namely the resistance to frost of the leaves during winter. Although there are references in the literature to suggest that one species, Cyrtanthus obliquus produces its leaves after flowering, this seems either not entirely correct or the our bulbs were upset in their normal functions by their artificial life in the cold pit house.

Very briefly, the species seen, C. obliquus, C. Mackenii and C. sanguineus, together with what was probably a mongrel lot of seedlings, all gave some leaves at flowering time which was late winter & very early spring. They were planted closely in pots of ordinary soil & the pots plunged in a thick layer of peat moss on the bench. Some seed was produced without pollination & increase from basal offsets was indicated by the extra fascicles of leaves that appeared.

To all purposes the appearance was a little like small narcissus bulbs, were planted with the neck at soil level; in due season the narrow, linear, not Zephyranthes-like leaves appeared & with or after them the 10 to 14 scapes, topped by a few to many-flowered head of tubular, usually drooping flowers. These according to the above species may be pure red, cream white, or crimson red: the mongrels, showing all the intermediate hues, pale pink to rose if there were no yellow, dull orange to salmon rose if there were. Some are definitely scented and all last well when cut.

Since they are easily increased by seed treated as for any amaryllidaceous plant it is probably worth while to pursue each of the remaining species from South Africa, remembering

Elisena 1b

Among the bulbs that are grouped about the pancratiums, the ismenes, the hymenocallis, are several other smaller genera of interest. One is offered in trade here that should be added where these others are enjoyed, namely Elisena longipetala, a Peruvian that has its own distinctions.

If one will imagine a hymenocallis with the typical long narrow perianth segments reflexing from the inner cup and that inner cup made by the connecting tissues between the filaments of the stamens but formed in such a fashion that it looks like a thimble rather than a bowl, and then imagine the flower as nodding in its position as a triandrus narcissus one will have an approximate idea of what Elisena looks like! Add to this the fact that the inner crown instead of being of delicate tissue like substance is quite firm and beautifully stained with emerald green from its base and the image becomes still clearer.

Unfortunately for me, I have not grown the plant, but know it only as a fine plate but it can be had in California so it is mentioned here not only for its own sake but because it has more beauty to offer than some of the hymenocallis that are grown and much more than some of the crinums for which I have the unflattering name of 'mopheads'.

Although it is an altitude plant in Peru, there is no reason to believe that it might not grow at much lower altitudes if the climates did not provide frosts and long periods of chilly weather. Whether or not we of the North could grow it as we can Hymenocallis calathina by lifting and storing the bulbs, I can only guess, but I should be willing to risk it, even here.

BM. 3873 Elisena longipetala

Perianth greenish white & wild as in the "mop head" crinums or hymenocallis: inner crown thimble-shaped & nodding – deep emerald green at base 3–6 fls in head. Peru?

Cajamarquilla – Alt. 10,000 ft?

Erythronium

For the person who professes concern as to which end of a bulb should be 'up', the erythronium presents a nice trial, but happily it is an issue that can be avoided by the neat subterfuge of putting the bulb on its side, in fact on any side. A little observation will discover the small vestige of a basal plate with possibly a bit of ~~xxxxxx~~ last year's dried off roots attached but it really does not seem to have mattered much with all that have been planted on the garden hillside over twenty years.

The genus with many species, commonly known as Dog's Tooth Violet, Adder's Tongue, Trout Lily, Avalanche Lily and many other folk names has a single species in Europe with outlying forms and stations, one on the Eastern seaboard, several through the Middle West and its finest groups from the Rockies to the Pacific. Most are described as woodland plants from low moist lands save those western American species that climb the mountains and flower high up as the snows depart.

The smallest bulbs of erythronium usually produce a single leaf, much as do undersized tulip bulbs. As they increase in size, the second leaf appears, finally the flower scape, from 6 to 20 inches according to the species and the vigor of the plants. The flowers are about an inch and one half across but the revolute petals in turning back like a martagon lily make them appear much smaller.

The species common enough in the East and the only one known to me in the wild, would not persuade one to plant more or indeed any, if as here its great colonies spreading by underground stolons, presented hundreds of solitary, bronze mottled leaves to each one of its nodding creamy yellow flowers. In sunnier spots, however, the yield in bloom is better and in the crisp days of early April it is a sight to see hundreds of the nodding flowers, like small lilies, stirring on their six inch stems in every breeze. The species other than this E. americanum are known to the writer only from books save the western sorts which have been quite permanent residents of the garden hill, seedling, self-sowing and slowly increasing in most cases. It can be recorded here that there are others, E. albidum the white counterpart of our Eastern species, E. mesachoreum a ~~lavender~~ lavender

from the central states of our Middle West, and E. propullans 'rose-colored' with a narrow range of occurrence from the last northward into Canada. From these bare facts, one may easily deduce that cold holds no terror for them.

Just what long cold winters will do for the truly far western species I do not know. Temperatures to zero and sometimes lower have never harmed them here, but with no field knowledge itis hard to guess if they grow as lushly or as happily as in their native homes. All of them have beengrown here except Watson's E. purpurascens which books would suggest may be the least showy.

The soil of the entire area where they are established was dug deeply and then supplied with a lavish supply of peat moss, well mixed in and dug again deeply. Two sites were chosen, one well up on the gentle southern slope, and another at the base of the same slope but facing east. There is little difference in the performance or the permanence, but with a slight preference for the lower site that undoubtedly has more moisture and a bit less of root competition. An earlier planting in a much less well prepared place has been as permanent but certainly not as happy if one may measure it by the lesser flowering.

It has not been my experience that erythronium bulbs come to the market in well graded lots. Twenty-five bulbs as received may or may not produce twenty-five blooming scapes, nor will all those that appear have the same number of flowers. One has therefore, whether he wishes or not, the appearance of a natural colony.

One hesitates to say that all are not equally beautiful, but it is easy to admit that were I to be limited to one species, I should pass by the robust, showy and prolific yellow-flowered E. grandiflorum and all its excellent forms, the many fine color selections from E. revolutum for E. Hendersonii which for me has not been as vigorous in growth though quite as permanent. The color is described as 'pale purple, with a very dark purple, almost black center'. I should modify this to read, pale rose washed over with lavender as in some of the pallida irises, the color often deepest at the tips, with a stunning blackish purple circular central zone or eye.

As is the case in all flower forms in which the petals roll back upon themselves, the flowers look best when seen nearly in profile which means that small fry like these will appear to best advantage on a gentle slope above a path so that one looks up toward them rather than down upon them.

For company, they may have any of the small and not too competitive perennials or winter annuals that might enjoy the same sort of site. On my own hillside several native violets, Phlox divaricata, pulmonarias, various small bulbs though chiefly snowdrops and puschkinia share the space and all push up through the annual leaf fall of oaks and gums. The erythroniums must be protected against too deep a cover of fresh leaves as their leaves on pushing up do not have the same vigorous thrust that one finds in the larger bulb species.

Obviously these are not bulbs for the perennial borders but rather for the edges of rich woodlands. One often sees them in rock gardens for which there is no need nor any inherent suitablity.

If one were to propagate them by seed, the same proceedure outlined for snowdrop or narcissus would serve well, but one should have to have even more patience if one may judge from the slow development of selfsown plants.

Erythronium

For the person who professes concern as to which end of the bulb should be up, the Erythroniums present a nice trial, but happily it is an issue that can be avoided by the neat subterfuge of putting the bulb on its side — in fact, any side. A little observation will discover the small vestige of a basal plate with possibly a bit of last year's dried off roots attached but it really does not seem to have mattered much with all that have been planted on the garden hillside over twenty years.

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¶ The species common enough in the East and the only one known to the writer as it grows in the wild would not persuade me to plant more or indeed any, up as here its great colonies spreading by underground stolons, presented hundreds of mottled leaves to each nodding cream yellow flowers. In favorable spots, however, the yield in bloom is better & in the crisp days of early April it is a sight to see hundreds of the nodding flowers, like small over blown Martagon lilies. ~~& stir~~ on their six inch stalks to each breeze. The other species other than this common. Erythronium americanum are known to the writer only from books save the Western sorts all of which have been quite permanent residents in his garden, seeding, self-sowing & slowly increasing in most cases. It can be recorded however, that there are others. E. albidum the

white counterpart of our eastern yellow dog's tooth violet, E. mesochoreum a lavender species of the central states of our middle west, and E. purpullans "rose-colored", with a narrow range of occurrence northward from the last into Canada. From these bare facts one may easily deduce that cold holds no terror for these species.

Just what long cold winters will do for the truly far western species the writer does not know. Temperatures of zero, and many degrees lower, have never harmed them here, but with no first knowledge it is hard to guess if they grow as lushly or as keeping as in their native homes. All of them have been grown save Watson's E. purpurascens which books would suggest is the least showy.

The soil of the entire area where they are established was dug over deeply & then enriched with a lavish supply of commercial peat moss, well dug in and mixed with the soil. Two sites were chosen, one well up the gentle southern slope and one at the base of a slope to the east. There is little difference in the performance or the permanance, but with a slight preference for the lower site that undoubtedly has a bit more soil moisture & a bit less of root competition. A previous planting, in a much too well prepared place has been as permanent but certainly is not happy.

It has not been the experience of the writer that Erythroniums bulbs come to the market, graded uniformly. Twenty-five bulbs, therefore, as received may or may not have twenty-five blooming scapes, nor will all those that appear have the same number of flowers. One has therefore what appears as a natural colony.

It is hard to say that all do not appear equally beautiful but it is quite easy to confess that were I limited to one species, I should pass by the robust, showy & prolific yellow flowered E. grandiflorum and its forms.

2 - erythronium.

The many beautiful forms of E. revolutum for E. Hendersonii which for me has not been as vigorous in growth though quite as permanent. The color is described as "pale purple, with a very dark purple, almost black center". I should modify this to read, pale rose pink washed over with lavender as in some of the pallida irises, the color often deepest at the tips, with a stunning blackish purple circular central zone.

As is the case with all flower forms in which the petals roll backwards on themselves, the flowers look best when seen nearly in profile, which means that small fry like these, will appear to best advantage on a gentle slope above a path so that one looks up towards them, rather than down upon them.

For company they may have any of the small and not too competitive perennials or wildlings annuals that might enjoy the same sort of sites. On my own hillside several native violets, Phlox divaricata, Mertensia pulmonaria, various small bulbs principally snowdrops & puschkinia share the space and push up through the annual leaf fall of oaks & gums. The erythroniums must be protected against too deep a cover of fresh leaves as their leaves pushing up do not have the same vigorous thrust that one finds in some larger bulbs.

If one were to propagate them by seed, the same procedure outlined for (narcissus or galanthus) would do well.

Obviously these are not bulbs for the perennial border but rather for the edges of rich woodland. One often sees them in rock gardens for which there is no need nor inherent suitability

(over)

* Insects page 1

The smallest bulbs of erythronium usually produce a solitary leaf, much as do tulips too small to flower. As they increase in size, the second leaf appears, finally the flower scape, from 6 to 10 inches according to the species and the vigor of the plants. The flowers themselves are about an inch and a half across but the revolute petals make a smaller diameter

Eucharis

The Amazon lily has been known in garden literature since about .... and has been dearly beloved by all who have grown it, save those who have consistently failed often for no reason they could discover. The genus is native to Colombia but whether native to the temperate but frost free areas on the high plateau or to the vast slopes that sweep down to the Pacific side, or even to those greater and more tropical lowlands that edge into the Amazon Basin, it is hard to tell. Those who grow and sell the great sheaves of cut flower in the Bogotá markets do not know where the agucenas come from in the wild or do not tell, but the cemeteries are heavy sweet with their scent and the white flowers against the gold of the churches make an unforgettable sight, not forgetting as well the mixture of their fragrance with the incense!

The standard advice for all who grow them in pots is a rich soil, even moisture supply with perfect drainage, lessened only after leaf growth had stopped and flowering is over, a rather uniform temperature not below the middle sixties, not too much sun and constant vigilance gainst mealy bug and thrips.

The leaves are evergreen but not everlasting and in a way remind one in shape and carriage of some of the hostas, that is they are narrowed at the base but spread broadly in the blade. The flower scapes in Eucharis amazonica the species most commonly grown in this country are usually a foot or more tall with three or more large glistening white flowers that suggest superb Leedsii narcissus until one looks closely and sees that the 'cup' is a petal like tissue that connects the bases of the filaments as in some of the hymenocallis, with the anthers laden with golden pollen carried above them on the part of the filament above the rim. The scent is strong and pleasing to nearly all persons. The flowers last amazingly well when cut.

As has happend with other tropical bulbs, it was discovered that the annual normal/cycle of growth and rest through dryness not cold, could be artificially induced and that instead of one growing and flowering season a year, the number could be doubled at least by reducing the water supply as soon as the leaves were full grown, with a program of just enough water to keep the leaves from withering. After a decent interval, full watering again, a slight rise in temperature and once more new growth would appear, a little additional feeding and a new crop of flowers and more leaves.

No personal experience has been had in any region whereit might be grown out of doors. If it is an Andean plant, one would suggest southern California unless the dry season is too long. If it is a plant of the Amazon Basin, even on the upper reaches, Florida would be better unless there should be some day length problem that does not seem likely. Reports from some parts of Florida, however, suggest that it is not completely happy there as there is a poor increase in bulbs.

No one has ever mentioned seed production but there are repeated references in European literature to 'possible hybrids' and continued mention of the bigeneric hybrid with Urceolina, 'Urceocharis'. If these are possible, seed must appear, but the only reference I have appears under the next genus, Eurycles.

The genus varies in value for the gardener with interest chiefly in the dimensions; all are reported to have smaller flowers than those of E. grandiflora and so are mostly mentioned only and not grown.

Eucharis

BM 4971
Hortic. Review 9: 357; 12 = 1216-17.   Garden 48 p. 47
57 p. 25 etc

The Amazon Lily has been known in garden literature since
? about ——— and has been dearly beloved by all who have grown
it, save those who have consistently failed — usually for no
obvious reason. The genus is native to Colombia, but whether
native to temperate but frost free areas of the high plateau
regions ~~or~~ to the vast slopes that sweep down to the
warmer Pacific side or the possibly even more tropical lowlands
~~that~~ merge finally in the great Amazon basin, it is hard to
tell. Those who grow & sell the great masses of cut flowers,
azucena(s) do not tell or do not know, but the cemeteries
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gold of some Bogotá churches ~~are~~ as unforgettable as the mixture
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The standard advice for all who grow them in pots is a
rich soil, even moisture supply with perfect drainage, lessened
· ~~only~~ after leaf growth has stopped & flowering is over, a rather
uniform temperature not below the middle sixties, not too
much sun & constant vigilance against mealy bug & thrips.

The leaves are evergreen but not eternal and in a way
remind one of the leaves of some funkias, or those of the very
? rare Hippeastrum ? the one Hortus gives as St Katherine's fl., that is they are
narrowed at the base to a petiole, but spread broadly in
the blade. The flower scapes in Eucharis amazonica the
species most commonly met in cultivation in this country are
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like tissue that connects the filaments of the stamens
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rim. The scent is strong and pleasing to nearly all persons. The ~~lite~~ flowers last well when cut.

As has happened for other tropical bulbs, it was discovered that the normal annual cycle of growth and rest, through dryness not cold, could be artificially reproduced and that instead of the normal cycle of one growing and ~~one cut~~ one rest period per year, the number could be increased by reducing water supply as soon as the leaves are fully grown, with a program of just enough water to keep the leaves from withering. After a decent interval, full watering, a slight rise in temperature & once new growth has come, a little additional feeding will start a new crop of flowers and later leaves.

No personal experience has been had in any region where the plant is grown in open ground. If it is an Andean plant, there probably would be best success in southern California unless the dry season is too long. If it is a plant of the Amazon Basin, frost free Florida would be best, unless there is (also involved) some factor of day length that does not seem likely considering success further north under glass. Reports from Florida, however, suggest that it is not entirely happy there, since it does not yield regular increase of bulbs. ¶ No one has ever mentioned seed production but since there are repeated references in the literature to "possible hybrids" among the several (?) species of the genus and continued mention of the bigeneric hybrid with Urceolina, "Urceocharis", seed must be possible even under the most artificial methods of culture. If this is so, increase ought to be easy & rapid.

The genus varies, for the gardener, chiefly in dimensions with most flowers smaller than those of E. grandiflora and so presumably of less consequence.

Eurycles

Except in the warmer parts of the country where gardeners can grow the more tropical crinums out-of-doors with no thought for their safety, one is not likely to bother with the several species of Eurycles, even if one recalls that it is native (according to some) to Cambodia or that Carrière in writing/the Revue Horticole in 1879 thought it/a worthy rival of Eucharis amazonica, a tropical species much beloved to gardeners but often of uncertain increase here.

Briefly the bulb of Eurycles is rather like that of hymenocallis but the leaves instead of being strap-shaped widen out as in those of one of the larger hostas and the inflorescence is carried by its scape to about the same level as the broadened leaf blades. Each white flower with its outer six perianth segments and its inner crown made of the broadened and united bases of the filaments, presses against its fellows, sometimes as many as sixty, and never attains the geometrical ~~mmmmmm~~ symmetry of the Amazon Lily flower. Only the green base of the tube and the gold of the pollen relieve the dead whiteness. No one has mentioned a scent and I have no memory of it on the one occasion when we grew the plant in pots.

Botanists have made a great discussion as to whether or not there are numerous species as some believe or only one, the variations resulting from differences in locale. There are synonyms galore, with aliases in the genera Crinum, Pancratium and Proiphys.

European texts suggest rather than affirm that it grows better in open soil than in pots, that it needs much the same treatment as hymenocallis, that it must have a thorough rest period, that it may be increased by offsets or by seed, the latter producedonly if flowers are hand pollinated. There is the sly suggestion that pollen of Eurycles amboinensis, the species most commonly met, might pollinate the Amazonian Eucharis, but there is no description of any progeny!

Eurycles –

Except for the warmer parts of the county where gardeners may grow the more tropical species of crinum out-of-doors without much thought for their comfort, one is not likely to bother much with the several species of the genus Eurycles, even if one recalls that it is native (according to some) to Cambodia or that Carriere writing in Revue Horticole in 1879 thought it a worthy rival to Eucharis amazonica, a tropical species much beloved by gardeners but often of uncertain increase here.

Briefly the bulb is rather like that of a Pancratium but the leaves instead of being strap-like widen out as do those of a Funkia, and the inflorescence is carried by its scape to about the same level as the broadened leaf blades. Each flower with its outer six perianth segments and its inner crown made of the broadened and united bases of the filaments, presses against its fellows, and (sometimes as many as 60) never attains the geometrical precision of the Amazon lily flower. Only the green base of the tube and the grey of pollen relieve the dead whiteness. No one has mentioned a scent and I have no memory of it on the one occasion when we grew this plant in pots.

Botanists have made a great discussion as to whether or not there are numerous species as some believe or only one, the variations resulting from differences in locale. There are synonyms galore with aliases in the genera Crinum, Pancratium and Proiphys – (verify spelling).

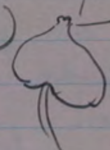
European texts suggest rather than affirm that it grows better in open soil than in pots, that it needs much the same treatment as Hymenocallis, that it must have a thorough rest period, that it may be increased by offsets or seed, the latter produced only if flowers are hand pollinated. There is the shy suggestion that pollen of Eurycles amboinensis the species most commonly met might pollinate the Amazonian Eucharis, but there is no description of any progeny!

Eurycles amboinensis - Rev. Hort. - 1879: 456-457
E.-A. Carrière -

Created by Salisbury, the genus Eurycles contains only a small number of species, all probably forms of one, with variable distinctions that may result from the local conditions, + probably if all were grown under one & the same conditions the distinction would disappear. —

Two woodcuts F. 92 - E. amboinensis
93 - E. australasica.

"Bulb elongate like that of Pancratium, outer (bulb) coats épaisse, fendillée, atténué toward the top, where it gives rise to leaves "très-épaisses at the base which is wide spread — petiole stout 20-30 cm long, channeled, bearing at the top a broad cordate blade. (looks like Hosta), "~~Hampe (blade?)~~" scape same length as petioles — (illus. shows slightly taller, in E. amboinensis. Inflor. contained within papery membrane - whitish) Flowers white pedicellate, in umbel, long tubular - six divisions (dressées), filaments elongate + soudés at the base. Filaments shorter than per. divisions - style exserted - Fruit (sobole)



— beak with stigma scar - 15-18 mm dia.

Increase is made by separation of the "caïeux" + is carried out during the resting period of the plants as well as by seeds as is done for Pancratium, Hymenocallis, Eucharis etc. — but seed (sobole) are not produced

unless one pollinates the fls.
Our colleague & friend who has reintroduced it says — (quotes fr catalogue).

"reintroduced fr montagnes of Pursat — Cambodia, Inf. up to 70 fls in head — white, long lasting. It is said that E. amboinensis can be used to pollinate Eucharis amazonica —

↓

("C'est un digne émule de l'Eucharis amazonica espèce qui ne donne pas de graines et qui peut-être pourra être croisée avec l'Eurycles amboinensis.")

It seems to us certain that our plant is the same as E. sylvestris Salisb so it must have the following syn.: E. amboinensis Loud.; E. coronata Sweet, E. nervosa G. Don; Crinum nervosum Lin, not Roxb.; Pancratium amboinense L.; nervifolium Salisb., Proiphys. amboinensis Herb.
Com name Brisbane Lily.

Culture as for Pancratium — Author believes it not as tender as reported — To get good flowering, rest period must be complete.

Cut of E. australasica shows more leave & infl. not overtopping leaves — peduncles shorter & head more crowded —

Freesia

As far as modern gardening is concerned probably all the named forms of freesia are of garden origin, or perhaps better garden origins for the original hybrids have been so intercrossed that one would be put to it to suggest the steps involved. Since there are also some differences of botanical opinion as to what the bona fide species may have been, the confusion may be still greater. Like their ancestors all are cormous plants not with flattened corms such as one sees in crocus and gladiolus but with ovoid corms, covered by netted coats that give the whole a more bulb-like appearance.

Starting with Freesia refracta that some authorities believe to be no longer in cultivation, we have a slender plant producing a fan of rather weak, broad grassy leaves, that may reach a foot or more in height before ripening, folded about the developing flower scape that may bear one or more lateral branches with subtending reduced leaves and ending in a crowded spike of flowers borne at right angles to the somewhat flexuose stem. The flowers with a narrow tube that widens before it ends in six reflexed lobes vaguely suggests a lily, except that the segments are unequal and arranged in a somewhat two-lipped fashion. The original color was light yellow somewhat variable between greenish and white, though some pure white forms were found later. Apparently only this last has the fruity perfume that is now associated with the freesia.

The later blooming F. Armstrongii also probably not available here, differs from it, in the gardener's terms, in the fact that it has a 'white tube with orange at the base, the segments markedly bordered with rose-purple'. Presumabl it has provided the pigment that has given the modern pink, rose, lilac and purple colors.

The two combined and recombined have produced the present race or races and for many persons have worked with them and catalogues are now likely to show originator's names as part of the designation rather than the older pseudo-scientific names such as x F. Tubergeni or x F. Ragionieri once assigned to groups.

Aside from improvements in size and carriage, the breeders have attempted to choose individuals with stiffer, more upright scapes, flowers more symmetrically placed on the spike, clearer colors tending toward selfs and a uniform scent. More progress has been made on all other points than on the inheritance of scent, which does not seem to be present in many of the best color forms.

Practically all the named varieties one may find are worth growing and should be tried until one knows which he personally prefers.

Since freesias are normally plants that start into growth in late autumn and develop foliage and flowers slowly through mild cool weather, they are of little use out-of-doors save in those areas where there are no killing frosts in winter. They are, however, excellent florist's flowers and are much grown for winter forcing. Like many other tender bulbs they are planted in a crowded fashion for forcing which should be slow and cool; the whole top is cut off and the corm usually discarded, since corms are now produced wholesale in this country.

They are frequently stressed as winter-flowering houseplants. From the writer's experience he feels it should be stressed that they require abundant light or their flower stalks will be few and even more flexuose than usual. It also is best to buy 'top-size' bulbs to insure abundant bloom. The soil should be rich, but gritty with sand and fibrous with coarse humus. Moisture should be uniform. Be prepared to hold up the developing sheaves of foliage with stakes and an encircling tie.

The writer has had no experience with inside planting for succession of bloom, but it is reported that successive plantings may be made, allowing two or three months for flowering. No preliminary cool period is needed to insure rooting before the development of tops, as is needful for cold climate bulbs.

Freesia

refracta — BR 135 (Tritonia refracta)
armstrongii Gn 59, p. 374

/ both up
genus as a
whole

Mrs Comm—

As far as modern gardening is concerned probably all the named forms of freesia offered in the market are of garden origin, or perhaps better garden origins for the original hybrids have been so intercrossed that one would be put to it to suggest the steps involved. Since there are also some differences of opinion as to what the bona fide species may be the confusion ~~is~~ may be even greater. Like their ancestors all are cormous plants not with flattened corms as in crocus or gladiolus, but with ovoid corms, covered by ~~a~~ netted coats ~~that~~ give the whole a more bulb-like appearance.

Starting with Freesia refracta which some authorities believe to be no longer in cultivation, we have ~~a~~ slender plant producing a fan of rather weak broad grassy leaves that may reach a foot or more in height before ripening, folded about the developing flower stalk that may bear one or more lateral branches with subtending reduced leaves, and ending in in a crowded spike of flowers borne at right angles to ~~the~~ its somewhat flexuous stem. The flowers with a narrow tube that opens into a broad tube crowned with six reflexing lobes vaguely suggests a lily, except that the segments are unequal & arranged in a somewhat two-lipped fashion. The original color was yellow, greenish or pure, or even white in some forms found later. Apparently only this last had the fruity perfume that is now associated with the ~~form~~ freesia.

The later blooming F. Armstrongii, also probably not available here, differs from, from the gardener's point of view chiefly in the fact that it has a "white tube with orange at the base, the segments markedly bordered with rose-purple" Presumably it has provided the pigment that have given the modern pink, rose, lilac & purple ~~clones~~ colors.

The two combined & recombined have produced the present race or races for many persons have worked with them and catalogues are not likely to show originator's names as part of the designation rather than the older pseudo-scientific names such as

× F. Tubergenii or × F. Ragionieri once assigned to groups resulting from a single cross.

Aside from improvement in size and carriage of flowers, the breeders have attempted to ~~stiffen th~~ chose individuals with stiffer, more upright scapes, flowers symmetrically placed in the spike, clearer colors tending towards selfs, and a uniform scent. More progress has been made on ~~first~~ all other points than on the inheritance of scent, which does not seem to be present in many of the best colored forms.

Practically all the named varieties one may find are worth growing and should be tried until one knows which he personally prefers.

Since freesias are normally plants that start into growth in late autumn and develop foliage + flowers slowly through mild cool weather, they are of little use out-of-doors save in those areas where there are no killing frosts in winter. They are, however, excellent florists' flowers and are much grown for winter cutting. Like many other tender bulbs they are planted in a crowded fashion for forcing which should be slow + cool; the whole top is cut off and the corm usually discarded, since ~~they~~ corms are now produced abundantly on our Pacific coast states.

They are frequently recommended ~~as bulbs~~ for household winter flowering as houseplants. From the writer's experience, he feels that it should be stressed that they require abundant sunlight or their flower stalks will be few and even more flexuous than usual. It also pays best to purchase "top-size" corms to insure abundant bloom. The soil should be rich, but gritty with sand + ~~f~~ fibrous with coarse humus. Moisture should be uniform. Be prepared to hold up the developing sheaf of leaves with stakes and an encircling tie.

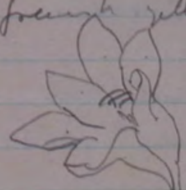
The writer has no experience with inside planting for succession of bloom, but it is reported that successive plantings may be made, allowing two ~~months~~ to three months for flowering. No preliminary period is required to insure root growth before top growth as is the case for cold climate bulbs.

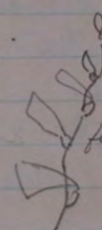
Cal. ? — Hugo — Van Eyk ?

B.M. 416 — (Iris) martinicensis — Cypella ?
"This species is a native of the West-India islands & was introduced to the royal gardens at Kew in 1782, by Mr Alexander Anderson from St. Lucia." Note shows that it is not an iris — but more nearly related to Moraea Northiana! Ref. is made to its ripening of seed.

B.M. 418. Antholyza Meriana —
Discussion as to whether or not it is a Watsonia! Named for "Sybilla Merian, the celebrated female Dutch naturalist, so eminently distinguished for the productions of her pencil; x x"
"It requires the same treatment as the Cape bulbs, succeeds very well, and produces plenty of offsets when planted in light sandy bog-earth." "Fls in May & June, & is prop. by offsets.
First raised from seed sent to Miller & Dickman's fame, by Dr Job Baster — fld? 1756? —

B.M. 417 — (Gladiolus) lineatus   Ixia ? Freesia ?
"The flowers of this Corn-flag are of a delicate straw colour, more or less tinged with orange, finely & delicately pencilled with dark lines, which render it as much an object of admiration as brilliancy of colour does some of the others."
"x x lately introduced from the Cape by way of Holland; flowers in May, produces offsets in abundance x x x and blows freely" (blows = sets seed.)
Certainly looks like a greenish yellow freesia.



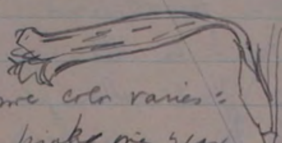


fl. cls. on stalk

Ask Blake to get Curtis's B.M. Vol. XV – XIV
full of Cape Bulbs, etc – 1801 –

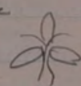
BM 533 – Watsonia deltroides –
Discussion shows that that status & content of the genera Watsonia, Lachenalia, Antholyza etc had not been fixed – In fact most of the 2-page text is argument –
Plant is not much to look at

Tendency for flo. to lie in flat plane –



Note says flower color varies: may be pale pink one year, crimson the next & spotted crimson on pink another – refers to p. 441 as Antholyza merianella! First intro – probably – about 1778 –

BM 539 – Ixia conica –
"It was cultivated from Cape seed, by Miller, in 1757; but his figure was full of botanical errors."
Nice Ixia – crowded head type



This is a bot. text & there is recorded here among other things the separation of the genus *Babiana*!

BM 541 Ixia grandiflora –
Intro. Kew Gardens 1758 — Question of this is Ixia? –

BM 542 Ixia scillaris v. latifolia – not an Ixia!

Fritillaria

The fritillaries have long been garden plants in Europe, chiefly in two somewhat dissimilar species both know in this country and grown happily in many localities. The native American species, all from our western States have a shorter and less continuous garden history while many forms from the countries east of the Mediterranean basin have become almost fancier's subjects in Great Britain or certainly were under the patronage of the late Sir William Lawrence.

The culture of the many species is beset with a variety of difficulties. By no means all are tolerant of winter cold under the climatic conditions of our eastern seaboard. Many produce bulbs that are very fragile, that shatter in packing and handling; others seems highly perishable and arrive quite dead in spite of the fact that they look sound. Many are of doubtful garden value either being of dull and ratherugly colors or else provided with a scent that is nothing short of putrid! Most of them, including many of the uglies are highly 'photogenic' and black and white photographs belie the facts.

The beginner anywhere might well start with the European Fritillatia meleagris and if possible a good assortment of named forms particularly including whites. The smallish bulbs are somewhat like those of a lily, though the scales are fatter and so do not overlap well. They also fall off easily if the outer coats are lost. They should be planted about 6 inches deep in rich soil that will be well drained but not too dry in summer. In situations to their liking they will become established in rough grass and spread slowly. My own experience has been with a planting under shrubs, not rescued in time from overshading and persisting chiefly as little clumps of single leaves, like miniature versions of tulips that have no intention of flowering.

When all goes well they produce a thin stalk,againlike that of a lily, but with less vigor, several to many slender leaves and at the top one,two -and-square or three broad/shouldered pendant bells. In the type,these appear at a distance as of a dull chocolate purple color;closer examination shows that the color is a pattern of 'checkered' over a dull white ground into which the color 'runs' at times so that little white shows through. The pattern is clearest on the inner surfaces and away from the 'shoulders'. Seedlings have been raised in which the color is less dull, sometimes even fondly spoken of as dull rose, but with the emphasis on the adjective,all variants are rather nice. The gem of all is the white form, not too crystalline a white to be sure,and sometimes sparingly checkered over with a clean spring green. If one can bring himself to pick them,any of them and set them where the light will shine through the bells,he will be enchanted with or without the approval of accredited flower-arranging judges.

The next most commonly cultivated species is the ordinary Crown Imperial of old gardens, an even more decorative plant, abd on a far more robust scale. The large bulbs are made up of relatively few fat scales,neatly fitted together but with an opening on the upper surface above the growing point of the axis, a growing point unfortunately dead-on-arrival many times. Buy as generously as you can and then develop stock by dividing the successful groups with quick replanting as the leaves wither. There is some evidence, but no proof, that this species prefers a neutral or alkaline soil, not acid.

The vigorous shoots push up quickly in the spring with the general semblance of a coarse lily, the leaves irregular and somewhat towsled in appearance though sometimes whorled toward the top. The upper 6 to 10 inches of the stalk is bare but crowned with a tuft of leaves below which depend, in a circle about the stem the flouncing bells of the Crown Imperial. The colors are usually spoken of as red and yellow;but while the yellow is sometimes clean enough,the red is usually a raw red stained with dull brown from the pedicel along the median line. The odor is politely spoken of as fetid,for which there is a much more forceful vernacular term.

As might be expected of a plant long grown in European gardens, there are many variants, safely recorded in old journals, but usually never seen here. Doubtless if some one could be induced to hand pollinate the flowers and grow the resulting seed, on [illegible] we might have a revival of them all, including those with variegated foliage though this last might inflame the passions of the pathologist's dedicated to mosaics and other viruses.

Like some other plants that hurry into bloom, the Crown Imperial dies away by mid-summer, so one must plant it near some perennial slow to start that will later spread out a wide top to hide the void left by the ripened foliage.

With such of the American species as have been tried in this Eastern garden I can report only failures, probably due to my own lack of understanding care, since the bulbs usually grew produced stalks but no real blooming, and have persisted for years with an occasional blossom so poor that it could not be typical. A site was chosen in a little flat area below a gentle slope, where shade would fall in early morning and late afternoon with a decent sun for the midday hours. The soil was deep, friable, acid and well prepared with leaf and peat compost and moss. This, of course, is a poor apology for Mr. Purdy's recommended soils - one a heavy clay loam in full sun, the other well drained soils in not too shady woods. Aside from the pale but pure yellow F. pudica and the dull purple F. lanceolata none has condescended a bloom that seemed normal.

The blackish chocolate purple blossoms of the Alaskan F. camtschatcensis I know only from having seen it flower once after planting in another garden. Although strikingly dark in hue, I should not struggle to keep it and should I need that color or one near it, I could always plant very deeply a bulb or two of one of the so-called black tulips!

As for the many species from Europe and Asia Minor, there is nothing to report first hand. If one must know about them from the best amateurs, the best data are found in the Lily Yearbooks of the Royal Horticultural Society of Great Britain, beginning about 1932. In his articles in the issue for 1932, the late Sir William Lawrence takes his fling at both Farrer and Grove for their disparagements, Farrer as always much more forthright in his damning. Neither of those gentlemen cherished the 'stinking bells of dingy chocolate and greenish tones'(Sir William quotes Farrer's English Rock Garden) but says Sir William with true courage - "As a matter of fact the colour of Fritillarie is not unlike that of Cypripediums and other highly prized orchids". Kind Sir William forgot that cypripediums have other charms and that their best dark colors would never be called dingy chocolate!

All of these, like many other bulbs not often on the market, would have to be raised from seed following a routine suitable for lilies their near kin, or gotten from some expert who had them first. The beginner might well prove his hand at other bulbs before wasting any space and money on the doubtful. There are more beautiful bulbs/guaranteed equally -to-die, if one must be foolhardy.

Fritillaria

Sir William Lawrence RHS etc — check bulb descriptions — for meleagris imperialis etc
Look up Baker: Journ Linn Soc = 14: 251 (1875)

The fritillaries have long been garden plants in Europe, chiefly in two somewhat dissimilar species, both known in this country & grown happily in many localities. The native American species, all from our western states have a shorter and less continuous garden history while the many forms from the countries east of the Mediterranean basin have become almost fancier's subjects in Great Britain, or certainly were under the patronage of the late Sir William Lawrence.

The culture of the many species is beset with a variety of difficulties. By no means all are tolerant of winter cold under the climatic conditions of our Eastern seaboard. Many produce bulbs that are very fragile ~~and~~ ~~easily bitten~~ that shatter in packing and handling: others seem highly perishable and arrive quite dead in spite of the fact that they appear sound. Many are of doubtful garden value, either being of dull and rather ugly colors or else provided with a scent that is nothing short of putrid. Most of them, including many of the uglies are highly "photogenic" and black and white photographs belie the facts.

The beginner anywhere might well start with the European Fritillaria ~~m~~ meleagris and if possible with a good assortment of named forms, particularly including the whites. The smallish bulbs are somewhat like those of a lily, though the scales are fatter and do not overlap well. They also fall off easily if the outer coat is lost. They should be planted about 6 inches deep in rich soil that will be well drained but not too dry in summer. In situations to their liking, they will become established in rough grass & spread slowly. My own experience has been with a planting under shrubs, not rescued in time from overshading and persisting chiefly as little clumps of single leaves, like miniature versions of tulips that have no intention of flowering.

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The next most commonly grown species is the ordinary Crown Imperial of old gardens, an even more decorative plant, and on a far more robust scale. The large bulbs are made up of relatively few fat scales, neatly fitted together but with an opening on the upper surface above the growing point of the axis, a growing point unfortunately dead on arrival many times. Buy as generously as purse permits and then develop stock by dividing the successful groups with quick replanting (as leaves wither). There is some evidence, but no proof, that this species prefers neutral to alkaline soil, not acid.

The vigorous shoots push up quickly in spring with a general semblance of a coarse lily, the leaves irregular & somewhat tousled in appearance though sometimes whorled toward the top. The upper 6 to 10 inches of the stalk are bare but crowned by a tuft of leaves below which depend, in a circle about the stem, the flouncing bells of the crown imperial. The colors are usually spoken of as red and yellow: but while the yellow is sometimes clean enough, the red is usually a raw red and is sometimes stained with dull brown from the pedicel along the median vein

2 Fritillary.

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With such of the American species as have been tried in this Eastern part of the country reports and failures probably due to my own lack of understanding care, since the bulbs usually grow, produce stalks but no real bloom and have persisted for years with an occasional blossom so poor that it could not be typical. A site was chosen in a little flat area below a gentle ravine, where shade would fall in early morning and late afternoon but with decent sun for the mid-day hours. The soil was deep, friable, acid and well enriched with leaf compost and fortified with peat moss. This, of course, is a poor apology for the Purdy's recommended soils - one heavy clay in full sun, the other well drained soils in not too shady woods. Aside from the pale but pure yellow F. pudica and the dull purples F. lanceolata none has condescended even once to bloom, that seemed normal.

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it and should I need that color or one near it, I would always plant very deeply a bulb or two of the so-called black tulips.

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All of these, like many other bulbs, not often on the market would have to be raised from seed or gotten from some expert who had them first. The beginner might well prove his hand at other bulbs before wasting time, space and money on the doubtful. There are more beautiful bulbs guaranteed-to-die if one must.

Galanthus

I am prejudiced in favor of snowdrops and whatever is written may well be discounted, as the opinion of one who values too much the flowers that may brave a winter scene.

The snowdrops as a group are not many in number, but flower from winter into the earlier spring months, All are white in color with markings of green, more rarely yellow on the inner segments and in one rare form on the outer as well. ~~I do not have this last, Galanthus nivalis scharlockii, but it must steal a little thunder from the later snowflakes.~~ For general garden effects they must be used in quantity but as natural increase is rapid in most gardens a small original planting should soon make a show, fortified not only by the offsets but by natural increase through seeding. The bulbs increase in the same fashion as do those of narcissus, and may be lifted, divided and promptly reset, unless one must keep them in cool airy storage such as narcissus would require. Seed germinates early in the spring, about the same time that the old bulbs push up and can be sown at once when gathered, even opening the fat green pods that weigh down the slender stems and sowing before the color has darkened. The little bulbs will flower in three years.

Only two species are commonly cultivated, G. nivalis and G. Elwesii. The latter is fairly uniform as it comes from nurseries but if it is ever possible to buy collected bulbs or togrow ones own seedlings there will be a delightful variation among the new plants, a variation in size and carraige of the perianth segments, in time of flowering, in the amount and pattern of the green markings. One always hopes for a form with yellow in place of green but I have never had one.

In my own garden, collected bulbs from Turkey show a wide range of variation on all these points. Some bulbs flower regularly about November first, and there are individual plants in blossom all winter, except in periods of ice and snow. Cold and ice do not seem to injure the buds pushing up but open flowers are damaged.

The 2 or 3 leaves are broad, gray green in color and before ripening, may become as long as 8 inches. They die off tidily. The flowers open in cold weather on short scapes, but in decent weather will stand as much as 8 inches high, one flower to each bulb axis, but showy as the offsets soon flower and build up a clump about the original.

Galanthus nivalis and its variants have a longer garden history than Elwes' snowdrop and references may be found as early as the 18th century.

In this climate it is regularly spring-flowering with no tendency to precocity.

Unlike Elwes' snowdrop it tends to make large clumps with fine masses of foliage, the leaves themselves rather flat, gray green lighter in the center. The flowers are distinctly smaller but not pigmy, and quite enough to make a fine show. The horticultural race sold as nivalis maximus has uniformly larger flowers; nivalis viridi-apice has tiny green flake on the tips of the outer segments; nivalis scharlockii has very long sheathing bracts the enfold the bud, and then stand up like an old fashioned sounding board above the nodding flower.

Here nivalis usually flowers with Scilla bifolia, Chionodoxa sardensis, Eranthis hyemalis and such early crocus species as CC. sieberi, tommasinianus, and Imperati, but not always. In the small garden they look well together, but in plantings where there is ample room, thousands of snowdrops in broad sheets are a wonderful sight.

By some diligent searching one can find and get other species. The writer has grown CC. cilicicus, Imperati, latifolius, Ikariae, Plicatus, and Byzantinus. They are of unequal importance. Byzantinus and cilicicus bloom in the main season for Elwesii. Plicatus with its folded leaf margins comes next; latifolius with very wide leaves and rather pindling flowers, blooms with nivalis. Ikariae comes a little later with the bulbs like Scilla sibirica, Chionodoxa Luciliae and the small trumpet daffodil species.

For the enthusiastic amateur who can and will grow large stocks, the snowdrop will provide a fancier's program. It would be easily possible to work up stocks that would show great variation, in size and carriage of perianth, color and size of markings on the inner crown, season of bloom and many other details. There are no special problems of culture and only time would be needed to assure the increase. For one needing further courage, one recalls the fond stories of 'Snowdrop Allen' who did all this sort of thing and if one believes the prints, did it well; what his friends may have thought of his passion one does not know, but garden friends are usually patient, even when not convinced. Think what a delight it would be to have a snowdrop with the inner three segments entirely emerald green or entirely pure white.

Galanthus. The snowdrops represent a relatively small group of winter & spring flowering bulbs, all with white flowers, variously marked with green, or in some cases yellow. For general garden effects they must be used in quantity, but as natural increase is ~~good~~ rapid in most gardens a small original planting should soon make a show, fortified as time goes on by natural increase through seeding. The bulbs increase as do those of narcissus and like narcissus can be lifted and divided, as soon after flowering as the foliage begins to show maturity. They should be reset at once if possible but may be stored in a cool, well aired place till autumn if necessary. Seed germinates where it falls but seedlings develop slowly. If seed is gathered it should be sown at once in well drained soil. Germination begins the following spring and flowering bulbs ~~are~~ ~~and~~ develops in three years.

Only two species are commonly offered, Galanthus nivalis and G. Elwesii. The latter is fairly uniform from nursery produced bulbs but if it is ever possible to buy collected bulbs or to grow ones own seedlings there is great variation in size of perianth segments, the amount & pattern of green on the inner segments and most important of all, the time of bloom.

In my own garden, collected bulbs from Turkey show a wide range on all these points. (over) Some bulbs flower regularly about November first

and there are individual plants in bloom throughout the entire winter, except in periods of ice and snow. Cold & ice seem to have no effect on the fl. buds as they push up but fully opened flowers are damaged.

Best growth seems to come in rich soil with ample humus & good moisture from October to May. Summer shade does no damage and even heavy leaf fall in autumn does not hinder their spring appearance.

The 2 to 3 leaves are broad, gray-green in color and before ripening may become as much as 8 inches long. They die off tidily. The flowers open in cold weather on short scapes, but in good weather will stand as much as 6 inches high, one flower to a bulb, but showy as the offsets produce flowers freely forming a clump in effect.

Galanthus nivalis, and its variants have a longer garden history than Elwes' snowdrop and references may be found in garden literature as early as the — (18th?) century.

In this climate it is regularly spring-flowering with no tendency to precocity.

Unlike Elwes' snowdrops it tends to make large clumps with fine masses of rather flat, narrow, gray green foliage, lighter in color in the middle center of the leaf. The flowers are distinctly smaller than those of the species already described but are quite large enough to make a good show.

Here it flowers at the same season as

Scilla sardensis, Eranthis hyemalis and such early crocus species as Crocus sieberi, C. tommasinianus and C. imperati. In the small garden they look well together, but in plantings where there is ample room, this Scotch snowdrop looks wonderfully well when planted alone and in mass. &

There are various forms, including a double, several with yellow markings instead of green and one reported as autumn-flowering, except for the double, which is not very charming, none of these forms have been available to the writer.

By diligent search it is possible to find other species when they are offered but they are really all collectors' forms rather than standard garden forms. The writer has grown C. cilicicus, C. imperati, latifolius, C. mariae, plicatus and byzantinus none of which offers any difficulty in cultivation nor any but small pleasures in their minute variations.

For the enthusiastic amateur who can and will grow large stocks, the snowdrops can be made a fanciers program. It would easily be possible to work up stocks that would show great variation in size of perianth, color & size of markings on the inner segments, season of bloom and many other details. There are no problems of culture and no time is needed to accomplish the increases.

Galanthus   Compare other MSS

Bfm Apr 1938

Foliage still ripe & green — Seed developing — but Elwesii, first to flower is no nearer ripener than byzantinus & cilicicus — while nivalis much later will catch up.

Write Mrs Henry re nivalis Scharlockii — ? green tips on all white segments.

Bfm July 1938

G. Elwesii first to flower with Byzantinus & cilicicus close on their heels. G. plicatus next — (folded leaf margins) Cilicicus said to be a hybrid — & latter not necessarily true?

G. latifolius comes with G. nivalis. by broad, distinctly yellow green, rather shiny leaves. Fls slender

G. nivalis maximus does have larger but not gross flowers
G. " viride apice green tipped segs. (host name)
G. " Scharlockii green extensions of sheath that hold fl.

G. Ikariae blooms later with Scilla sib, Chionodoxa & small trumpet narcissus species.

Galtonia

The common name for this tender-to-cold bulb from 'the Cape' that is South Africa, is 'summer hyacinth' which seems a preposterous slander since in its general aspect it has nothing to remind one of the image that springs to mind on hearing the word hyacinth. The bulbs are of good size, and the long leaves flop about in the untidy fashion of some crinums or for the Northerner in the ridiculous fashion of the sea-onion. The central shaft of bloom grows up to 4 feet, bears above the middle up to 30 pendant bells that look far more like unspotted snowflakes than hyacinths. They stand free of the scape on their peduncles and never make the mass of tangential bloom one finds in hyacinths, meaning of course the garden hyacinth, Hyacinthus orientalis. There is a scent.

In most gardens, my own included, it is ineffective. This is probably due to the fact that I do poorly with plants that must be lifted, stored and replanted. It is quite conceivable that where it could be established and left to its own devices, it might be worth while. So far as I have been unable to discover whether or not its leaves are evergreen in favored places or whether if deciduous they tend to start into growth in the autumn. If they are either of these, there would be little hope of permanence where killing frosts would take it in November or December, even if crinums - some crinums will tolerate such damage.

There are two other species, beside the common Galtonia candicans, dismissed by all writers as poorer. I do not know them at all.

Galtonia

The common name for this tender-to-cold bulb from "the Cape", that is South Africa, is "summer hyacinth". Which seems a quite preposterous name since in its general aspect it has nothing to remind one of the image that springs to mind ~~before~~ on hearing the word hyacinth. The bulbs are of good size, and the long leaves flop about in the untidy fashion of some crinums or for the northerner, in the ridiculous fashion of those of the sea onion and the central shaft up to 4 feet bears above the upper half up to 30 pendant bells that look far more like unspotted snowflakes than hyacinths. They stand free of the scape on their peduncles and never make the mass of tangential bloom one finds in the hyacinth. ~~It has~~ There is a scent.

In most gardens, my own included, it is ineffective. This is probably due to the fact that I do poorly with plants that must be ~~left~~ where planted. It is quite conceivable that where it could be established and left to its own devices, it might be worth its while. So far I have been unable to discover whether or not its leaves have to be evergreen, or whether if deciduous, they start to grow in autumn. If they are either of these, there would be little hope of permanence where lasting frosts would take it in November or December, even if crinums — some crinums will tolerate that — damage.

There are two other species besides the common Galtonia candicans dismissed by all as poorer!

Gloriosa

Strictly speaking this is no bulb and if this were a consistently arranged book would never have a look in. It is so regularly offered in bulb catalogues and is so much worth while that I accept all criticisms and give it a passing note.

The genus was probably first known in this country as a greenhouse subject, usually represented by Gloriosa Rothschildiana but since the production of roots has become a routine matter in Florida and California G. superba is more commonly offered.

The roots as delivered vary in length and thickness but in well grown plants should be as much as 10 inches long and three quarters of an inch in diameter, one end marked with the scars of last year's shoot and the other, less clearly with the bud to grow another year. When you grow your own plants and dig the roots, for division or for winter storage you will find two such roots at each base at an angle to one another like the V for V-Day made by two fingers! The thrifty dealer, and you in time, cuts the two apart to plant separately after the fashion of dahlias.

The roots are planted, or better laid, in the hole lengthwise, not stood on end like a column, about 4 inches deep, the hole being well dug and filled with a fine store of rich food well beneath the level of planting. In my own garden the hole was dug near a fine bush of ~~mmmm~~ a Ghent azalea so that the vining stalk when it grew up clambered up into the bush and hung its blossoming tops out from the top of the shrub. It made a fine sight, and made the shrub look as if it were in flower again. The shade of the shrub also promoted much more growth than I should have gotten if the roots had been planted in the open with a support designed only for the vine. Climbing in Gloriosa is a matter of leaning against the support whatever that may be and of attaching itself to the support by the tips of the leaves that curl about whatever they touch.

Do not plant until the soil is definitely warm. Growth may seem slow to start but once the shoot emerges above ground it grows swiftly unless there is a drought you cannot mitigate. Flowers begin to appear by midsummer usually one to each axil of the leaves, each on a fair peduncle like a speciosum lily. The six perianth segments rear back with their tips turned inward toward the stem; the six stamens make a mad wheel below them and the long style bends backwards from the top of the green ovary as if it, like all the rest of the flower had gone mad.

The colors are garish, basically yellow, but there is a red flush deepest at the perianth tips that stains at least half-way down each petal. There is some variation in the redness, in the yellow tones and in the amount of red area, with a hint of green at times coming up to meet the red from the base. If you raise your own roots from seed, and seed will set on y ur plants if you let it, you will get further variations in the coloring within these limits. The blooms last well when cut if you like floating heads!

Gloriosa Rothschildiana is very much like it, save that the margins of the segments are more uniformly ruffled.

G. virescens raised from seed under its own name and also under the names of G. Plantii and G. simplex proved less interesting than either of the former species with too much green and too little red or yellow.

The 'literature' usually suggests starting the tubers in pots if they are to be planted out for summer bloom. This may be necessary in the northern states, but late April or early May planting at Washington, D.C. will yield flowers by August and if one wants only good roots and an assured seed crop here, a site in good soil, but in full sunlight will produce both but on poor plants with relatively few flowers. As each pod gives many seed the reduced number is not important. Usually two years are needed to bring roots to flowering size and the little roots must be stored in dry sand over winter.

Although colchicine has been reported from the roots, no commercial planting for this purpose in known.

With frost, cut off the tops as one might do for dahlias or asparagus, and lift the roots with care. They are brittle. Allow them to dry in open air in the shade and store in sand in a cool temperature. One must always remember that the plant comes from the tropics and that like some other plants from the tropics seems to resent a long cool period more than one night of low temperature. No experiments have been made to see what might happen if the growing shoot were broken, but it seems probably that the root could force into growth another for replacement.

Nor do I have data to show where in this country the roots might be safely left in the ground from year to year. In Gulf Mississippi, the ground apparently is too cold during the winter months to allow the plants to be comfortable with the result that they are slow to appear and weaker than roots from storage. It may again be based on the fact that at home it is never chilled.

Gloriosa

G. superba BR 77
G. simplex BM 2539

Rothschildiana
GC III 33:323
38:211

Strictly speaking the gloriosa is no bulb but a tuber and has no proper place in this company. It is so regularly offered now in bulb lists in company with many another plant that is not a bulb, ~~in bulb list~~ that a passing note should be given it.

The genus was probably first known in this country as a greenhouse plant, usually in the species Gloriosa Rothschildiana but since the production of roots has become more common out-of-doors in Florida, G. superba is ~~more~~ commonly offered.

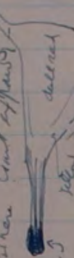
The roots as delivered vary in length and thickness but in well grown specimens they should be as much as 10 inches long and three quarters inch in diameter, one end marked by the scars of last year's shoot and the other less clearly by the bud to grow another year. When you grow your own plants & dig the roots — for division or for winter storage, you will find two such tubers at the base of each year's stalk at an angle

to one another something like the V for V-Day made by the first two fingers! The thrifty dealer and you in time will cut the two apart to plant separately, as for dahlias.

The roots are planted — or better are laid in the hole — lengthwise (not stood up like a column), about 4" deep in a good hole well dug & with a fine store of rich food well beneath. If you have at your disposal a ~~d~~ not too dense shrub near by into which the growing shoot can clamber until it emerges at the top & falls back, splendid, for then there will be a green background for the brilliant flowers and a disguise for the shrub. Otherwise some other type of support must be provided for the clambering vine that pulls itself up by the tips of the leaves that are elongate & curl about the victim as effectively as any tendril or the clematis petiole.

Do not plant until the ground is definitely warm. Growth may

seem slow to start but once the shoot emerges above ground it grows swiftly unless there is a drought. Flowers begin to appear by mid-summer, usually one to each axil of the uppermost leaves each on a fair peduncle like a speciosum lily. The six petals bear back with their tips turned inward; the six stamens make a mad wheel below them & the long style bends backward from the top of the green ovary as if it, like all the rest had gone mad.



The colors are garish, basically yellow, there is a red flush deepest at the perianth tips that stains at least half-way down each segment. There is some variation in the redness & the yellowness & in the amount of red. If you raise your own from seed you will find these. The blooms last well when cut, if you like floating heads.

G. Rothschildiana differs chiefly in the extremely sinuate margins of the segments & the somewhat deeper red.

G. virescens raised from seed under this name and also under the names of G. Plantii & G. simplex proved less interesting than either, with too much green under both yellow & red.

The "literature" usually suggests starting the tubers in pots if they are to be planted out for summer bloom. This may be true for northern states, but late April or early May planting in the Washington DC area will yield flowers by August and if one wants good roots & assured seed crop there, a site in good soil, but in full sun, will produce both but on poor dwarf plants with relatively few flowers. Usually 2 years are needed to bring roots to flowering size from seed.

Although colchicine has been extracted from the roots of this genus, no commercial production is known.

With frost, cut off the tops, as one might for dahlias or asparagus & lift the roots with care. They are brittle. Allow them to dry in open air in shade & store in sand in cool temperature.

Check on Littonia modesta B.M. 4723.

B.M. 2539 – G. virescens – The green of base of ovary extends up & where limb expands. Otherwise much like others – Margins not much ruffled – open

Habranthus

This is a small genus of plants that in garden appearance are somewhat like zephyranthes, though they do not open their flowers in the same fashion, may have two flowers to the scape and are distinguished by various details of flower structure that separate them easily to the botanist.

Complete data are lacking as to the range of their hardiness northward but the southern gardener should certainly determine for himself whether or not they will endure happily in his own garden.

The leaves are the usual narrow strap-shaped leaves one might expect and apparently begin to grow again almost as soon as the old drop dies off. Certainly in Mississippi there were new leaves rising lushly in December on Habranthus Andersonii texanum though its flowering will be in May.

The most commonly met species is H. robustus once known and still sometimes listed as Zephyranthes robusta a perfectly charming thing with something of the aspect of Z. grandiflora and the chief pictorial difference in the less widely opened flowers. The color is the same tender rose pink. Mr. Houdyshel remarks that Baker's description calls for rose red, but all gardeners will agree that botanists do not always see eye to eye with gardeners.

H. brachyandrus shows a larger flower, stiffer with a lavender pink general tone deep purple in the throat. It makes one wish that all the species reported as from the region near Buenos Aires, could also be seen: H. gracilifolius that seems to flower naked from the soil, the leaves coming later when memory of the delicate rose colored flowers with deeper veins from the base, has perished; H. versicolor, white with flames of crimson red from the base on the outside of the segments; H. bifidus deep pink with marked venation on the outside of the three outer segments and H. angustus a duller rose color with stiffer segments that seem reluctant to open like a lily.

The Texas native, H. Andersonii texanum is small in size as compared with the others in cultivation but shows the same reluctance to open widely the six perianth segments of almost butter yellow, that are richly stained on the backs with coppery bronze colors. Its narrow leaves are almost rushelike in appearance and the stature of about 6 inches makes it distinct from its fellows as know.

One doubts if any of these would be worth the trouble of growing in pots, or even attempting to have them in the ground during the summer months in the North, but it is hard to understand why southern gardens that are so lamentably short of bulbs have not found out what is needed to make all of these plants flourish in every yard instead of some of the less happy bulbs that are tried or the poor quality narcissus and jonquils that make an attempt to capture the effect of a Northern Spring.

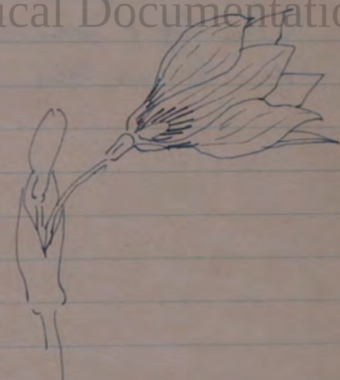
Habranthus robustus. ?

<u>CHope</u> Mtn. Oct. 1940 - 262-3-4

This sometimes comes into trade as <u>Zephyranthes robusta</u> but technically should be <u>Habranthus robustus</u> to satisfy the taxonomists. Gardeners may still think of it as another lush summer flowering bulb with narrow strap shaped leaves from a narcissus like bulb & 10 to 12 inch scapes bearing (intermittently) thru summer, Trumpet shaped, rose pink flowers on slightly over arching stems. The bulbs increase rapidly at base - & the flowers produce seed freely that will germinate well if sown at once. Like most Zephyranthes it is not hardy to cold -

First reported in cult - from Argentina (1830) but range probably extends to Uruguay -

BM. 9126 (1926/27)



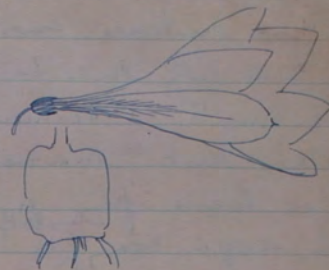
BM. 2464 - H. gracilifolius -
Really quite charming - 2fls to scape as shown. Pale rose, darker veins growing still darker to make a zone above the dull green, Funny bulb.
Flo. naked? Leaves rush-like?
"This elegant little plant was imported from Maldonado in S. America. The leaves having decayed in the summer it produced one scape at the ~~first~~ forth in September & a second at the beginning of November. It agrees with no genus heretofore described."
Long tr. descr. separating it from Zephyranthes, Oporanthus (Sternbergia) Hippeastrum, Amaryllis, Chlidanthus, WH.

(over).

BM. 2485 H. versicolor - WH?

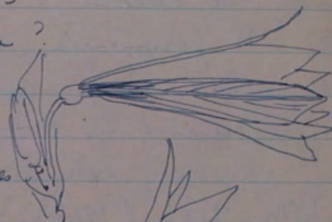
Again quite nice - see H. gracilifolia.
Also from Maldonado - S. Amer. White
red flames at base of lobes - & not
much other color.

Bulb same curious affair -
with odd root production -
Its naked - no hardier than its
other species

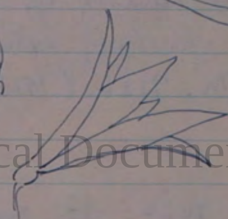


BM. 2594. Habranthus carinata - Mexico -
now Zephyranthes grandiflora ?

BM 2597. Habranthus bifidus -
Dull pink - looks like the
other S.A. Habranthus - This from Buenos Aires



BM. 2639. H. angustus -
Rather stiff & poor-looking. dull pink -
2 fls - Buenos Aires



Homeria

One of the many cormous plants from South Africa, this genus has attained some notoriety beyond the beauty of its flowers for most of the species common in pasture lands there are poisonous to cattle. It is also reported in that role from Australia where some of the species have escaped. Since it would be hardy only in our Southwest it should not suffer from too mubh suspicion here.

The only species I have grown at all, was among the many South African irids planted in the cold pit greenhouse where it lived well enough with freesias, streptantheras, ixias, sparaxis and the like. The foliage is not much, just the usual fan of thin leaves that fall over on themselves and suggesting either growth in grass meadows or in masses so that each suppots the other; a tall stalk with clasping bracts that vaguely suggest Moraea, and from the top, flat-faced erect flowers that suggest in structural symmetry the bloom of our blue-eyed grass, sisyrinchium. The flowers were fleeting, opening about noon and closing in the afternoon of the same day. The color is glorious, a pure strong yellow washed over thinly with a faint coral red, and veined deeper, especially about the base of each segment where the staminal column rises. There are deeper stains also on the outside of the three outer segments, as is so often the case in monocots of this type. There are several flowers in each head.

Like its neighbors, it goes to rest in midsummer and like them it stirs into growth in autumn, presumably 'with the rains'. Where does that fit into our own climatic pictures, or can we lift the corms and store until it is cool enough to prevent growth until spring?

Homeria

Bfm: NttM. Apr. 1940.

One of the many cormous plants from So. Africa, this genus has attained some notoriety beyond its beauty for most of the species common in pasture land are poisonous to cattle. It is so reported from South Australia where it has escaped.

Homeria collina was tried in the cold pit house and grew about as for freesias. The foliage is not very showy, the usual tumbled fans of many cape irids, but the ascending scape with its clasping bracts does vaguely suggest some of the moraeas. The flat-faced flowers with six almost equal segments suggest a glorified blue-eyed grass or sisyrinchium. Very fleeting, they open about noon & finish soon after - ours a brilliant color, clear yellow washed over with a faint coral red, veins deeper especially at base about the staminal column. There are darker stains without on the three outer segments. More than one flower graces each head.

One British illustration shows a mass planting so that a host of stars rise up above a good grassy foliage mass - Possibly Arizona and New Mexico should look into this, well away from any possible area for escape.

How many species to genus.?

Hyacinthus

Hyacinths as far as earliest personal recollections go, take me back to an old Maryland garden, neither box-bordered nor romantically storied, but a place where many first things were learned, such as the two kinds of hollies male and female, the particularly luscious quality of the ripe fig, yellow pear tomatoes, and the like. There, in a south bed, bed not border, grew many relicts of an earlier day, a half-starved bleeding heart, lilies-of-the-valley, sheets of blue myrtle, lemon lilies, old Narcissus biflorus, and clumps of whispy blue hyacinths that to my child's eye meant the Blue Roman Hyacinths of the autumn catalogues from which a few treasures were bought each year.

Later knowledge tells me they were no such thing nor were they the 'run-out' remainders of the fat garden hyacinth. Other gardens of like age have shown me since, other and similar forms, in other hues of lavender and one in pink, all much nearer the wild hyacinths that once were imported from Turkey. Doubtless some old gardener found them once, who knows where, brought them home and let them pass from hand to hand over the country. They are still worth growing for they increase moderately from offsets about the mother bulb, making in time fat clumps like grape hyacinths.

Like their cultivated derivatives, they have m the delightful scent that comes acutely to mind when the word hyacinth is mentioned and like their derivatives will settle down into comfortable permanent living in any border the foliage ripening decently and disappearing by late June. They compete fairly well with ground covers and will tolerate a dry border rather better than a moist border suited to annuals.

As is the case with tulips and narcissus, it is a brave gardener who will risk recommending any list of named 'best' hyacinths, for not only his own personal taste is involved but the passage of time brings novelties to displace old favorites. Moreover it seems that of late the hyacinth has been persuaded to yield tetraploid forms, even fatter and finer to displace the oldsters for the flower-show public.

A considerable amount of nonsense has been written about the lack of grace that characterizes the blooming of the hyacinth. No one is required to buy exhibition size bulbs carefully nurtured like Christmas geese to produce such immense stalks. Let him buy seconds, treat them moderately well and they will grow on, not obese or fattened for show table to be judged by bulk, but more slender and with fewer bells as they grow in the ancestral home whether it be field or byway.

Bulbs are sold by size and the size represents only the end result of careful feeding. The huge bulb [illegible] is the last stage in a cycle and will be followed by smaller bulbs to be fattened in their turn. Man thought out and perfected that cycle for his own merchandizing, but it is not man imposed on the plant and need not be followed by any one any more than one need drink five gallons of milk a day or eat ten pounds of chocolates!

To discover which hyacinths you really prefer is easily solved if you will ~~for~~ buy a few bulbs of every variety you can find listed.

I indulged in such an orgy in 1936 with the purchase of fifty varieties double and single. Like any one else, I discovered certain prejudices peculiar to myself when I saw the flowers in bloom.

The bulbs were planted in deeply prepared beds in good mellow soil well enriched beneath with a compost of leaves and bone meal, not the best food for obesity but all that was available at the time. Two bulbs each were set aside for potting and the rest went into the 'Dutch' beds, arranged in color groups alphabetically in each group, precisely as in the catalogue, with no artful combinations of flesh pink and crimson, pale sulphur and gray lavender, though flowers were later cut and placed check by jowl!

A few generalizations can be set down for the use of persons brave enough to really look at hyacinths.

Not all varieties bloom at precisely the same time. This is of no importance save to the person who wants to make color combinations or a special bedding arrangement.

Not all varieties produce spikes of comparable dimensions. Some are tall, some short, and the short varieties tend to be more tight and compact in the arrangement of the flowers on the spike. Although no generalization is safe, the so-called reds and yellows are usually more dwarf and compact than all others.

Not all varieties have equally wide and flattened lobes on the individual flower. The ancestral form has a bell with its lobes almost channeled and this still appears in some of the modern forms.

The color is not uniform over the entire flower. In nearly all sorts the color is most intense at the base of the corolla, where the tube holds the base of the pistil later to become the fat and puffy seed pod. The other place for concentrated pigment is the central line of each lobe, so that in some clones it appears as if there were a stripe of darker color on each segment. The other color variation, and a striking one, is the appearance of a lighter hue inside the tube so that the flower appears to have a lighter 'eye'. Only a few varieties show a suffusion of one color over another and these are mostly among the yellows and 'oranges' on which there may be a pinkish wash over the orange that gives a warm effect as in the variety 'Daylight' that we grew then and that still may be had.

Now a word about doubles. The writer does not hold with the common anathema pronounced over all doubles. He will concede that in some plants there is a loss of the original character but a new character is offered. In its ultimate expression, doubling doubling should probably be shown in a geometrically perfect imbrication such as one gets in certain camellias, but who is he to say that the half-way stages are not beautiful?

In the garden hyacinth that is already well on its way to a lush 'civilization' doubling might be argued for as another 'ultimate'.

From the practical point of view, there is a good argument against it. In our climate during the period of spring bulbs we have many a rain, often warm rains, and these always stimulate growth, most actively from the base of the stems and the heavy-headed double hyacinths cannot possibly stiffen their upward growing stalks in time to support the weight of their double flowers and down they go on their faces in the mud. In pots one can if he wishes put in slender bamboo stakes and tie up the stalks almost beyond discovery, but not outside.

Were the writer to indulge in making a garden for its own sake and not for the business of growing and later discarding plants that he needs to know first hand, he would certainly include doubles no matter who sneered.

Looking back through the notes published in 1937 and recalling the years since, there is no reason to repent the enthusiasms that singled out certain named varieties for praise. Among the darkest purples (blue) Zulu King, an early deep blue purple; Duke of Westminster, the face of the flowers a warm violet the tube a greenish blue; Indigo King, not unlike Zulu King but much later to bloom. From the middle blues, of which there are many excellent sorts, only one need be singled out above the rest, Perle Brilliant, its outer surfaces being slightly greenish in contrast with the gray lavender of the face. Practically all the whites are fine but a word should be said for Mimie, which is a delightful pale 'flesh' white. Both the yellows and the reds are indifferent affairs save Orange Boven, yellow washed over with pale pink, Daylight, that is pure salmon pink; and Van Tubergen's Scarlet, beloved by Mrs. Francis King, a Tyrian Rose of the Ridgway Chart, a glowing color found among many azaleas. Of the pinks midway from light to dark, I mention only Queen Wilhelmina, on which the Rose Pink fades almost to white in the 'eye'. Of the palest pinks, Gen. de Wet, should go along with Mimie, as a slightly deeper tinted white.

Of the Miscellaneous group, that includes the striped and tinted sorts, only two would be included, King of the Violets and Purple King, whose names tell their story. As to doubles, I will not press my argument too far, but leave it to each one who has courage.

Nothing has been said about the bulbs themselves. As they are sold by size, you get what you pay for. Compared to the sleek tulip and narcissus bulbs they are rather shabby with loose papery coats that slough off irregularly, interesting however, in that the colored varieties always have colored coats as well, warm dull reds and purples.

Since hyacinths push into growth early and flower here with narcissus, they should be planted promptly to assure a good rooting before cold weather. They will eat heartily if food is provided and show it afterwards. It is said that in the Netherlands it was the custom to manure a field heavily, crop it to potatoes and then start the bulb cycle with hyacinths.

There are many bulbs called hyacinths that are not members of the genus, Hyacinthus notably the grape hyacinths, or Muscari.

There are some other species of true hyacinths that do come to the market at times and if bought by the unsuspecting are great disappointments. One species, however, makes an excellent first early bulb coming with the snowdrops and the earliest crocus, Hyacinthus azureus, and shows very little resemblance to the garden race. It is a small thing, not over 8 inches at best and does not increase in size with feeding! The general habit is that of a grape hyacinth with smaller leaves, and a flower scape that is topped with a crowded head of small flowers in which the lobes of the corolla are not much developed though perfectly clearly formed, like short teeth and slightly incurved. The striking thing for the gardener aside from the extreme earliness is the lovely color, a clear light blue on the green side of blue rather than the lavender. There is no scent.

It seeds freely and with no apparent damage to the plant. The little capsules are as tightly crowded as the flowers, ripen in June and should be gathered as the first open, otherwise the small black seeds fall out. To save them, pull the scapes at the time noted, stand them upside down in a sack or glass. In a short time all the seed can be shaken from the head and either sown at once or stored. It is usually easiest to sow at once even if germination will not follow till the following spring for mmmm once sown all can be forgotten. The little seedlings will flower in about three years. In my garden there has been little increase from offsets at the bases of the mother bulbs and the seedling increase is welcome though it has never been as abundant as I would wish, not at all comparable to that of the Siberian squill.

earliest

Hyacinths, as far as personal recollections go, take me back to an old Maryland garden, neither box bordered nor romantically storied, but the place where many first things were learned, such as the broad leaf of holly trees, male & female, the particular luscious quality of the ripe figs, yellow pear tomatoes and the like. There, in a sunken bed, not border, grew many relicts of an earlier day, a half starved bleeding heart, lilies of the valley, sheets of blue myrtle, lemon lilies, old Narcissus bi-florus, and clumps of whispy blue hyacinths that to my child's eyes must have been the Blue Roman Hyacinth of the bulb catalogues, those autumn marvels from which a few treasures were bought yearly.

Later knowledge tells me that they were not more than the "run-down remains of the garden forms of hyacinths. Other gardens, in later years have shown that they and similar forms, in several hues of lavender, pink and white were and are much nearer though more slender than any of the wild forms of Hyacinthus orientalis that have come over from Turkey. Doubtless some old collector found them and brought them home to Europe whence they travelled to our colonial gardens and were passed about from hand to hand.

They increase moderately by forming small bulbs about the mother bulb making a fat clump more like grape hyacinths and from time to time need lifting and dividing as must all bulbs.

Like their cultivated derivatives they have the delightful scent that comes acutely to mind when [illegible]

the word hyacinth is mentioned and like their derivatives will settle down to comfortable permanent living in any garden border, the foliage ripening decently and disappearing by late June. They compete fairly well with ground covers and will tolerate a dry border rather better than a rich moisture border that must support annuals.

As is the case with tulip & narcissus, it is a brave gardener who would risk recommending any list of best hyacinths, for not only is his own personal taste involved, but the passage of time brings novelties to displace old favorites. Moreover it seems that, of late, the hyacinth has been induced to produce tetraploid ~~clones~~, individuals, even larger, fatter and finer than their forebears, that may displace all others.

A considerable amount of nonsense has been written about the lack of grace that characterizes the ~~tall~~ ?, flower stalk (spike) produced from the exhibition size hyacinth bulb. No one is required to buy bulbs that have been carefully nurtured to produce such spikes! Let him buy seconds, treat them moderately and let them grow on, not obese and fattened for the show table ~~[illegible]~~ to be judged for bulk, but more slender and with fewer bells as they must grow in their ancestral home, be it meadow or byway.

Bulbs are sold by size & the size represents the end result of careful feeding. It is a product ~~process~~ of several years and its greatest size marks a turning point, after which the bulb by natural division returns to more moderate dimensions and its divisions can be subjected once more to fattening for show, or be left to

grow more normally in the garden. Man thought and perfected this cycle for his own pleasure, but it is man imposed and need not be followed any more than need the gardener himself drink five quarts of milk a day or eat two pounds of chocolates!

To know which hyacinth the gardener prefers, the ideal way is to buy a few bulls of every sort listed and decide, if one can.

The writer indulged in such an orgy in 1936, with the purchase of 70 varieties, double and single. He, like any one else, discovered certain prejudices peculiar to himself when he viewed the results.

The bulbs were planted in a deeply dug mellow soil with a good bone meal and leaf compost for fertilizer, not an ideal combination to obtain but the best available at the time. Two bulbs of each sort were set aside for growing in pots, the rest went into the "Dutch" bed - merely to be looked at and were arranged in the same color sequence as that given in the catalogues. No artful combinations of flesh pinks and crimson purple, pale salmon and gray lavender were attempted. Tough fingers were gathered + placed where by jove for just such notions.

A few generalizations can be set down for the use of the person brave enough to really look at hyacinths.

Not all varieties bloom at precisely the same time. This is of no importance save to the person who wants to make a bedding scheme or to him

who is planning a color scheme.

Not all varieties produce spikes of comparable dimensions. Some are tall, some are short & the short varieties tend to be more tight & compact in the arrangement of the flowers on the stalk. Although no generalization is safe, the so-called reds and the yellows are usually more dwarf & more compact than the others.

Not all varieties have equally wide and flattened lobes to the individual flowers. The ancestral form has a flower lobe that is almost channeled & this still appears in some varieties.

The color is not uniform over the entire flower. In nearly all, the color is most intense at the base of the corolla, where the tube holds the base of the pistil, later it swells into the puffy seed pod. The other place for concentrated pigment is the central line of each segment so that some varieties appear as if there were a darker stripe in the center of each lobe. The other variation, and quite striking, is the appearance of a lighter hue inside the tube so that the flower appears to have a lighter "eye". Only a few varieties show a suffusion of more than one color & these are among the yellows & oranges, in which there may be a pinkish cast to the orange that gives a warm effect, as in the variety Daylight. The we grew them & still may be had.

Now a word as to doubles. The writer does not subscribe to the common anathema pronounced over all doubles. He will concede that in some

3 Hyacinths -

plants there is a loss of the original ~~qua~~ character for which a new character is offered. In its ultimate expression, doubling doubtless should be known by a geometrical imbrication, such as we find in certain camellias, but who is he to say that some of the half-way stages are not beautiful in their own way?

In the hyacinth garden which is already well on its way to a lush "civilization" doubling might be argued for as another ultimate expression.

From the practical point of view, there is but one argument against it, aside from the mild or violent personal opinion, namely that double so increases the weight of the flower stalk that it cannot always support it readily. This is aggravated in our climate by the usual mild & often warm rains of April that hasten the growth of the stem of the flower spike, since growth comes from the base, a hurried lush growth there cannot properly carry the heavy head that has gone before with the result that we must either stake the flower which is a nuisance and ugly or cut it. If, of course, only smaller sized bulbs are grown there will be less need.

Were the writer to indulge in making a garden for its own sake, rather than having a garden where he may grow & there discard a passing show of plants to be learned and then abandoned, he would certainly include double

hyacinths.

Looking back over the notes published in 1937 and recalling the years since - there is no reason to repent the enthusiasm that singles out certain named varieties for praise. Among the darkest blues, Zulu King, and deep blue purple; Duke of Westminster, the tone of the flowers dominated by a greenish blue; Indigo King, not unlike Zulu King in color but much later. From the middle blues, of which there are many excellent standard sorts, only Perle Brilliant needs a mention, its outer surfaces being a slightly greenish blue to contrast with the pale gray lavender of the face. Practically all the Mimic Whites are fine, but a word should be said for Mimic which is a delightful "blush" white. Both the yellows and the reds are indifferent affairs, but a word should be said for Oranje Boven, yellow washed over with pale pink, and light that is pure salmon pink; and Van Tubergens Scarlet - which is a Lycian Rose of Ridgway - a glowing color found in many azaleas. Of the pinks midway from light to dark and the variety Queen Wilhelmina, called a special note which the to remark that the Rose Pink fades to almost pure white at the center. Of the palest pinks, Grande Vedette, should go along with Mimic, a slightly more tinted white. Of the miscellaneous groups, that includes the dainty and tinted varieties, only two, King of the Violets and Purple King should be repeated. As to doubles - the choice is left to the reader.

Nothing has been said as yet about the bulbs themselves. As they are sold graded in size you get what you pay for. Compared to sleek sleek tulip

as narcissus bulbs, these are rather shabby, with loose papery coats that slough off irregularly. They are interesting, however, in that the varieties that have strongly colored flowers, also have colored bulb coats, warm dull purples and reds.

Since hyacinths push into growth early, flowering here with narcissus, they should be planted early to assure a good root ~~growth~~ development before cold weather. They will eat heartily if food is abundantly provided — and show it often with buds. It is said that in the Netherlands, the field destined for hyacinths is first manured heavily, cropped to potatoes & then set to hyacinths. Other bulbs can then follow. ~~The~~ bulbs

~~The old rule is~~ the best — plant 2 and ½ times the depth of the bulb, below the surface, is perfectly sound, but in case of misgivings, plant a little deeper.

There are many other bulbs called hyacinths that do not belong to the genus Hyacinthus, notably the Muscari, best known in the species commonly called grape hyacinths.

One species, however, is commonly offered and makes an excellent first early bulb coming with ~~from~~ the later snowdrops and the earliest crocuses, Hyacinthus azureus which at first sight bears little resemblance to its fat relatives. Aside from the distinctly small ~~size~~ scale of the plant, not susceptible to modification by overfeeding, from various details

of structure of intimate concern to botanists only, the major difference lies in the fact that instead of six well developed ~~seg~~ and spreading segments of the corolla, the segments are less deeply cut and curve inward slightly, giving almost the same silhouette to the individual flower as one finds in the grape hyacinth. There is no scent as far as the writer can discover.

Aside from its heartening earliness, its chief value lies in its color which is probably as near a blue as any hyacinth can boast, a pure blue with no hint of violet.

It seeds freely ~~and seeds~~ with no apparent damage to the next years bloom, with capsules (?) that suggest those of many of the grape hyacinths. These become papery as the seeds mature & allow ~~the small black seed to shatter out. Do you want to raise~~ Gather the seed head just before the pods commence to open, stand head down in a paper sack & you will soon have seed ready for sowing. This is best done at once, carefully if you prefer or carelessly in an open bed. Germination comes the following spring and the young bulbs come to flowering as quickly as do those of Chionodoxa or ~~young~~ Siberian squill.

Of the other members of the genus, the writer has grown only H. ______, which is a poor thing if showiness is what is needed. Its virtues, like those of plain people are there for observation if one pleases to look, and a careful setting away from the more obvious, does no harm.

Bth. 2425 Hyacinthus amethystinus – (not Lamarck)
which is H. patulus of Desfontaines + Scilla patula of
DC : so the amethystinus of Pallas is H. pallens of
Marschall v Bieberstein –
Native of Spain + Italy – Fls. May June
Looks like a pron scilla

Hymenocallis

For all practical purposes this genus seems to have swallowed all the plants that we once grew under the names of Ismene and Pancratium and as far as I am concerned it does not make very much difference. The ismenes are really gone and the pancratiums are left if they are from the Old World and the Hymenocallis are from the New, no matter how jaded it may appear at the moment. In the times when all the species were coming into European gardens, they were put into conservatories and cherished along with the crinums and their kin, in huge pots and tubs that must have been a great burden to care for, no matter how delightful the perfumes that filled the glass houses when the flowers opened. In this country we followed suit of course and only later learned to give them all the treatment used for dahlias, lifting in autumn and storing till spring.

For the northern garden they are of little use unless the gardener will do just that. In the South the gardener will have to decide if he finds enough pleasure in them to suffer the great masses of foliage for the few bloom stalks he may win during the blooming season.

The bulbs are large when well fed, though nothing like the mammoths of the crinum tribe, and are prodigal of offsets even in adversity. Most of the species we are likely to find belong in the group that has strap-like leaves common to many amaryllids, and send up scapes with few to many flowers, each one of relatively short duration but not fugitive like some of the better irids. Each flower has a fat green ovary from which rises the slender tube that is crowned with six usually narrow and often quite stringy perianth segments. The six stamens are joined at their bases by a delicate web-like tissue that forms a bowl. This is the astonishing part of the flower and in the best species is quite wonderful.

If you must start, begin with Hymenocallis calathina even if you have to dig them for storage each autumn and victimize your friends with the prolific increase. Its flowers have a fine inner crown though not specially diaphonous in texture, and make a fine show in late summer, when perennials are slowing down in all except the cooler parts of the country. After that you can haunt the conservatories of the town or the poorer sections and look for others, for it is amazing how many are kept on in conservatories and as pot plants in some of the houses where it is an annual rite to bring out the house plants in the Spring and carry them in in the Autumn. Without a doubt you will come upon plants that will prove to be either H. littoralis or even H. rotata both of which will show the inner connecting tissue of gossamer thinness and milky white.

In the old books there are many more that are listed and in the current revival of all amaryllidaceous stuff, there may be more current than I know, but of the old ones, I should yearn only for those with fine large inner webs. There is one pictured, as Pancratium zeylanica (b.m. 2538) that the artist showed as a solitary flower borne upright on its scape, the perianth segments arranged like a support for the large bowl-shaped inner tissue, above which rose the gently incurving filament extensions crowned with the anthers laden with golden pollen. Really rather nice. As compared to the many others with their reduced centers it is colossal!

These bulbs like all of their kin mostly relish rich soil, plenty of nourishment, even and abundant moisture but with no stagnation and long growing seasons with summer temperatures throughout. The shining exception is the Peruvian H. Amancaes known to all emotional writers as the Golden Lily of the Incas. It comes from drier sites in a country that is often marked by alkaline soils and what water it gets, falls from Heaven as mist or moves underground unnoted. It has lent its color in moderation to some hybrid offspring but still is unsurpassed itself, if it will live for you.

In the South and the deeper South where one would not need to lift them each autumn, the bulbs could doubtless be left to their own devices as is the case for the crinums and a little ingenuity would doubtless bring together with them just the other right plants to make the most of the flowers when they come.

Quite seriously no one is urged to grow them as pot plants. As tender summer bulbs, yes, if you like to dig and store; as hardy bulbs for permanent planting in the South, plantings where there will be room and to spare for them and for the other plants that must be used to supplement them, yes. And one could urge that in such plantings, the designer use a bold hand, with large masses of the hymenocallis and bolder masses of the foil.

Hymenocallis

This genus seems never to have swallowed Ismene and at least some species improperly assigned to Pancratium, its Old World first cousin. When they first attracted horticultural attention, it was as tender bulbs for the conservatory where they could be grown in great pots to make a tropical show with their lush evergreen leaves & fill the house with scent when their diaphonous white flowers opened. But not all species are winter blooming, and some few are moderately hardy to cold & others can be lifted and stored as for dahlias. In this group fall most of those listed by Bailey as for intermediate conservatory temperatures.

It is a genus against which I have various prejudices, born of sloth, as I have little use for plants to be lifted & stored over winter, and were I gardening in the South, I should dislike their evergreen foliage & somewhat sloppy manners more than I could enjoy their ethereal flowers.

The bulbs are large when well fed and are prodigal of offsets even in adversity. Most of the species we are likely to come by belong in the group that has strap-shaped leaves more or less like an hippeastrum and send up a lush stalk crowned with flowers - two to many, according to the vigor & size of the bulb: each flower with a fat green ovary, a longer or shorter slender tube breaking into 6 perianth segments, usually narrow and inconsequential as compared to cups that unites the bases of the filaments, a cup almost as thin as moonlight and as white.

If you must start, begin with Hymenocallis calathina, even if you shall have to dig the bulbs each autumn and eventually plot as to which of your friends will be victimized with the increase. After that you can commence to haunt the conservatories & curiously enough, the poorer parts of town where without a doubt you will find old H. littoralis and perhaps H. rotata

These bulbs like some of their kin, mostly ~~like~~ relish rich soil, plenty of nourishment, even moisture supply, in abundance but no stagnation and long growing seasons at summer temperatures. The shining exception is H. Amancaes, the marvellous golden lily of the Incas that comes from a country where the soils are alkaline, and moisture falls from heaven as mist or moves underground from streams that ride in mountains far off.

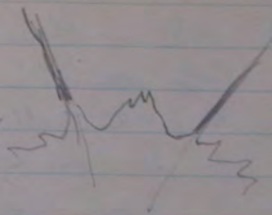
But seriously, no one is urged to grow any of them as pot plants. As tender summer bulbs — yes, if you like to dig and store as hard bulbs for the bold plantings in the South - plantings where there will be room for evergreen shrubs, even trees to keep the scale large & accent the white flowers. Do not let them be overshadowed by cannas, even if the latter do enjoy more or less identical conditions — and think twice, because once in, you will never get them out, unless frost is your ally.

H. tubiflora BR 265
undulata —

speciosa Bm 1453 Check Index Kew.
littoralis — Gn 53 p. 57
senegambica ?
Harrisiana Bm 6562
caribaea Bm 826
galvestonensis —
rotata Bm 827
macrostephana Bm 6436
Macleana Bm 3675
Calathina Bm 2685
Andreana (Ismene) Rev Hort 1854 pp 129, 468
Moritziana Pc. III 27:89
Orata Bm 1467
schizostephana —

1876 = a dianthus!

BM 1879 – Pancratium distichum –



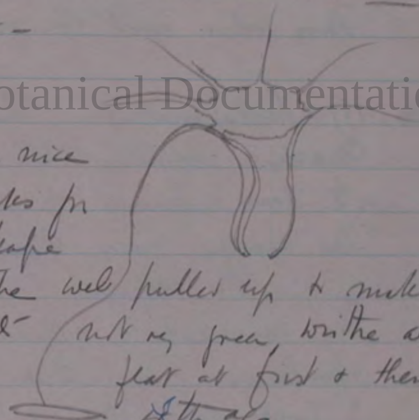
"In Sept last, the Hon. William Herbert kindly transmitted to us a specimen and particular description of the same species, which he considers hitherto undescribed. The bulb came from Rio di Janeiro, but, perhaps, may not be a native of that country. Mr. Herbert considers it as most nearly allied to caribaeum & rotatum".

(Ker refers to littorale

The web is fine but the flower is funnel-shaped over the very long pale green tube: stamens green to edge of web. Like all others to a mop.

Various minor notes based on Herbert – hardier than rotatum – not likely to die after flowering –

BM 1941 Pancratium expansum.



"Native country unknown" Some nice bows to Herbert & some remarks from Mr. Ker. Very interesting flower shape but still a stringy business. The web pulled up to make a thimble-like affair – filament not very green, writhe all over! Per. segments narrow flat at first & then pendulous; all pendulous with age.

BM 2621 H. littoralis a variant –

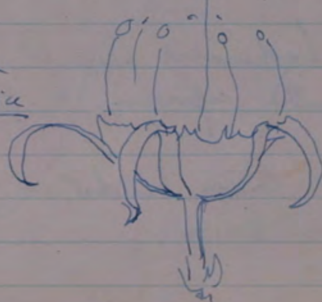
BM 2538 Pancratium zelanica Nice

. Native of Ceylon – slightly fragrant

July flg at Spofforth – fls solitary?

Sect?

Long tax. disc. by W. H.

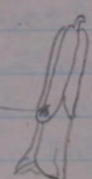


BM. 1482 – Sparaxis tricolor. (β. γ. δ.)
Color variants – rather amazing – the dark purple
– with yellow eye + black pattern – almost as gay
as Streptanthera
Would consider all as hort variants –

BM 1502 Tritonia longiflora (β. γ) –
Among the synonyms is cited. Ixia longiflora Hort Kew. 458
Ixia tenuiflora Vahl. Enum 2, 66, 2, 36
I. longiflora β Willd. Sp Pl, 1: 203
Notes a retraction of what was stated under t. 1275 – but certainly
this is an ixia of the long-tubed type –
BM. 1503 – Tritonia Rochensis (α)
This also must be another long-tubed ixia.

B.M. 1574 (Scilla) esculenta Camassia –
Charming painting with a fine pale blue color. Notes taxonomic
with some reference to Pursh – Phalangium quamash –
"The specific name Quamash that Gentleman (Pursh) makes use
of, is the appellation given to the plant by certain Indians in
the neighborhood of the Missouri River, in whose country it is
spontaneous, and where it serves them as a principal article
of food during the winter." xx —

BM 1704 Lachenalia quadricolor (γ) lutea –
Further reference to pendula –



whitish + leaves blotched
reddish brown

Hymenocallis

Ismene Andreana - Rev. Hort. - 1884 : 129. J. G. Baker -

"Ismene Andreana Baker (Gard Chron 1883 p. 11) is a very beautiful Amaryllidaceous novelty discovered by Mons. Ed. André in the cordilleras of the Andes in 1876 & bulbs received from them were flowered in house of Lacroix in Touraine."

Closest to I. tenuifolia Baker - BM t. 6397 - 1 fl to scape -

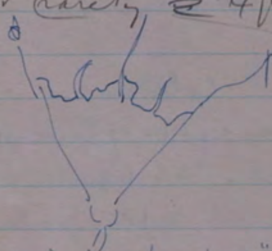
Plant was discovered on banks of River Ambocas, Ecuador, alt. 2500 m.

Long description more or less botanical - a translation? Latin descr. given as footnote.

Digitized by Hunt Institute for Botanical Documentation

Same issue p. 130 - Calochortus & Their Cultivation.

"It is surprising that these ravishing Liliaceous plants which for the delicacy of their flowers could rival the orchid, are little distributed in France when their culture would be simple. - Their only inconvenients being - &c x x. Their (rarety is 4 periods) ... part etc -

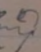


BM. 1453. Pancratium speciosum -
Web really large - but not flat
appears smaller than it is - Per
segments rather wider than most. "most desirable stove plant" G.

BM. 3675 Ismene Macleana –

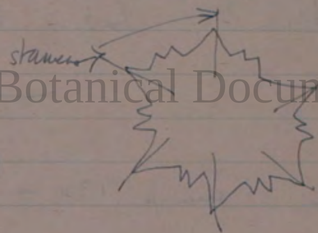
Looks like a poor calathina but with more & smaller flowers. Quite greenish – supposed to be closest to I. pedunculata – Fragrant (not much!)

BM 6436 Hymenocallis macrostephana –

No history – bought from continental nurseries – as Pancratium fragrans – Large web – upper part of filaments turn inwards 

BM 6562 H. Harrisiana –

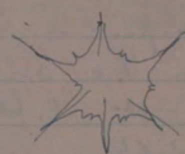
One of the very stringy ones – small web – dark green filaments sent from Mex. by T. Harris in 1840 to Dean Herbert



BM 825 Pancratium littorale

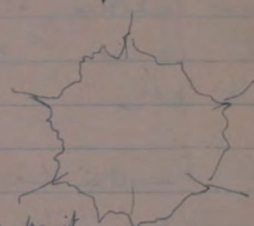
"found by Jacquin near Carthagena in the Island of Tierra Bomba, growing plentifully on the sea-shore; x x"

Small web – long segments



BM 726 Pancratium caribaeum

"a native of the West Indies: said to have been cultivated by P. Miller in 1730" – Small web, long seg.



BM 727 P. rotatum –

"is a native of Columbia" Michaux

Large web – "x x requires a strong heat to make it thrive, & rich mould; produces abundance of offsets, the nether [mother?] bulb itself perishes after producing the bloom."

The huge Genus, Iris that encircles the North Temperate Zone in Nature presents a great diversity of forms and habits, but they are largely forgotten in most gardens, in the feverish activities that have been concentrated on a small group of bearded iris species and their endless progenies.

For their own convenience botanists have divided the genus into groups using as a basis for the first separation, the character of the root as represented in the storage organ rather than the roots for the nourishing of the plant. Three groups are found to have bulbs and to these groups, separated from one another by quite different characters that will be mentioned later on, were given the names, Juno, Xiphium and Gynandiris.

The bulbous iris best known in this country and most commonly met, belong to the second group and are meager representatives of its two sub-divisions, the first commonly represented by the mongrel race known as 'Dutch' iris and the second by Iris reticulata and some of its allies. One must do a little searching to find members of the other two groups and will be richly rewarded in the case of the Junos but doubtfully so for the single species of the last group, I. sisyrinchium (that has a corm and not a bulb).

The Juno irises can be immediately visualized if one will imagine a miniature stalk of corn with iris flowers thrust into the uppermost leaf axils and at the top in place of the tassel. A closer examination of the flowers will show that the standards are very much reduced in size and frequently stand at right angles to the main axis of the flower making little addition to the showiness of the bloom. There are species in the group, notably I. persica and I. Rosebachiana in which the flowers push ahead of the growth of the plant, so that one does not at first realize that there will be a short stalk bearing aloft the smaller number of leaves.

The first difficulty for the amateur with the Juno iris species is that he must search to find any of them at all. If he finds them and orders the bulbs, he may have to nurse them back to health if they have lost, in digging or handling, their rather fleshy permanent roots. After that all is simple provided the iris like the climate and soil.

Practically all the members of the Juno group are from countries at the east end of the Mediterranean basin and extend eastwards across Turkestan(to Afghanistan and the Soviet boundaries). As happens in other genera, there is a small center in the Caucasus but the outlier is Iris aiata which is assigned to Sicily,Spain and Algiers, another line of plant distribution by no means unusual. Most of the areas where these plants have been reported by botanical collectors are regions of winter rains,and summer drought, and most of them are areas in which the basic soil formations are such that the usual soils would not be expected to be acid. One recalls, however, that many an acid soil loving plant lives well enough in the top-soils rich in humus,even above ledges of calcareous rocks.

The Juno species most easily found in this country is I. bucharica, its name recalling Bokhara, now in . Since it is now produced in this country in modest quantities, and from as diverse climates as those of upper New York State and Oregon, one might well believe it fairly catholic in its tastes. It has done well enough in the Maryland garden, but finally lost the struggle against encroaching roots and overshading shrubs. The bulbs are of decent size, furnished with fat anchor roots from which the feeding roots are annually produced. This does not mean that the fat roots live forever. They too have their normal durations. When established and content, the shoots push up some 16 inches with fine green leaves almost polished looking on the upper surfaces and with as many as 10 flowers, in the uppermost axils. These are showy. The entire flower is a glistening white, except for the broad blade of the falls, which is a fine golden color in the best forms, duller in others. The effect is the same stunning gold and white that one gets from the beardless species I. ocarolsuca of the Spuria group. The standard, the inner perianth segment, here is a neat little white affair that sits at right angles to the flower like a foothold for the plundering bee at the side door. In this garden the plants were never allowed to seed,so the pods can be reported only second hand, more slender than those of the bearded iris with a thinner coat that looks as if it might be almost translucent by

ripening time. The seeds are said to be (set size + color)
Like all seed of species that come from regions of winter cold, they must have that for germination, and if available seeds have been long on the way from elsewhere, they may need a second winter's persuasion. As Dykes said in his superb 'The Genus Iris', one should never abandon a pot of iris seed too soon, as germinations may string out over several springs, the exceptions being chiefly in the thin-seeded members of the Beardless group, such as the common Iris sibirica and its continental allies, that may germinate promptly or not at all. The seedlings are slow to develop and will demand all the patience the gardener may have accumulated through his years.

The gardener's old device of sowing the seed on a layer of sand with soil below and above is useful here, since frequently one may lift the upper layer like a lid and see what is going on below, in the sand layer, whether there are small bulbs or ungerminated seed.

At times one may find bulbs of I. orchioides a somewhat smaller edition of I. bucharica that at best never seems as vigorous. Its flowers, in the type that I once had from the late E.B.Williamson, were a rather unpleasant yellow, but otherwise the counterpart of the white-flowered form that came from Mr. Dykes' garden. Neither persisted with me more than three years, and were not lamented, too much, save for the wound to vanity.

The major disgrace, however, came from the loss of I. Rosenbachiana about which Dykes wrote with such gusto and of which he had let me have a few small bulbs. These were indeed small with fat brace roots and sent up short stems with about four leaves and with me, never more than two flowers. These are very gay, due to the colors on the falls, in which the reflexing blade has for ground color, clear yellow where it begins below the signal patch, passing to pure white at the tip; over this is laid a glowing red purple warm as a velvet pansy, that breaks up into little bits along the edges to show the yellow ground and then the white. The limb and the covering style branch are yellow touched with lilac and the wedge-shaped standards tilt down a bit and show

their lavender color. Since the flowers open before the stem of the plant has grown much, they look as if they rested on the ground as is the case also with I. persica to which this must be allied. Since they come early into flower, in April here, one can imagine how gay they looked in the ~~midwinter~~ tepid English Spring.

Iris persica liked Maryland a little better and lasted possibly as long as seven years but with diminishing vigor. Apparently no amount of extra drainage and dosing with bonemeal could persuade it to tolerate my essentially acid site. This of course may be pure conjecture, for the only source of bulbs, I ever knew in this country, now unfortunately no longer available, was in a limestone region in Kentucky. The plant pushes up like a crocus, a white nose, the stiff tips of the leaves that make their full growth later on, and the pushing flower bud with its protecting sheath. Then the open bloom, suddenly! The form I had looked much like that pictured as Plate 1 of Curtis Botanical Magazine, that treasure house of plant lore to which I as all others am forever indebted. The essential and pervading color is lavender, but the blade of the falls is well overlaid with glowing purple broken at the center below the overlying style branch to show an orange ground.

According to the literature, the species must vary greatly in color for Dykes has gathered into this one name, the forms that were originally described as I. purpurea, I. Sieheana, I. Haussknechtii, I. Taurii all collected by the famous plant collector Siehe, save the second named by Lynch and Siehe, and I. stenophylla named jointly by Haussknecht and Siehe. Most of them are recorded in the plates of that same journal and are lovely things. Perhaps in some future millenium when we have forgotten about pride of race, national cultures and petroleum, they may be seen again!

No others have perished at my hands save I. alata, a species that had to be content with a miserable life in a deep bulb pan since it is a species that makes its whole growth cycle during our winter months and has no apparent notion of changing it, even in California that most pressingly persuasive of States. The actual stems amount to very little, but the few leaves are impressively wide with sharp keel and sinuate margins. The flowers are large and showy, of a clear iris lavender with some white markings near the haft. Perhaps it would do well in southern California if its flowers did not emerge just in time to be beaten down by rains.

I. sindjarensis, I never managed to obtain but if it does in fact bloom in February it would do no better than I. alata, unless it were given the shelter of a cold frame to temper the cold, shut off the winter wet and intensify the summer heat, a program far beyond anything possible under my system of gardening.

Its offspring, the hybrid ~~made~~ with I. persica, x sindpers, I did find but it would not stay long. It was a squat little plant considering its rather good leaves but the gray lavender flowers of its mother have been made lovelier ~~by~~ and livelier by the rich red purple of I. persica. The reverse cross, has also been reported but I have never found it.

There are other species assigned to this group, that from book descriptions sound like variants of species already described here, save the group that appears to center about I. caucasica. Whether or not this itself is too sharply removed from I. orchioides is beyond the skill of the present writer to know, but its Palestinian home does not sound like a likely counterpart for any place over here.

The same sort of site and climate would probably suit the least iris-like of them all, I. sisyrinchium. This like I. alata, is another martyr to my curiosity. The corms that look much more like those of crocus than iris, were planted deeply(6 to 7 inches) with a good under-bedding of sharp grit, on a slightly raised bed. In the spring, the plants appeared with sharp stiff leaves but no visible stem that should have carried them up as well as the short-lived flowers of clear lilac with a yellow patch on the blade of the falls.

After this one abnormal flowering, the plants never reappeared but again this was not much lamented. In southern California it would doubtless be another story for the species would probably enjoy the same sort of place that would suit the native calochortus and brodiaeas, but not a place kept green from the hose!

The next section, named for the species known in gardens as Spanish Iris, but long since lost from gardens on account of the more obvious beauties of the garden races, has two distinct sets within it; the group that gives its name to the section, all of the members from the western end of the Mediterranean region and the smaller group from the eastern end, of which I. reticulata is the best known.

As one considers the native home of the Xiphium group, Spain, Portugal, Algeria, Tunisia, Tangiers and then considers the plants that do well in his own garden, he will realize that there are relatively few from the iris-home-country that do well here, save from the San Fransisco Bay region southward and a smaller lot in the extreme southeastern part of our Atlantic seaboard. It is not surprising, therefore, that these species and their progenies, should be of dubious merit for us, unless we frankly treat them like annuals, digging them after blooming and planting new bulbs in the autumn.

The fact that they, like tulips, have to make a whole new bulb each year for the flowering in the following year makes the problem of their cultivation even more difficult.

Probably not one of the species commonly assigned to the group, I. Xiphium, I. xiphioides, I. Juncea, I. Boissieri, I. filifolia, and I. tingitana can be found cultivated in what an herbarium-dried botanist would accept as the wild typical forms. It is probable that some of the garden clones of I. xiphioides would come close; that there might be true material of I. filifolia and I. tingitana and that in some of the small gardens in the south one could find true I. Xiphium. This is not too difficult to explain, perhaps. I. xiphioides, the so-called English iris, is relatively hardy to cold but the earlier attempts to use it seem to have been mostly in New England where the winters are too cold and too long. Much further south

the summers were doubtless too long and too hot; most recently a happier area seems to have been found in Oregon and Washington from whence each year larger and larger numbers of bulbs go forth to die elsewhere. The other three species make autumn growth and their chances of survival are in regular proportion to the amount of damage to those aspiring leaves. Since *filifolia* and *tingitana* come from North Africa, cold would probably harm them as well, though their reputed hybrid, Wedgewood, persists fairly well north on the Atlantic coast, though not so far inland.

The yellow-flowered *I. juncea* and the lavender-flowered *I. Boissieri* have never been available for trial and have never been seen save as pictures. Whether they have any grace that could not be found in some of the current garden hybrids, is hard to guess.

All of the group make fair-sized ovoid bulbs, the largest being those of the English iris. All send up fans of channeled leaves that curve handsomely away from the central stalk that bears the terminal flowers, the stalk itself largely sheathed with lesser and lesser leaves until one comes to the green bracts that inclose the one or two flowers. These last are of good size but there is a nearer equality in size of all the parts than in some of the other iris, so that the falls, standards and style branches contribute equally to the display, save the English iris that has fine falls. The group is rich in all the typical iris colors but has more lavenders that approach blue than that approach red purple. A fine signal patch of yellow on the blade of the falls just below the end of the style branch is another distinction.

The nursery-born race of Dutch iris has never been explained precisely in terms of parentage but is usually spoken of as a mixture ~~and~~ involving I. Xiphium and I. ~~[illegible]~~ juncea. Xiphium presumably in its white as well as its blue lavender forms. Where the old and now possibly lost Spanish iris Thunderbolt, got its yellow flushed by smoky browns and purples, has never been suggested. Be all this as it may, the Dutch iris as a race, are more robust than the older varieties of Spanish iris and offer about the same color range. In Maryland, like the Spanish iris they make autumn leaf growth, that is not damaged by cold unless there is prolonged zero weather but that is damaged by the predatory rabbits that infest this game-protected village.

In shady areas, even in broken shade they die out promptly, in areas where there are about five hours of sun daily, areas such as those in which narcissus and hyacinth do well, they persist but do not always flower. In other gardens in the village, especially those with sandier soil and sunnier positions, they do extremely well. And coming southward, one feels more an assured of success, as he discovers huge fields of their more tender forms grown in the open for cut flowers to be shipped to the northern market at the end of winter.

The English iris, I. xiphioides, cited as native to the French and Spanish Pyrenees is quite another matter for apparently it is a plant that wants a deeper richer soil with ample moisture until after flowering but not so much drying thereafter. Whatits ultimate fate may be, is doubtful, for there are many stocks that are afflicted with mosaics, that current plant malady that supports so many pathologists and torments so many geneticists. Even the old varieties once cherished for their white flowers dashed and flaked with rose or violet are properly suspect now just as for broken tulips. The raising of seed stocks in some place remote enough from all infected older material so as to avoid infection through vectors, is a slow business, thus repeating the current history of the lily.

The remaining group of bulbous iris, long known in Iris reticulata is quite a different group, far more tolerant of general garden conditions but definitely opposed to overcrowding or overshading in summer. If there is any limitation of weather, it is the quite accidental fate of frost or driving rain that may harm all of the group that flower as early as the earliest snowdrops or crocus; unless it shall prove that there is a southern limit as well marked by lack of cold and or by too much moisture during summer dormancy.

As is the case with the Juno irises from the same area, there are more species known in the reticulata group than are now in cultivation.

I. reticulata in its typical rich purple form, is common enough its variety Krelagei that is more definitely red purple can be had. 'Blue' forms are recorded and a clone named 'Cantab' said to be Cambridge blue, is much touted in British garden journals. In my own garden it was less lovely than I. histrioides. One plants them all in warm sunny spots where there will be perfect drainage and some shelter from the worst winds of late Spring. In my own garden, where bulbs are left to survive or not, in what are hoped may be semi-natural conditions, the autumn leaf-fall seems not to bother the colony of I. reticulata but it does bother the bulbs of histrioides that also resents any excess depth in planting. This latter is not unlike reticulata in general effect but is always earlier, even in January, and of the most delightful lavender blue with some white spots on the blades of the falls; I. Bakeriana that I was lucky enough to get by mistake, was thought to be something quite different and planted in a poor place for an iris, dwindled almost at once. Its flowers are of the same general size and style, but heavily bordered and spotted with deep purple blue.

The flowers themselves are not unlike those of the Spanish iris in general appearance but differ at once in the fact that they have practically no stem but rise in the world on their own perianth tubes, as in crocus, so that one does not pick them! The leaves that probably leave the short stem in the usual distichous arrangement, look merely like an irregular bundle as their horny tips push through the soil. The leaves themselves are worth a second look.

They are not flat or merely folded but are channeled so that cross sections make nice patterns or designs. In fact the study of the section is almost as interesting to the taxonomist as is the section of the needle to the man devoted to pines.

I. histrio and I. Vartani are known to me only from books, the former 'blue' (that is, blue lavender) with white dots about the yellow signal patch on the blade of the falls and the latter 'slaty blue' with darker veins and blotches, while inbetween the two, one finds I. Danfordiae the only yellow member of this group, with brownish dots on the blades of the falls.

These are choice things, so do not plant them carelessly as one might crocus or snowdrops that could be replaced. If they must go into the rock garden remember that it is because they will be safe there, we hope, from invasion, and not because they need rocks! There too one may kneel with more dignity to catch the delightful scent of reticulata, histrioides and of Vartani if you get it.

Mrs. Wilder used to put in her writings the wish that some one in this country would develop stocks for sale of various choice things. I never know if she really succeeded in luring any one to the dubiously remunerative business but if I dared imitate her way, I should urge the development of stocks of all these last delightful relatives of reticulata providing only the worker recalls that the rewards in money may be as distant as if he had planted seedlings of white pine.

Iris

The huge genus Iris that encircles the north Temperate Zone in nature presents a great diversity of forms and habits, but they are largely forgotten in the feverish activities that have been concentrated on a small groups of bearded iris species and their endless ¶ progeny. ¶ For their own convenience botanists have divided the genus into some ? groups, using as a basis of the preliminary separation, the character of the root as represented in the storage organ rather than the roots for the nourishing of the plant. Three groups are found whose bulbs and to these sections, separated from one another by quite different characters that will be mentioned later; were given the names Juno, Xiphium and Gynandiris.

The bulbous iris best known in this country and most commonly met with belong in the second group and are meagre representatives of its two major subgroups, the first most commonly represented by the imported race known as Dutch iris, and the second by Iris reticulata and some of its allies. One must do a little searching for first representatives of the other two groups and will be richly rewarded in the case of the Junos but doubtfully so for the single species of the last groups, I. sisyrinchium (which strictly speaking has a corm & not a bulb).

The Juno irises can be immediately visualized if one will imagine a miniature stalk of corn with iris flowers thrust into the uppermost leaf axils and at the top in place of the corn's tassel! A closer examination of the flowers will show that the standards are very much reduced in size and frequently stand at right angles to the main axis of the flower, adding little addition to the showiness of the bloom. There are species in this group, notably I. persica and I. Kaempferiana in which the flowers push ahead of the growth of the plant, so that one does not at first realize that there will be a short stalk bearing along

the smaller number of leaves.

The first difficulty for the amateur with the Juno iris species is that he must search to find any of them at all. If he finds them & orders the bulbs, he may have to nurse the bulls back to health if they have lost - in digging or later handling, their rather fleshy permanent roots. After that all is simple provided the iris likes the climate and soil.

Practically all the members of the Juno group are from the countries at the east end of the Mediterranean basin and extend eastward across Turkestan (to Afghanistan & its Soviet boundaries) As happens in other genera, there is a small center in the Caucasus, but the outlier is Iris alata which is assigned to Sicily, Spain and Algiers, another line of plant distribution that is by no means unusual. Most of the areas where these plants have been reported by botanical collectors are in regions of winter rains, and summer drought and most of them are regions in which the basic soil formations are such that the usual soils would be acid in character. (One recalls of course that many an acid soil loving plant lives well enough in the top-soils rich in humus, even above ledges of calcareous rocks.)

The species most easily found in this country is Iris bucharica its name recalling Bokhara, since it is now produced in this country in crowded quantities - and from as diverse climates as those of upper New York State and central Oregon, one might believe it fairly catholic in its tastes. It has done well in this Maryland garden but finally gave up the battle against the encroaching roots & overtopping shade of shrubs - The bulbs are a decent size, furnished with the fat anchor roots from which the feeding roots are annually produced. When established and in content, the shoots push up to about 16 inches with fine green leaves almost polished looking on the upper surfaces and as many as 10 flowers in the uppermost axils - These are showy.

(of the falls

The entire flower is a glistening white except the broad blade ✗ which is a fine golden yellow in the best forms, a duller yellow in some of the others. At times a touch of yellow gold appears on the crests of the style branches, but the effect is the same shimmering gold and white that one sees in the bearded species, Iris ochroleuca of the Spuria group. The standard, the inner perianth segment that does so much for all other types of iris flower, here is a neat little white affair that sits at right angles to the flower, like a foothold for the plundering bee at the side door. In this garden, the plants were never allowed to form seed, so the pods can be reported only as recorded by others, more slender than those of bearded iris and with a thinner coat as if it might become translucent in time. The seeds are said to be ?

Like all seed of species that come from regions of winter cold, they must have heat for germination and the available seeds have been long on the way, they may need a second winter's persuasion. As Dykes said in his ? great work "The Genus Iris" (1912) one should not abandon any iris seed pot too soon, as germinations may string along over several springs, the exception being chiefly for those thin seeded members of the Bearded Iris group such as. ———, that will either germinate or not with dispatch. The seedlings are slow to develop and will demand all the patience the gardener may have accumulated through the years.

The ~~old~~ gardener's old device, of sowing the seed on a layer of sand with soil below & above is useful here, since frequently one can lift off the upper layer like a lid and look to see what is going on in the sand layer, whether there are small bulbs or merely ungerminated seed.

From 7111

At times one may find bulbs of I. orchioides ~~that it~~ a somewhat smaller edition of I. unguicularis that at best never seems as vigorous.

Its flowers in the type, that I once had from the late E. B. Williamson were a rather unpleasant yellow, not at all improved by the blotches but otherwise the counterpart of the white flowered form that came from Mr. Dykes's garden. Neither persisted with me, more than 3 years, and were not too much lamented, except for the wounds to vanity.

BM 7135

The major disgrace, however, came from the loss of I. Rosenbachiana about which Dykes wrote with such gusto and which he let me have a few bulbs. These were small with rather short brace roots & send up short stems with about 4 leaves and with me never more than 2 flowers. These are very gay, due to the colour of the falls in which the reflexing blade has for its ground color, clear yellow where it begins, passing to pure white at the tips; over this is laid a glowing red purple warm as a velvet pansy that breaks up a little at the edge to show the yellow ground and then the white. The limb of the covering style branch are pale yellow touched with lilac & the wedge-shaped standards tilt down a bit to show their lavender color. Since the flowers open before the stem of the plant has grown much, the flowers look as if they rested on the ground as is the case also with I. persica to which this must be allied, since they come early in April here, one can imagine how gay they look in the tepid English spring.

BM 1

Iris persica likes Maryland a little better and lasted possibly as long as seven years but with a diminishing vigor. Apparently no amount of extra drainage & dosing of bone meal could persuade it to tolerate the essentially acid soil. This of course may be pure conjecture, for the only source of bulbs I ever knew in this country was from a limestone region in Kentucky, a source unfortunately no longer available. The plant pushes up like a crocus, a white nose, the stiff tips of the leaves that make their growth later & the pushing flower bud with its protecting sheath. Then the flower bloom, suddenly. The form that looks much like that pictured as Plate 1 of Curtis Botanical magazine, that treasure house of plant lore to which I was all others owe forever indebted. The essential and pervading color is lavender but the blade of the falls is well overlaid with glowing purple broken at the center below the

markings style branch to show an orange ground.

According to the literature, the species must vary greatly in color for Dykes has gathered into this one name the forms that were originally described as I. purpurea, ~~Siehe~~ I. Sieheana (BM 6059), & — I. Haussknechtii, I. stenophylla (BM 7734), I. Tauri (BM 7793) all collected and named by the famous plant collector ?.?. Siehe save the second named by Lynch and stenophylla named jointly by Haussknecht & Siehe. Most of them are recorded in plates in the same journal and are lovely things. Perhaps in some future millenium when we have forgotten pride of race, culture & petroleum, they may be seen again.

No others have perished at my hands save I. alata (BM 6352, BR 1876), a species that has to be content with a miserable life in a deep bulb pan since it is a species that makes its whole growth cycle during our winter months and has no apparent notion of changing it, even in California that most pressingly persuasive of states. The actual stem amounts to very little, but the few leaves are impressively wide with sharp keel & sinuate margins. The flowers are large and showy of a clear iris lavender with some white markings near the haft. (sweetly scented?) Perhaps it would do well in southern California if its flowers did not emerge just in time to be beaten down by the rains.

I. sindjarensis (BM 7145) I have never managed to obtain but if it does in fact blossom in February it would do us better than I. alata unless it were given the shelter of a cold frame to temper the cold, shut off winter wet and intensify summer heat, a ~~matter~~ program far beyond anything possible under my ~~program~~ system of gardening.

Its offspring, the hybrid of it with I. persica, × sindpers I did find — and killed shortly. It was a squat little plant considering its rather good leaves but the gray lavender flowers of its mother has been made lovelier & livelier by the rich red purple of I. persica. The reverse cross has also been reported but I have never found it.

¶ There are other species assigned to this group, that from both descriptions sound like variants of species already described here save the group that appears to center about I. caucasica. Whether or not this itself is too sharply removed from I. orchioides is beyond the skill of the present writer to know.

So much for all this boasting of wares, but there has been written into the descriptive notes enough to suggest the probable cultural necessities and regions. We cannot all live on the west coast nor that sweep of country that comes across Nevada, Arizona & New Mexico into Texas, where at the proper elevations, there might be cold but not too much cold, winter rain but not too much winter rain and gardeners who could and would find places that might be barren of vegetation through the long summer rest periods.

This same sort of site and climate would probably suit the least iris-like of the lot, the single species of the Gynandiris section, Iris sisyrinchium. This like I. alata is another martyr to my curiosity.

BM(1407) Cogl6

The corms that look much more like crocus than iris were planted deeply (6 or 8 inches) with a good under bedding of grit, in a slightly raised bed. In the spring the plants appeared with ~~their~~ sharp stiff leaves but no visible sign of the stem that should have borne them up as well as the short-lived little flower of clear lilac with a yellow patch on the blade of the falls that made me think of some of the southern Moreas. given one flowering, it never showed up again but it was not much lamented. In California it would doubtless like the same sort of place as that given to the there native calochortus & brodiaeas.

The next ~~group~~ section, named for the species known in gardens as Spanish iris, but long since lost from most gardens because of the more obvious beauties of the garden hybrid races, has two distinct sets within it; the group that gives its name to the section all of them from the western end of the Mediterranean region & the smaller group from the Eastern end of which I. reticulata is the best known.

If one considers the native homes of the Xiphium group — Spain, Portugal, Algeria, Tunisia, Tangiers, and then considers the plants that do well in his own garden, he will realize that there are relatively few that do well at all in this country save in the milder sections, say from the San Francisco Bay Region southward and in very few cases even in fewer genera in the southern part of the eastern seaboard. It is not surprising, therefore, that these species and their progenies, should be of dubious merit for us, unless we frankly treat them as annuals, digging them up when the flowers are over and planting new bulbs in the autumn.

Probably not one of the species commonly assigned to this group, I. Xiphium (Bm 6FL, 679), I. xiphioides (Bm 687), I. juncea (Bm 5890), I. Boissieri (Bm 7097), I. filifolia (Bm 5775) and I. Tingitana (Bm 6775) can be found in that an herbarium-dried botanist would accept as the type-sheet would form. It is probable that some of the garden clones of I. xiphioides would come close: that there might still be true material of I. filifolia and I. Tingitana and that some of the less showy gardens of the southeast still conserve a wild form of I. xiphium. This is not too difficult to explain — perhaps. I. xiphioides, the so-called English iris is relatively hardy to cold but the earlier attempts to use it seem to have been mostly in New England & there the winters are too cold and too long; much further south, the summers were doubtless too long and too hot; most recently a happier area seems to have been found in Washington & Oregon from whence each year larger & larger numbers of bulbs are sold to die elsewhere. The other three species make autumn growth & their chances for survival are in regular proportion to the amount of damage to these aspiring leaves. Since filifolia and Tingitana come from North Africa, cold would probably harm them as well, though their

reputed hybrid, Wedgewood persists fairly well north on the Atlantic coast, though not so far inland.

The yellow flowered I. juncea and the lavender flowered I. Boissieri have never been available for trial and have never been seen save as pictures. Whether they have any grace that could not be found in some of the current garden hybrids is hard to guess.

All of the group make fair-sized ovoid bulbs, the largest being those of I. xiphioides. All end up tufts of channeled interlapping leaves that curve away handsomely from the central stalk that bears the terminal flowers, the stalk itself largely sheathed with lesser & lesser leaves until one comes to the green bracts that cover the one or two flowers. These last are of good size but there is a nearer equality in size of all the parts than in some other iris so that falls, standards & style branches contribute equally to the display. The group is rich in all the typical iris colors but has more lavenders ~~but approach blue than those that approach purple. There are nice clear daffodil yellows~~ All are distinguished by a fine signal patch of yellow on the blade of the falls, just below the end of the style branch.

The nursery-born race of Dutch iris has never been explained precisely in terms of parentage but is usually spoken of as a mixture involving I. xiphium & I. juncea, xiphium presumably in its white as well as its blue lavender forms. Where the old and now possibly lost Spanish iris, Thunderbolt?, came by its yellow-flushed white smoky browns & purples, one never knew. But all this as it may, the Dutch iris as a race, are more robust than the older varieties of Spanish iris and offer about the same color range. In Maryland, like the Spanish iris they make autumn leaf growth that is not damaged by winter cold unless there is prolonged zero weather, but is damaged by the predatory rabbits that infest the game-protected village.

In shady areas, even those of broken shade, they die out promptly: in areas where there are about 4 to 5 hours of daily sun, areas in which narcissus & hyacinths do well, they persist but do not always flower. In other gardens of this district, especially those with sandier soil & sunnier positions they do extremely well. And coming south west, one feels more assured of success, as he discovers huge fields of their more tender kin grown in the open for cut flowers & be shipped north in late winter.

The English iris, I. xiphioides, cited as native to the French and Spanish Pyrenees, is quite another matter for apparently it is a plant that wants a deeper richer soil with ample moisture until after flowering but not so much drying off thereafter. What its ultimate fate may be for now there are many stocks that are afflicted with mosaic viruses, this popular current plant malady that supports so many pathologists and tormentes so many geneticists. Even the old varieties once cherished for their white flowers suffused & blotched with rose or violet are a properly suspect as broken tulips. The raising of seed stocks in some place remote enough from existing bulb stocks as to avoid infection by vectors is a slow business, thus repeating the current history of the lily.

The remaining groups of bulbous iris, long known only in Iris reticulata is quite a different groups, far more tolerant of general garden conditions but definitely opposed to overcrowding or overstaking in summer. If there is any limitation of weather it is the quite accidental fate of frost or driving rain that may harm all of this group that flower as early as the earliest crocus & snowdrops.

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in cultivation. &

I. reticulata BM 5577 in its typical purple form, is common enough; its variety krelagei that is more definitely red purple is not common but can be had. "Blue" forms are recorded and a clone named "Cantab" said to be Cambridge Blue, is much touted in the British garden journals. One plants them all in warm sunny spots where there will be perfect drainage & some shelter from the worst winds of late Spring. In my own garden where bulbs are left to survive or not in what are hoped may be semi-natural conditions, the autumn leaf-fall seems not to bother the colony of I. reticulata but histrioides does not like it, nor any excess depth in planting. Iris bakeriana BM 7084 that was getting accident was planted in a poor spot and has dwindled to foliage only in the surrounding herbs.

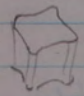
The flowers are not unlike those of the Spanish iris group in general appearance but differ at once in the fact that they have practically no stem, but are borne aloft on the elongated perianth tubes - as in crocus. The leaves that probably leave the bulb stem in a distichous arrangement, look merely like an irregular bundle as their horny tips push through the earth. The leaves themselves are worth a second glance for they are not flat nor merely folded but channeled so that cross sections make nice pattern designs.

I. Danfordiae BM 7140 BM 6033 I. histrio and I. Vartanii BM 6942 are known to me only from books, the former "blue" (that is blue lavender) with white dots about the yellow signal on the blade of the falls & the latter "slaty lilac" with darker veins, while in between is Danfordiae the only yellow member of the lot with brownish dots on the blade of the falls.

These are all choice things - so do not plant carelessly as one might for crocus or snowdrops. If they must go in the rock garden, remember it is because they will be safe, presumably, from invasion and not because they need rocks. Here too one may kneel with more dignity to catch the delightful scent of reticulata, histrioides & Vartanii if you get it.

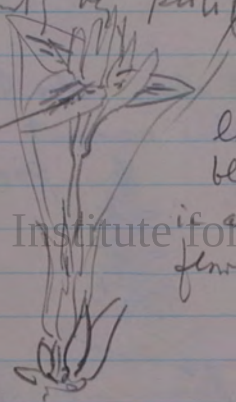
BM 6775 Iris tingitana —
J G Baker —
Large & fine blooms — standards mauve — style branches & limb of falls same hue but deeper — blade of falls as colored here faintly gray to yellowish — yellow signal —
Note Baker now says that X. tingitanum of BM 5981 he now calls I. filifolia intermedia!

BM 6942 Iris Vartani —
Orig. bulbs to Sir M. Foster by Dr. Vartan, med. miss. at Nazareth — See Gard Chron. N.S. vol xxiii (1885) p 438
Apparently very prolific of offsets!

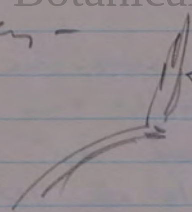


gray lace

blue purple and yellow signal —



Drawing suggests that leaves overtop the flowers at bloom time? so leaves grow in autumn? 8-9 inches long at flowers —



← note —

BM 7014 Iris Bakeriana Armenia
Rev J. F. Oakes Amer. Mission

by own notes good —

M. Foster notes here.

BM. 6213 Cypella peruviana —

Gorgeous — deep yellow "falls — bases of falls & style br— lemon barred with almost black — branched inflorescence — Said not to agree with any formerly described by Klatt (from Brazil) — See also material from Sorata Bolivia —

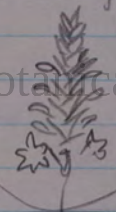
BM 6352 Xiphion planifolium —

(Surely Iris alata Poir.) J.G. Baker

BM 6400 Watsonia densiflora —

globose bulb —

Natal — up to 4000 ft elev. Also Orange Free State — The striking thing is the packed arrangement of flowers — rather dull pink otherwise —

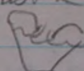


BM 6436 Hymenocallis macrostephana —

No history — brought from continental nursery as Hymenocallis speciosa

Pancratium propably

Large web — but all stamens turn in over pistil

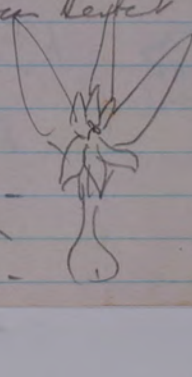


BM 6562 Hymenocallis Harrisiana

one of the worst things — tiny web — dark green filament — from Mexico by T. Harris in 1840 to Dean Herbert

BM 6585 Babiana socotrana.

Disc. by Balfour, Island of Socotra 1879-80 — Little fellow — Lavender — dull — netted bulb coats — Chief virtue lies in being at a place far distant from the Cape —



~~Crimea~~.

Bot. Mag. 5890 Iris juncea –

"A native of dry hills near the town of Algiers, where it is a great ornament xx" "It is also native of Tangiers in Morocco of Genoa & Sicily" – JDH.

As figured this is lovely. S. lemon. F. golden – small red brown dots on patch below end of style branch.

Bot. Mag. 5928 Xiphion filifolium –

"xx Southern Spain, where it was discovered by Boissier, in sandy calcareous rocks on the Sierra Bermeja, at an elevation of 3000 to 4000 feet (French): it probably also inhabits Morocco where the magnificent X. tangitanum grows with darker more maroon-coloured flowers".

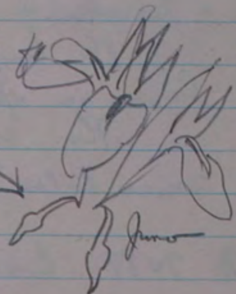
"xx the specimen xx here figured was brought by Mr Maw from the Rock of Gibraltar in 1869, & flowered in Benthall Garden in July of the present year. On Gibraltar it flowers in April. JDH

Flowers stubby – standards squat – flaring out – all parts definitely red purple

Bot. Mag. 6033 Xiphion Histrio

JD Hooker rec'd fresh flrs from Mr Barbey of La Ferrière near Geneva, early in March (for painting). Mt. Lebanon – Mt Gerizim in Palestine.

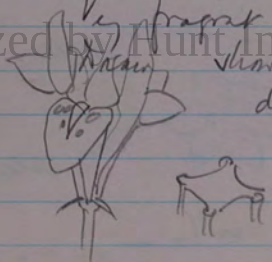
BM 7111 - Iris Orchioides -
J. G. Baker -
Allied to caucasica -
Mts of Turkestan & Bokhara — 7000 ft
Lemon yellow - orange signals on falls -
Standards shown downwards -
No mention of color forms -



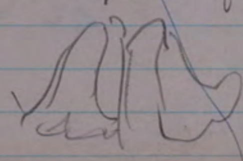
BM 7140 I. Danfordiae -

Cicilian Taurus - "The exact spot was on the northern side of the Amascha Mountains, which is continuation of the Ala Dagh range" - discovered by Mrs Danford - Afterwards by others -
Very fragrant

Drawing shows curious - claws at base of standards -
dull yellow to brighter, olive drab spots -



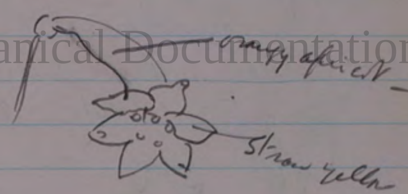
BM 7417 Crinum Schimperi
According to J. G. Baker belongs to group with C. latifolium L., C. zeylanicum L., & C. longifolium Thunb. -
Sent to Schimper from Abyssinia 1870(?)
Drawing shows outspread flowers like fine Lilium Sanguineum. Hang down



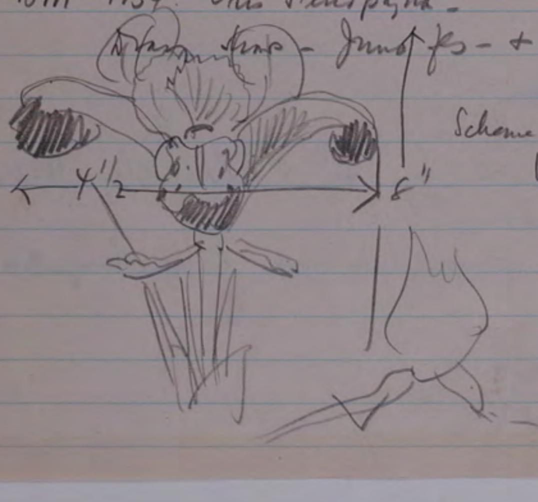
BM 7459 Sternbergia macrantha —
J. G. Baker writes —
"Smyrna eastward to the west of Persia + southward to Jerusalem + the Sinaitic peninsula,
Fls larger than those of S. lutea, long perianth tube, leaves in spring —
Fls. no scent, produced in autumn, scape — comes later? — Cut shows ovary at soil line —

BM 7488 Cyrtanthus Huttoni
J. G. Baker writes —

"More robust than C. angustifolius & its allies — but not as C. obliquus — Chief difference to both is in shape of corolla (as drawn)
Cut shows head of 15 fls —
Mr. J. Hutton — S. eastern district of Cape Colony —
no scent —



BM 7734 Iris stenophylla — JWH. writes —
~~[illegible]~~ — Juno fls — + Xiphium foliage — Juno bulb —



Scheme in my color —
blue to purple patches —

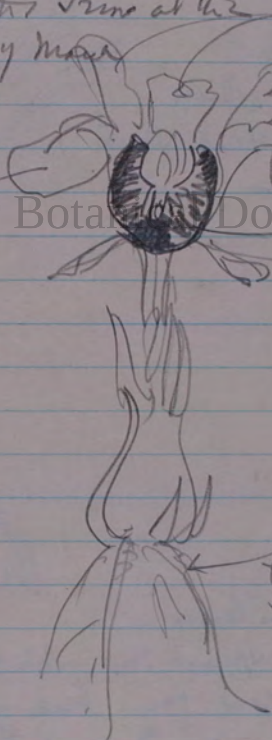
plate shows fl. abt 4½" across

BM 7793 Iris Tauri

"According to a note in G. Chron (l.c. p 313) [1901. vol 1. p. 190 fig 74 + p. 313) by Mr. Siehe, of "Hortus Orientalis", Mersina (near Tarsus), the discoverer of this beautiful little species, it is a native of alpine pastures in the Eastern Taurus, at six thousand 500 feet elev., + of the upper forests of Juniperus excelsa at 4500 feet, where it flowers :- the melting of the snow at the end of Feb. + the beg. of March"

a Juno.

I. Bolleana Siehe
I. stenophylla Hausskn.
also belong here as syns.



BM 8059 Iris Sieheana – Lynch –

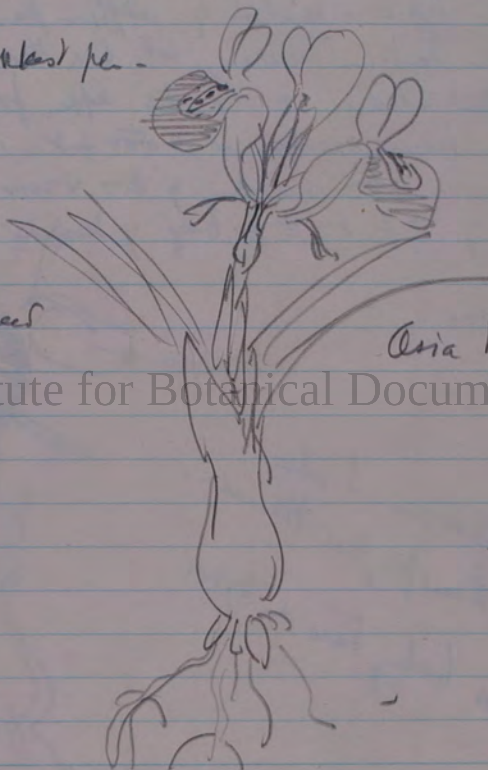
Plate poorly colored ? – Text says much like I. persica – L. but this is a dingy – prune plum – colored affair –

Only brilliance is orange signal on white ground both dotted black.

Blade of fall darkest plum –

No locality given –

"silvery gray ground very covered with a large number of fine, closely placed reddish lines –



Asia Minor 1901

BM. 679. I. lusitanica –

Looks like Spanish Iris – style branch straw yellow – Standards same – streaked to violet at base – Blade of falls broad lemony yellow with some dark flakes (as in mosaic) G. regrets that pure yellow color form is not given & says this is Solander's I. sordida, "Found by Clusius in rich spots, as well as rocky hills, near the Tagus above Lisbon".

BM. 686 - Iris Xiphium -
Looks like a good mod. variety - with red purple standards & blue purple falls - Notes that leaves "are above ground in the Winter"
"A native of Spain, according to Clusius, in the country about Valladolid, & Quer (x x) in the green-oak woods of both the Castiles; Desfontaine tells us that he found it in Algiers; but it remains to be ascertained if he means the precise species we are now describing. xx"
"cultivated here in 1633, by Gerarde." -

BM. 687 - Iris Xiphioides
Looks like modern blue to red purple sort -
"Leaves as in Iris xiphium but larger & not rising out of the ground till spring = x x"
"A native of the Pyrenees. x x

BM 725 (Amaryllis) curvifolia Nerine -
"According to the Banksian Herbarium, our plant was brought into the Kew Gardens about 1788, from the Cape = Jacquin received it from the same place. There is a gardening tradition that it was likewise received from Japan by the late Dr. Fothergill; if so, this with belladonna & sarniensis would make the third species of the Genus that is common to the Cape, as well as to countries immensely distant from it; but we confess that we place no reliance whatever on the story beyond its bare possibility." G -

Plant is obviously a Nerine.

B.M. 726 - (Amaryllis) humilis = Nerine   Iris

"This differs from undulata (No 369) in having the leaves more bluntly pointed, the corolla more irregular, outer segments without the corniform mucro that exists in the other, the two lower of these divaricating edgeways, and further in having three very distinct filiform patent stigmas -

Flowers in England "latter end of the Summer"

No date or date or by whom introduced. J.

{BM 747 Helonias bullata - root perennial flowers pink - Error ?}
{ 748 " asphodeloides - " date }

BM 749 Scilla peruviana -

A native of Portugal: found also in the fields of the Algerine and Tunisian territories by Desfontaines. - not Peru -

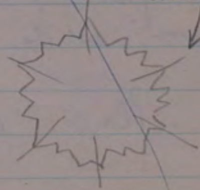
BM 805 Ornithogalum caudatum

"Brought from Cape of Good Hope, by Mr Mason in 1774, where it was found near the Sea-Cow River, generally growing on old stumps of trees that are full of mould + rotten wood." J.

BM 825 - Pancratium litorale

found by " Jacquin near Carthagena in the Island of Tierra Bomba, growing plentifully on the sea shores xx"

Small web - long - segments -



Iris