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APRIL, 1940

The American Horticultural Society

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April 13, 1940

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Lilian A. Guernsey

Lapeyrousia fissifolia

[See Page 119]

Ground Covers

ROBERT S. STURTEVANT

An article in the January Journal of the Royal Horticultural Society surprised me in its list of material and re-emphasized the fact that experience is our only guide in any locality, almost in any garden. Mr. Stoker included things like *Lithospermum prostratum* and low cotoneasters which we are fortunate in growing in our rock-gardens, many American natives, Bunchberry, Checkerberry, Partridge Berry, Bearberry, Shortia and Linnaea which we find far from easy to establish, a number of tender evergreens, and pointedly omitted English natives such as heathers that we value as well as an easy thing like pachysandra. He did include vinca but fully fifty per cent of his list would be found only in the choicest of rock-gardens.

As a firm believer in ground-covers as a mulch, for effect, for ease of maintenance when once established, I invariably check each published list. In many cases I make tentative attempts to achieve a mass and all too frequently fail even in my own garden. Clearly a plant to spread and increase must not only be happy in its location but also must be so handled as to have some chance of proving its merit. And our normal maintenance by a choreman or usual gardener (so-called) is death to many plants, especially over relatively large areas requiring little but intelligent care.

The common vinca, myrtle or periwinkle in different sections will be found in large colonies as happy in Tennessee as it is in New Hampshire. The trailing sprays root at every joint if not disturbed. The first careless weeding or raking will eliminate many

plants before they are established; any disturbance prevents natural increase or the development of a mat and a mat rarely develops within two years except under optimum conditions. Maintenance must be by hand and complete neglect may be better than misdirected culture. Incidentally it is relatively slow to root in a natural mulch of pine needles or leaves, as the stems do not reach the earth.

This last does not apply to pachysandra and its ilk which increase by underground stems that will pierce through even a heavy mulch, are less affected by raking but dislike hoeing or other cultivation. These two, all-too-common, ground-covers are typical in growth habit of our most promising materials though of course a close planting of individuals, sun roses, juniper or heather as a ground-cover is satisfactory if conditions permit of natural seeding and replenishment and, in some cases an increase by layers.

This necessity for a recognition of growth habits not only by the original plantsman but by the owner and the casual worker militates against success. Our almost worship of good grass has also established a feeling of disappointment in any other surface of a different color or texture. This applies especially to a ground cover of intermingled native plants which is often so frowned upon that we apply the term only to a pure stand of one variety often growing beneath trees or shrubs.

A ground-cover in its larger aspects of influence on climate and erosion control is apart from our mere doorway interest though the materials may be identical at times, in fact, in both

cases, the plants with runners above or below ground, are to be selected for all but the choicest spots.

Our first guide in selection in any locality should be nature. We should be wary of clearing out all native growth, especially on banks and poor, wet and rocky patches, as they are the difficult places wherein to re-establish growth at best. Heavy shade, poor drainage, thin soil, aridity, all require special treatment. None is suited to lawn development and rough ground, outcropping rocks or tree boles, and too small odd shaped open areas are at least inconvenient in maintenance.

The more difficult the site the less critical should we be of our ground-cover. If the spot is conspicuous we should improve the soil or substitute a wall for the bare bank but even then there are many less important spots for planting for succession of bloom, for evergreen, perhaps only for an even summer or spring green rather than weeds or bare dirt.

The best ground covers are too frequently listed to require reiteration. It is the fact that a ground cover may attain some height in the planting picture and possess perhaps only a seasonal interest that I wish to bring out.

Of trailers. Vines that can be sparsely planted in prepared holes are best for wide stretches of barren ledges or banks and flat growers like woodbine or grape cover more area than shrubby wistarias and roses or tangling honeysuckles but almost any vine will smother any shrub and almost any tree it can reach. Even the rampant honeysuckle, however, can be kept down by an annual cutting back. The slower growth of euonymus in variety, of ivy and periwinkle suggests use on smaller areas and it is well to remember that one can plant a clinger at the base of a ledge and a curtain-like grape or clematis at the

top. Frequently these trailers require pegging out to cover a greater area more evenly and few do much to prevent erosion.

Of runners, above or below ground. These, being normally slower and more restricted in spread, must be planted more closely and with less soil preparation, must be selected for their ability to enjoy the natural gravel, sand, or clay, the existing shade or exposure. Many big runners (underground) like the robinias, sumachs, roses, and symphoricarpos may be cut back biennially to get a denser, more even growth as a ground cover but the lower roses, *Xanthorrhiza*, *Kerria*, and hypericums will keep dense for years if planted closely and as small plants. The dwarf hydrangeas though slow to spread and the slower yet dwarf blueberries, mahonia, leucothoe, sweet fern, bayberry, etc., are shade enduring and occasionally useful. Blackberries are even more inconvenient than roses and there is too much dead wood but the bronzy winter leaves of trailing dewberries may be found on many a gravelly bank. Wild strawberries, on a smaller scale, and the closely related cinquefoil like many of the sedums have considerable charm and may join the rock-garden surface rooters like *Phlox subulata* on small areas. Still smaller lower creepers like thyme and mazus are all too easily smothered for wide use. These are but a few of the easier things for special growing needs, in many cases they will need protection from encroaching neighbors, but there are also some good fighters that will soon hold their own in fair soil.

It is amazing, however, to note how few things in nature form large unbroken colonies of a single species. We may find brakes and checkerberry or *Cornus canadensis* intermingling and forming a thick carpet among shrubs and trees. We find an

occasional glade an unbroken expanse of moss or a fern, an occasional moor of sheep laurel or sweet fern but usually there is a great mixture of species under the given conditions. One seems to see a pure stand of white pine, of spruce, of arrow weed, or water hyacinth more frequently than of ground-cover material which perhaps marks a more transitional stage of development. The hay-scented fern in New England, the buckbush (*Symphoricarpos*) in central Tennessee, other plants in other localities, seem almost unique in their ability to crowd out all competitors for even a few years. I think some of the escaped Europeans hold their own to better advantage than most natives. One sees big colonies (not acres) of day lilies both North and South, patches of goutweed, of euphorbia, of lily-of-the-valley, occasionally of sedums, clove pinks, sweet violets, of hellebore, and grape hyacinths, yellow irises or mallows. The most usual of these increase by stolons and are ideal ground-covers. Goutweed (*Aegopodium*) in both plain and variegated forms blooms little in mass but gives a fresh green most of the summer. In fifteen years a patch has encroached upon the adjoining field, has permitted good growth on trees and shrubs but not permitted any vagrant seedling within its boundaries. It is not to be advised for a new planting, however.

Day lilies, especially stoloniferous ones like *flava*, *fulva*, and many a named variety are ideal covers in relatively good soil and in semi-shade or on the southern edge of a shrub—they will bloom freely and if varieties are

mixed there will be a good succession through much of the summer. Except for appearances they will gradually take complete possession and successfully fight out all but the huskiest of grasses.

With the lily-of-the-valley we need deciduous shade and occasional weeding to maintain a good mat and the foliage is poor in late summer. Like the others the bed can be cleanly raked in early spring and a mulch seems to be of no advantage, except as a rich top-dressing.

Most of the other escapes mentioned as well as the Bugle weeds (*Ajuga*), moneywort, nepetas, lamium, and the mints do not make a heavy enough mat to maintain themselves without help even in the special soils that they most enjoy. In this respect they are like our native checkerberry, galax, shortia, and linnaea in needing some attention if the colony is to spread and spread.

Among the bulbs, many daffodils, grape hyacinths, Star of Bethlehem, in the south sternbergia triteleia, camassia and zephyranthes thrive in thin grass (also weedy onions) but the dying foliage is often an eyesore and as with the Eastern dog's tooth violets solid colonies bloom but little and it is better to naturalize them in long narrow drifts than as solid ground covers. It is only rodents and their tastes that forbid the naturalizing of tulips and crocus, etc., in most localities. And, of course, many bulbs permit of shallow rooting covers.

There are infinite possibilities for ground-cover but each must be adapted to its location and we must heed its likes and dislikes of maintenance.

Flowers for Hot Weather

B. Y. MORRISON

Water-lilies have furnished more than one writer a theme. Whether he turned poet, philosopher or garden reporter depended largely upon his place and time. There is, therefore, a literature that is fairly ancient and there are reports of investigations and researches that take one even farther back in time.

This business of looking back to discover what others have thought of our cherished possessions of the moment is not without its pleasures. For the gardener who wishes a quick review of the older phases of water-lily history, there is a chapter in Henry S. Conard's fine Monograph of the Genus *Nymphaea* (published by the Carnegie Institution in Washington, 1905) which covers all these points, bringing the story down to the time of Linnaeus and touches all fields but does not have over much of garden history.

The gardener must turn to rather diverse and somewhat scattered references, if his curiosity carries him afield through relatively modern times when horticulture was passing beyond the stage of necessity. Only a few can be mentioned here.

If one leafs back through the pages of Curtis Botanical Magazine, he will discover plates of various species and some hybrid water-lilies at decent intervals through the 1800's, with the same amazing enthusiasms for the tropical sorts that color so much of British horticulture and have made British gardeners successful in so many unlikely enterprises.

The Royal Horticultural Society in 1899 records in the journal (pp. 287-

298) a transcript of a lecture by Mons. R. Latour-Marliac, even then famous for his hybridizing, and a paper (pp. 298-311) by Mr. James Hudson giving his own experiences in growing the hardy forms of water-lily. These two papers are so carefully written and cover so clearly what almost any gardener might need to know now that one wonders how much we may have advanced beyond their knowledge save in the use of some of the newer hybrids, most of which are from Monsieur Marliac himself in the hardy groups and of American origin in the tropical.

After 1900, the references, both scientific and popular, seem to increase with a conspicuous number from Mr. Conard already mentioned, but most from Mr. George H. Pring of the Missouri Botanical Garden and printed in the publications of that garden, which has done so much for the promotion of the tropical water-lilies.

In 1916, Mr. Pring, writing in the Missouri Botanical Garden Bulletin (Vol. IV; No. 8; pp. 131-134), gives an interesting paper with an account of the actual process of pollination and descriptions of two hybrids, *castaliaflora* and Mrs. Edwards Whitaker, as well as of a selection from the latter to be known as Mrs. Edwards Whitaker var. *marmorata*, because of the distinctly marbled variegation on the foliage. All three of these clones are still in trade.

In the same journal (Vol. X, No. 8, pp. 127-132) are more notes which record the fact that the garden has been working with the plants during "the past eight years." Here are recorded



Claude Hope

Mrs. Edwards Whitaker

the steps in the problem of producing a large white-flowered hybrid, successfully accomplished in Mrs. G. H. Pring. A record is given also of the origins of Henry Shaw and of August Koch varieties, the former from a controlled cross, the latter from an open pollination. The list of varieties given in the table of color records is interesting in that among the varieties one finds thirteen, all but one of which are still listed, that variety being Mrs. Woodrow Wilson var. gigantea. Whether or not the plant we now purchase as Mrs. Woodrow Wilson is the clone gigantea or not is still to be discovered.

Writing again (Vol. XIV, No. 8, pp. 132-134), the garden reports a new hybrid, named Edward C. Eliot in honor of the then President of the Board of Trustees. The parentage is outlined as follows:

"During 1923 crosses were made in an attempt to produce this same coloration in a pink-flowered variety (reference is for leaf-blotching). 'Mrs. Edwards Whitaker' var. marmorata was pollinated and several hundred seedlings raised during the following season. From these was selected a form having an intensified leaf coloration resembling the original seed parent but with the pink flowers of castaliaflora." The illustration shows a very handsome flower.

In March, 1933 (Vol. XXI, No. 3, pp. 49-54), Mr. Pring again says a good word for *Nymphaeas* and records the production of the yellow-flowered tropical "St. Louis" which resulted from the use of the African species, *Nymphaea Burtii*.

The real extent of our indebtedness to Mr. Pring and to his institution becomes much more apparent if one turns to the same publication (Vol. XXII, No. 2, pp. 47-90; No. 3, pp. 93-110), in which are given "a resumé of

the achievements of the last twenty years" and "descriptions and colored illustrations of the Gardener's introductions."

Although the amateur will read all of these pages with keen interest, he may skip quickly those formal records that deal with varieties already noted and come most quickly and greedily to the pages that describe the numbered seedlings. One can not tell with certainty from trade lists which have actually come into commerce, but, as far as the writer can discover, only the hybrid of plate 21 is available and from only one dealer, under the name Violet. The records of actual pollinations as given (pp. 99-108) make the reader even more anxious to know the progress of the work and still more anxious to have some of the resulting plants, once having known and grown the earliest hybrids from this garden.

In our own magazine for January, 1932, Mr. Robert van Tress of Garfield Park, Chicago, wrote on "Waterlily Hybridizing," reviewing much of the work of the Missouri Botanical Garden but adding notes of some of the work at Garfield Park. He referred in particular to Mrs. W. R. James, Governor Louis L. Emerson (which unfortunately was incorrectly illustrated), Pink Pearl and Chicago. These last three are illustrated in the present paper from plants purchased in the trade and grown by the writer. Mrs. James was grown but the only photograph taken was not satisfactory.

The present day gardener has at his disposal an array of about two hundred named varieties of hardy water-lilies and of about seventy named varieties of tender water-lilies. In each case some true species are included. In the present notes, which are written chiefly as the testimony of a be-



Claude Hope

Mrs. George Pring



Claude Hope

Henry Shaw



Claude Hope

Gov. Louis Emerson



Claude Hope

Pink Pearl



Claude Hope

Chicago

ginner in the hope that others will discover this most satisfactory plant for midsummer, only tropical water-lilies are considered. The report set forth is of no other value than to assure the beginner that few plants seem more simple in requirements or more lavish in returns.

As has been confessed elsewhere, it has long been the intention of the writer to have sometime his "fill" of blue water-lilies; 1939 was the chosen year, after a delay that had no special reason.

The design of the pool was determined in a perfectly arbitrary fashion. Since one of the outstanding features of most water-lilies is their delightful fragrance, this gardener wanted his flowers within reach without having to wade into the water or lean perilously over the edge. The obvious answer to this is a raised tank, and the dipping tanks in the vegetable garden at Mount Vernon served as models. The tank is octagonal, based upon a twelve foot square from which the corners are cut, leaving four faces seven feet long and four three feet long. It is built of brick and faced inside with cement specially water proofed. It is fitted with an outlet drain and overflow, but is filled by the garden hose. The usual filling and refilling were practiced after the pool was built, to wash out the soluble lime, and one change of water was given after the soil-filled planting tubs were in place, because of an accident in spilling soil over the pool floor. Very little water was added during the summer.

The usual soil mixture recommended is one-third cow manure, two-thirds rich garden soil,—a strong mixture. In this pool chemical fertilizers and peat moss were substituted for the non-available manure. Some dried and shredded cow manure

was given but not one-third of the mixture. Galvanized laundry tubs were used, each holding about two bushels of soil and two plants. The surface of each tub was covered with coarse sand to prevent muddying of the water.

After the tubs are in place, with the water about six inches above their surface, the water will darken from the soluble elements in the mixture. Some algal growth may also appear, but if one waits patiently the water will clear of itself. All of this takes place here in May when water takes a temperature of approximately 70° F. or over.

Small but vigorous pot grown plants were purchased which settled down to growth almost immediately with a most interesting crescendo of growth shown first in the leaves that became larger and larger toward August and in the flowers as well, which were below normal size at first and became full sized in a month. Because the nursery plants were in good growth, the first wait for flowers was relatively short, since in two cases at least flower buds survived the journey from nursery to garden. On all others, the existing flower buds dropped off, followed by others formed here.

In choosing varieties one must decide first whether he wishes day or night-flowering varieties, and what colors he prefers. The day-flowering group contains few whites and pale yellows, plenty of blue lavenders and purples, few pinks and a reasonable number of purplish pinks. Only one "red" was discovered. The night-flowering group provides whites, pinks and reds, no blues or purples.

Various advices might be given about areas of water surface needed per plant, but, unless one is concerned with the design made upon clear water surfaces by leaf masses, one may



Claude Hope

William Stone



Claude Hope

Pennsylvania



Claude Hope

Blue Triumph

crowd his pool more than is usually recommended in books. The raised tank is not a pool in which water surface is a primary concern so no scruples were felt about overplanting. If it had not been an ambition to learn as many varieties as possible, the pool would have been less filled with leaves. No loss of vigor was discovered in this crowded planting save in those few cases where the plant was a little slow in starting and was overshadowed just as might have happened in a perennial border or a shrub mass.

Although all directions say clearly that water-lilies must have full sun, the location of the pool in the garden gave full sunlight only from about nine in the morning till three in the afternoon, which undoubtedly was a mistake, as it kept the water temperatures a little lower, made flowers open a little more slowly in the morning and close a little earlier in the afternoon.

This business of opening and closing of flowers is most interesting and while our plants never suggested a clock, their times were fairly constant but with each flower remaining open longer, each day of its age. Most of our flowers lasted only five days, but they came in such steady succession that there were no intervals without some bloom and several times when there were over twenty flowers open at one time. The chief fluctuations in flowering came when we had a week of dull, somewhat cooler weather, which showed several weeks later in the smaller flowers.

No special efforts were made to produce monster blooms but all plants were fertilized three times during the summer with blood meal. This is easily used if it is wrapped in soluble tissue and the egg-sized packet quickly pushed into the soil.

If we were building the pool again, we should make the sides about six inches lower, as less water is needed over the crowns of tropical water-lilies than was given here and the more shallow pool would have kept warmer temperatures all the way to the base. This reduction in height would not make sitting on the curb any less comfortable, nor allow the wandering dog to take an unwelcome swim!

The day-blooming varieties chosen were: Blue Series, Mrs. Edwards Whitaker, Governor Emerson, Blue Triumph, Col. Lindbergh, Henry Shaw, Pennsylvania, William Stone, Francis Griffith; Pink Series, Pink Pearl, Chicago, Mrs. W. R. James, Patricia; White, Mrs. G. H. Pring. Sunrise, a hardy lily with flowers carried high above the water surface as in the tropics, served for yellow. The night-blooming sorts were Missouri and Juno, white, Mrs. Hutchings, rose pink, Mrs. Hitchcock, deep watermelon pink, and H. C. Haarstick, deep crimson red.

Very little need be said of the night-flowering varieties, since they suffered most from crowding and from lack of full sunlight. Juno gave masses of foliage and no flowers; Missouri almost the same. Haarstick showed its magnificent deep crimson bronze leaves and three or four flowers. Mrs. Hutchings gave six exquisite flowers scarcely as dark a pink in color as we expected but lovely enough. Mrs. Hitchcock, on the other hand, gave flower after flower and when the chill and frosts of November brought all to a standstill, there were at least seven buds in diminishing sizes easily to be seen.

In the day-blooming groups, the pink sorts were least interesting to this gardener. Mrs. James, correctly described by Mr. van Tress in the ar-



Claude Hope

Col. Lindbergh

ticle cited, was described in the catalogue as a beautiful rose pink. We should have believed Mr. van Tress! Chicago, with twelve flowers, and Pink Pearl, with twenty-three flowers, were quite another matter. The latter is a clear iris-like pink laid over white, deepest at the tips and graded to pure white at the base. The clear yellow stamens make a splendid accent. Chicago is a scarcely different pink but it lies over a faintly yellow ground so that it has a warmer, less silvery tone than Pink Pearl. Patricia, the only red day bloomer, proved a rather weak grower with us that suffered from our crowded pool, producing only a few small garnet-red flowers in October, with plenty of buds to come, if cold weather had not forestalled all flowering.

The so-called blue varieties are, of course, not blue at all. Their color range lies in about the same category as that of the pallida irises, essentially lavender and lilac hues that tend slightly toward green in the palest tones and, of course, more toward purple in the deepest.

The palest of all was Mrs. Edwards Whitaker, a most vigorous and floriferous plant with jaunty flowers of faint greenish lavender that pales somewhat with age but never became a near-white in our pool, although such flowers were seen elsewhere. The first flowers appeared July 5 and by October 28, a total of thirty-seven blossoms had been recorded.

Next deeper, and of the same tonality, was Blue Triumph, a strong-growing sort making huge leaves that pushed halfway across the pool. The flowers were less numerous than some, only twenty-one for the summer, but very large and in steady succession. If only one variety were to be left this gardener, it would be this.

Next darker, of the same tonality, was Governor Emerson, which differed from all its fellows in the dark blue purple, curiously incurved stamens that made an intricate dark mass. As the poor Governor happened to be planted on the shadier side of the pool, his lesser flowering, seventeen blooms, may be laid to that cause.

In the other series of lavender in which pink was a faint tinge, the lightest in tone was Col. Lindbergh. This made a particularly lusty growth with handsome leaves, mottled with chocolate blotches and a total of twenty-five flowers. If the petals in this variety were carried at the same piquant angles as those of Mrs. Whitaker, it would make a serious rival to that variety.

A trifle deeper in color was Henry Shaw, which gave a total of eleven flowers and in this pool was a little slow to start flowering.

Pennsylvania (more properly called Blue Beauty according to some) flowered freely and continuously but showed a marked effect from the cold days and a definite response to occasional feeding. When the days were coldest, the flowers opened only partially. As compared to the foregoing varieties, its flowers are much deeper in hue and certainly are sufficiently purple that the name Blue Beauty is most inappropriate. Twenty flowers for the season.

William Stone, a very old variety, sometimes offered as Blue Star, is a much more slender variety than any of the preceding, with sharply pointed petals and darker, more blue-purple color. Through an accident just after planting time, this variety was injured so that its total of only twelve flowers must not be considered normal.

The darkest form in the lot, and the only representative of the viviparous group, was Francis Griffith, a smallish flower of deep blue purple overlaid to-



Claude Hope

Francis B. Griffith



Claude Hope

Mrs. Hitchcock



Claude Hope

Emily Hutchings

ward the tips and edge with deep red purple that made a particularly brilliant color combination. This gave only twelve flowers but, like Governor Emerson, was somewhat shaded.

Mrs. G. H. Pring was the only white variety. It is a vigorous plant coming early into flower and produced twenty-four flowers well spread through the season. The white is faintly ivory with yellow stamens, the anthers tipped with white.

All the day-blooming varieties are sweetly scented, some more strongly so than others but all more or less of the

same category save Francis Griffith, which had a different scent, hard to name but suggesting fruit, a designation equally vague. The scents, moreover, are pervasive, so that the warm garden at noon was filled with it fully fifty feet from the pool itself.

No exact record was kept of the flowers from the night-flowering varieties, and there is a real possibility that some of the flowers of the day bloomers were missed. The grand total of two hundred and seventy-two day bloomers from this overcrowded pool is a harvest not to be despised.



Lilian A. Guernsey



Hybrid Azaleas: *Pouk* × *Maxwellii* (left); *poukhanense* × *Kampferi* (right)

Rhododendron Notes

CLEMENT GRAY BOWERS, *Editor*

Two Azalea Races.

Some years ago it was my good fortune to see the fields of azalea hybrids that Mr. Gable grew from several rather simple crosses, one of them *R. obtusum* *Kampferi* × *R. yedoense poukhanense* and the other *R. obtusum* *Kampferi* × *R. Maxwellii*.

Mr. Gable was inclined to minimize the value of either lot of seedlings but he was persuaded to let me have selections from these two crosses and several others. The plants have been in Takoma Park now for some years and have proved themselves hardy and vigorous beyond all question, forming bushes nearly six feet high in some cases and almost as much through.

As a group the seedlings from the

Kampferi × *poukhanense* cross incline in habit to the habit of *Kampferi* except that in most cases they make more quickly a twiggy mass and sooner hide the tall leaders that are so characteristic of *Kampferi* itself. The foliage in the group here is that of *Kampferi* slightly modified, usually a little broader and with more conspicuous veins.

The flowers for the race are a little larger than those of *Kampferi* but not so large as those of the pollen parent. In some cases the mottled blotch of the pollen parent carried through, in others it did not appear. Since that is a feature in which I am interested, an unusual proportion of blotched seedlings was chosen. The color range was es-

essentially that of the seed parent, *Kampferi*, modified in most cases by a tinge of lavender. The result is that the mass effect is a more brilliant color than one can ever get from *poukhanense* but it comes closer in tone to that than to *Kampferi*. The effect of *Kampferi* color is to be noted, as is often the case, in the pure salmon-red color at the base of the corolla both inside and out.

The individual plants were chosen with as wide a range of color variations as possible, from a light almost iridescent pink to a deep rose magenta lit in the throat by salmon red. This sounds rather difficult in words but in actuality is brilliant and outstanding.

All of the plants root from cuttings of half ripe wood and all show the slow rooting habit that characterizes *Kampferi*.

Of the azalea races already in cultivation, these most resemble the hybrids originated by Koster as crosses of *Kampferi* \times *malvatica*, but as compared to those grown here have made rather more spreading bushes.

The other cross, *Kampferi* \times *Maxwellii*, is represented by only three plants which have been rather more slow to develop into bushes. All have proved quite hardy and have shown none of the occasional winter injury that we have with the pollen parent. The flower sizes are slightly increased over *Kampferi* but do not approach *Maxwellii*. The colors are much clearer. The three here are essentially hues of rose pink and rose red.

Their special value is that they prolong the flowering season of the last strain about two weeks, as they commence flowering about the time that the first group is dropping. No attempts have been made but since *Maxwellii* propagates easily from cuttings, there would seem to be no special reason why these plants should be more difficult. *Takoma Park, D. C.*

A New Jersey Collection

Plant breeders and others are often put to it to find specimen plants of certain species, described in the literature but uncommon in cultivation. This is particularly true of azaleas, rhododendrons and other ericaceous plants which are numerous in the world but often are difficult to locate. If such plants can be found, it is sometimes possible to secure pollen for hybridization purposes. Such plants are also useful for checking varietal or specific names and characters, as well as for other purposes. It would seem worth while to use this column from time to time in recording where such collections may be found in this country, as well as in noting inquiries from those who may wish to locate certain rare species not known to be available. Recently there has come to our hands a list of the ericaceous plants growing on the horticultural farm of the New Jersey Agricultural Experiment Station, at Rutgers University, New Brunswick, N. J. This collection has recently been built up to include practically all species and varieties offered by the American trade which might be hardy in New Jersey, with the exception of certain alpine sorts for which facilities have not yet been provided. We are indebted to Professor Charles H. Connors, Ornamental Horticulturist of the New Jersey Experiment Station, for permission to publish the following list of the ericaceous and acid-soil plants in this collection, which, we feel, may sometime be of considerable value to our readers.

—C. G. B.

Ericaceous Plants on Horticultural Farm

Rhododendron arbutifolium (Daphne R.)

Rhododendron brachycarpum (Fujii-yama R.)

<i>Rhododendron carolinianum</i>	Hybrid Rhododendron, Dr. V. H. Rutgers
<i>Rhododendron carolinianum</i> var. <i>album</i>	Hybrid Rhododendron, Edward S. Rand
<i>Rhododendron catawbiense</i>	Hybrid Rhododendron, Everest
<i>Rhododendron catawbiense</i> var. <i>album</i>	Hybrid Rhododendron, F. L. Ames
<i>Rhododendron catawbiense</i> var. <i>compactum</i>	Hybrid Rhododendron, Henrietta Sargent
<i>Rhododendron caucasicum</i>	Hybrid Rhododendron, H. W. Sargent
<i>Rhododendron dahuricum</i>	Hybrid Rhododendron, H. H. Hunnewell
<i>Rhododendron discolor</i>	Hybrid Rhododendron, Ignatius Sargent
<i>Rhododendron Fortunei</i>	Hybrid Rhododendron, John Walter
<i>Rhododendron intricatum</i> (Bluet R.)	Hybrid Rhododendron, Kettledrum
<i>Rhododendron Keiskei</i>	Hybrid Rhododendron, Lee's Dark Purple
<i>Rhododendron maximum</i> (Great Rosebay)	Hybrid Rhododendron, Marquis of Waterford
<i>Rhododendron maximum</i> var. <i>roseum</i>	Hybrid Rhododendron, Mrs. Chas. Sargent
<i>Rhododendron micranthum</i> (Manchurian R.)	Hybrid Rhododendron, Mrs. P. den Ouden
<i>Rhododendron minus</i> (Piedmont R.)	Hybrid Rhododendron, Parson's Gloriosum
<i>Rhododendron mucronulatum</i> (Korean R.)	Hybrid Rhododendron, Prof. Bettex
<i>Rhododendron myrtifolium</i>	Hybrid Rhododendron, Prometheus
<i>Rhododendron ponticum</i>	Hybrid Rhododendron, Purple Splendor
<i>Rhododendron reticulatum</i> (Rose Azalea)	Hybrid Rhododendron, Purpureum Elegans
<i>Rhododendron rhombicum</i> (Rose Azalea)	Hybrid Rhododendron, Purpureum grandiflorum
<i>Rhododendron Smirnovi</i>	Hybrid Rhododendron, Roseum Elegans
<i>Rhododendron Weyrichii</i>	Hybrid Rhododendron, Van den Broeke
<i>Rhododendron Wilsoni</i>	Hybrid Rhododendron, Van der Hoop
Hybrid Rhododendron, Abraham Lincoln	Hybrid Rhododendron, Van Weerden Poelman
Hybrid Rhododendron, Album Elegans	Rhododendron Conemaugh
Hybrid Rhododendron, America	Rhododendron Conestoga
Hybrid Rhododendron, Amphion	Rhododendron Conewago
Hybrid Rhododendron, Boule de Neige	Rhododendron Decatros
Hybrid Rhododendron, Caractacus	Rhododendron Detonsum
Hybrid Rhododendron, Catawbiense Boursault	Hybrid Rhododendron, Slocock-b 42
Hybrid Rhododendron, Catawbiense Gr. fl.	Hybrid Rhododendron, Slocock-b 23
Hybrid Rhododendron, Charles Bagley	Hybrid Rhododendron, Slocock-b 33
Hybrid Rhododendron, Charles Dickens	Hybrid Rhododendron, Slocock-b 43
Hybrid Rhododendron, Delicatissima	
Hybrid Rhododendron, Dr. H. C. Dresselhuys	
Hybrid Rhododendron, Dr. H. J. Lovink	

- Hybrid Rhododendron, Slocock-b 44
 Hybrid Rhododendron, Slocock-b 3
Azalea amoena
Azalea arborescens
Azalea atlantica
Azalea atlantica var. *glauca*
Azalea calendulacea (Flame Azalea)
Azalea canescens (Piedmont A.)
Azalea Hinodegiri
Azalea Japonica (Japanese A.)
Azalea kaempferi (Torch A.)
Azalea Kaempferi var. Mikado
Azalea ledifolia var. *amethystinum*
Azalea ledifolia var. *alba*
Azalea ledifolia var. *magnifica*
Azalea macrantha
Azalea micrantha
Azalea mollis (Chinese)
Azalea nudiflora (Pinxterbloom)
Azalea phoenica var. Omurasaki
Azalea poukhanense (Korean A.)
Azalea poukhanense var. Yodogawa
 (Yodogawa)
Azalea quinquefolia (Cork A.)
Azalea quinquefolia var. *rosea*
Azalea rosea (Downy pinxterbloom)
Azalea Schlippenbachii (Royal A.)
Azalea Tschonoskii
Azalea Vaseyi (Pinkshell A.)
Azalea viscosa (Swamp A.)
 Hybrid Azalea, Atalanta
 Hybrid Azalea, \times Altaclarensis
 Hybrid Azalea, Cleopatra
 Hybrid Azalea, Daviesii
 Hybrid Azalea, Fedora
 Hybrid Azalea, Lohengrin
 Hybrid Azalea, Louise
 Hybrid Azalea, Martha
 Hybrid Azalea, Norma
 Hybrid Azalea, Othello
 Hybrid Azalea, Zampa
 Hybrid Azalea Gable 45b
 Hybrid Azalea Gable 46b
 Hybrid Azalea Gable A1b
 Hybrid Azalea Gable 119b
 Hybrid Azalea Gable 118b
 Hybrid Azalea Gable 117b
 Hybrid Azalea Gable 37b
 Hybrid Azalea Gable 47b
- Hybrid Azalea Gable 35b
 Hybrid Azalea Gable 34b
 Hybrid Azalea Gable 30b
 Hybrid Azalea Gable 21b
 Hybrid Azalea Gable 13b
 Hybrid Azalea Gable 96b
 Hybrid Azalea Gable 51b
- Group 1—Other Woody Plants*
- Andromeda polifolia*, Bog-Rosemary
Arctostaphylos uva-ursi, Bearberry
Chamaedaphne calyculata, Leatherleaf
Chiogenes hispidula, Snowberry
Enkianthus campanulatus, Redvein E.
Enkianthus perulatus, White E.
Enkianthus subsessilis, Nikko E.
Gaylussacia baccata, Black Huckle-
 berry
Gaylussacia brachysera, Box Huckle-
 berry
Gaylussacia frondosa, Dangleberry
Kalmia angustifolia, Lambkill
Kalmia latifolia, Mountain Laurel
Leiophyllum buxifolium, Box Sand-
 myrtle
Leiophyllum buxifolium var. *prostra-
 tum*
Leucothoe axillaris, Downy Leucothoe
Leucothoe Catesbaei, Drooping Leuco-
 thoe
Leucothoe racemosa, Sweetbells
Lyonia ligustrina, He-Huckleberry
Oxydendrum arboreum, Sourwood
Pieris floribunda, Mountain Andro-
 meda
Pieris japonica, Japanese Andromeda
Pieris mariana, Staggerbush
Pieris taiwanense
Rhodora canadense, Rhodora
Vaccinium canadense, Canada Blue-
 berry
Vaccinium corymbosum, Highbush
 Blueberry
Vaccinium pennsylvanicum, Lowbush
 Blueberry
Vaccinium stamineum, Deerberry
Vaccinium vacillans, Dryland Blue-
 berry

Vaccinium vitis-idea var. *minor*, Mountain Cranberry

Zenobia pulverulenta, Dusty Zenobia

Other Acid-Soil Plants

Group 2—Woody Plants

Clethra acuminata

Clethra alnifolium, Sweet Pepperbush

Clethra barbinervis, Tree Clethra

Clethra tomentosa, Wolly Clethra

Cornus canadensis, Bunchberry

Gaultheria procumbens, Wintergreen

Laurocerasus schipkaensis, Shipka Cherry-Laurel

Group 3—Herbaceous Plants

Chimaphila maculata, Striped Pipsissewa

Clintonia borealis, Bluebead

Coptis groenlandica, Goldthread

Cypripedium acaule, Pink Ladyslipper

Cypripedium spectabile, Showy Ladyslipper

Linnaea borealis, Twinflower

Mitchella repens, Partridgeberry

Trillium undulatum, Painted Trillium

Note

In presenting the names as given the lists from New Jersey, the editor has followed copy although it is not the practice of this journal to maintain the name *azalea* as a scientific name. Since *Rhododendron reticulatum* is quite as much like an azalea in general aspect as any of the azaleas so listed, we hope the inconsistency will be overlooked. *Azalea Schlippenbachii*, on the other hand, looks far more like a rhododendron, using that word in its common connotation than like an azalea, and so the talk might be continued. As to what constitutes the differences, if any, between an azalea and a rhododendron, no one has been able to point out too clearly, satisfying neither the gardeners nor the taxonomists and so again one reaches the impasse, which we usually would have avoided by calling all *Rhododendrons* in Latin, reserving the words rhododendron and azalea for their usual English usages.



Phlox alyssifolia (left); *P. caespitosa* (right)

Rock Garden Notes

ROBERT C. MONCURE, *Editor*

Native Western Phloxes

Among the most precious gifts of America to the rock gardens of the world are the dwarf phlox. The Eastern species have long been cultivated and are well known to all gardeners who grow alpine plants. Some of the Western species are, however, still rather uncommon and the following are all worthy of more extended cultivation. They will prove fairly easy, I believe, if planted in an open location in full sun in a gritty well drained soil. *Phlox Hoodii* especially prefers a lean gravelly soil and in Manitoba at least is usually found growing on the top of calcareous gravel ridges.

Phlox Hoodii is one of the dwarfest of its type and when out of flower looks more like a grayish-leaved moss than anything else. Towards the end of May, however, it flowers so freely that its leaves frequently are entirely hidden

by its half-inch wide white flowers. Though white is its normal color there are a few rare localities from which blue forms have been reported. From one of these in southern Saskatchewan I had some plants sent to me when in bloom last spring. There was a certain amount of variation in the color of these collected plants. Some were quite pale while others had a hint of purple but all were quite lovely.

Phlox alyssifolia, a native of the Rockies (Montana) is even less common in cultivation than *P. Hoodii*. Farner gives the following short but good description of it, "*Phlox alyssifolia* makes more or less prostrate mats, with thick, flat, oblong-narrow foliage, each smooth leaf having a hard white edge, and a white vein below. The flowers are scattered and large, varying from pale purple to white."

The form I collected in Montana

had white flowers faintly flushed with pink and as noted in the illustration is capable of giving a good account of itself in a soil and location that suits it.

Phlox caespitosa is much taller, and more upright in growth than the two species already mentioned growing as it does fully 4 inches high. It has quite a resemblance to *Phlox Douglasii* but the narrow needle-like leaves are dark green in color and the flowers lack the delicious almond scent of *P. Douglasii*. My plants were collected on the west flank of the Rockies near Fernie, B. C., and though they were all growing within a space less than 4 yards square still they vary much in color, running from white flushed blue to quite a deep purple. They also flower freely under cultivation and the photograph taken in 1939 shows a plant collected the previous October.

F. L. SKINNER.

Primula Auricula Hybrids

Having had my first year's experience in the growing of *Primula auricula* hybrids from seed, under glass and out in the garden, I feel that any cultural information I may offer at this early date will not be of much help to others in their endeavors to keep this type of *Primula* in a thriving and happy condition from year to year, but I present my experience for whatever it may be worth.

My place located near Washington, D. C., in Fairfax County, Virginia, has for several years past experienced many hot dry summers, insufficient rainfall and open winters, with very little snow to protect plant life from the freeze heave and thaw, so destructive to plant life. The severe winter of 1939-1940 was an exception. With these adverse conditions, carrying plants through the winter that require alpine conditions as near as possible

presents a real problem; that is best solved by each individual gardener for his own particular location, and time and trial will be the best way to determine this.

However, this condition can be overcome to some extent by underground moisture supply in the summer months, and a good cover of dry stiff oak leaves that do not pack or get water soaked in the fall and winter. Too dense covering results in a sodden condition and an admirable place to harbour destructive rodents; just enough loose leaves and small evergreen branches to admit light and air, but yet serve to break the severe wind, seems ideal.

The flowering period here began in March and extended last year through July in the shady bed. As the gardens have no water piped to them the plants must do the best they can with the natural supply, and an occasional sprinkling overhead from a watering can after the heat of the day is past. This fortifies them to withstand the following day and so preserve their foliage and flowers until a rain comes to relieve the situation.

These last mentioned conditions are to be avoided somewhat and make it imperative that a place more suited to their needs be found. So in this a semi-shaded site meets the requirements best here. My rock garden is established just beyond the brow of a sloping woodland knoll, facing northwest. The sun is never full on it any time of the day, the soil is deeply worked up and mixed with sand, pea gravel, crumbled bricks and mortar rubble, with a good measure of sifted leafmold, then bone meal worked in with a rake.

The rocks are placed to resemble an outcropping and required a minimum amount of time, labour and rock, yet covers a large area. Large oaks nearby cast a mottled shade through-



Auriculas

out the day over the area, greatly relieving the plants from the burning sun rays, while the drying south winds are fended away by the brow of the knoll.

At the foot of the knoll is an uncompleted bog garden and woodland pool, fed by numerous small springs, which give to the air a cool moist condition, most welcome on the hot summer days. These two projects also being in the shade, the rising moistened air is drawn up the slope by overhead air currents, reviving the plants to a great degree. To these conditions alone I attribute the survival of the fittest, for out of a block of fifty

healthy well grown Auriculas there remain but twenty-four to greet the Spring of 1940. Had they been up in the open sunny rock garden, punished by the sun all day and going into the winter in a weakened condition, I fear there would be nothing to report.

Not being familiar with their introduction to the rock garden, they naturally flagged a bit at first and lost some of their greenness of foliage, and it was at this period a most unhappy thought came to me. I erred most grievously by feeding some of them with a weak solution of liquid manure. The plants not treated are the survivors of the garden today, but lost to

me are the most beautiful hybrids of the lot, as I thought to favor them more than the others.

Apparently their demise was occasioned by a rotting of the crown, which rapidly spread out to the leaves. The rot resembled that often noted in cabbage stalks, having a most offensive odor. In a short time the whole plant above ground surface sloughed off, removal of the mass disclosing the root stock firm but the centre becoming soft. These were removed, pared clean, treated with Semisan and potted in clean sand, then plunged in sand in a shaded cold frame for observation. It was time wasted, as they never put out further growth. They were discarded and destroyed, the holes where they grew kept open and treated, and I trust clean and free to be replanted with new plants this spring. As for using manure in any form again, I'd rather forego the pleasure of growing auriculas entirely.

It is my opinion that if their location and soil requirements are fully met, Auriculas can be had and enjoyed from year to year, as I know of one small planting, less favored than my own, that has passed through several winters and summers, and this gives me great hope for the future. This planting is nearby and therefore the same climatic conditions are present.

BURNETT H. BALLARD.

Falls Church, Virginia.

Early Spring Bulbs—1940

Despite the continuous cold in northern Virginia since mid-December, the usual blooming dates of snowdrops have been unaffected. It is true that at times *Galanthus Elwesii* closed its petals, wrapped its foliage close to the stem and hung its head and ceased blooming under heavy snow and the temperature reached 20 above zero or

colder. Some mornings in late March and earlier in the winter the snowdrops were apparently frozen so stiff that the stems were brittle and broke at the slightest pressure. Yet when the sun came out and the temperature rose the flowers opened and were apparently unharmed. Observation over a number of years has shown that nothing will dampen the ardor or change the blooming time of the *Galanthus* family to any appreciable degree. *G. Elwesii* begins to bloom in one spot with a southern exposure and full sun in late November every year, followed by scattered bloom from clumps in several colder spots in December and continues intermittently until late March. The next to appear is *G. byzantinus* in January (which never has bloomed so profusely as in 1940). In late February the common snowdrop in both its single and double form appear and about the same time, the Giant Crimean Snowdrop, *G. plicatus*. This last one is truly a giant flower with stems often eight inches long, and is a rapid increaser. The Neapolitan Snowdrop, *G. Imperati Atkinsi*, which bloomed for the first time this year in my garden in mid-March, has large but very graceful snowy white blossoms with long petals and green markings at the base of a white tube. The last to bloom is *G. Ikariae*, supposedly from the Greek isle of that name and as characterized by broad and glossy almost Muscari-like foliage and extremely beautiful green-cupped flowers on short stems.

The flower that has given me the most pleasure this year up to the present time (March 25th) is *Iris histroides major* (not to be confused with *Iris histroides* which blooms in January and is reputedly tender). It is a beautiful ultramarine blue and although related to the *I. reticulata* group has broad falls, but is much more graceful and

larger and reminds me somewhat of a miniature English iris. This iris received a F.C.C. from the Royal Horticultural Society. Another rare and beautiful appearing also in early March is *I. Danfordiae*, a buxum little three-inch bright golden flower, with broad falls and attractive little brown dots in its throat. It is a native of Eastern Asia Minor, and Mr. E. K. Balls told me recently that it is very difficult and scarce in its native habitat. I hope to have more of both of these iris, and hope they will find in my garden a permanent and thriving home for themselves. *Iris reticulata* Cantab is a beautiful pale blue creation with very distinctive orange markings and I believe first saw the light of day in Mr. E. A. Bowles' famous garden. This season it did not begin blooming until mid-March, some two weeks later than ordinarily.

Sternbergia Fischeriana bloomed the first time this year from March 1st throughout the month in spite of extreme cold (although planted in a south border). They look a little the worse for wear because of late planting, but I believe will be thoroughly acclimated with the advent of warm weather and a thorough summer ripening. This spring blooming species has yellow but more pointed flowers than its fall blooming relative, *S. lutea*, inhabitant of many old gardens in Virginia and North Carolina.

Likewise in the same border I am glad to say that Narcissus Silver Chimes is refuting its claim to tenderness by sending forth vigorous foliage after a severe winter. Similarly *N. Watieri*, a charming little white flower resembling the jonquil-group, shows healthy foliage. It is a native of high mountains of Morocco and is still rather rare in cultivation. By some it is considered the finest of all rock

garden daffodils and I hope in a few more years will be widely available.

R. C. M.

Campanula planiflora (see page 111)

From a rather abortive attempt to revive a bit of rock garden, the most pleasant detail as far as campanulas are concerned is this plant, which arrived from Mr. Starker as a fine pair of rosettes with leaves like those at the base of the illustration. These, dark green and leathery, with crinkled edges and more or less shining mid-rib, went through the winter well and in the spring gave rise to flowering stalks which are shown life size in our picture.

Our plant proved to be the white form and our passing attention was sufficiently satisfied to ticket it for memory's sake as a tiny form more or less like *C. persicifolia*.

When it comes time to write a note such as this it is always our practice to see what botanical or horticultural history may lie behind the victim. In Farrer's English Rock Garden (p. 188) the paragraph devoted to the praise of this form begins with a sentence that forewarns one of troubles to come. With the aid of Doctor McVaugh, the necessary older books were dug out and the situation as far as the present writing goes is that this plant, which is called a native of North America, no particular region, was described in 1676 by Dodart at a time when only plants from our Eastern Seaboard were known in Europe. If this is an Eastern species, it has been extinct for ages! The illustration in Dodart looks very much like our plant except that ours condescended no suckers and died after flowering.

No matter what its actual name may turn out to be, the plant that one buys



Claude Hope

Campanula planiflora

under this name is a very nice plant with all the exquisite finish that makes a choice rock plant choice. Doubtless if it had been in a richer, limier rock mixture, with less afternoon shade to keep it dark, it might have decided to live on.

As compared to the spreading sheets of *C. garganica* or the looser *C. Porscharskyana*, this is a stiff and formal plant, its rosette recalling the equally formal patterns of some of the saxifrages but its sober inflorescence far more soldierly than theirs.

A Book or Two

Mountains in Flower. Volkmar Vareschi and Ernst Krause. The Macmillan Company, Inc., New York, 1940. 159 pages, 72 photographs, \$3.00.

This is a charming and an arresting book but I am by no means certain how I feel about it. It is a duet and one can not be quite certain which is accompanist in fact if not in theory. One suspects that the photographer is the leading voice, even if he speaks only in pictures. The author follows rather well in spirit and in style.

The book has to do with the pictures of plants taken on various climbing trips in the European Alps here and there. Some of the pictures are taken so that there is a mountain scene for a back drop, like these in some of the old pictures of the Virgin. It seems a little strange, however, to see the transparent parade of *Silene alpina* in front of silhouetted mountain peaks. Nevertheless, the pictures are excellent, even if they come under the modern term of approbation, dramatic! One sees them, the plants, from above, from below, from the middle, at right angles and at every degree of obliqueness. One sees them against the sun, under the sun, and in all other lightings. Some are turned to bring out every hair; some are turned to smooth everything to a gentle texture. And the plates are composed with great care as to pattern, real and imposed. You will like them.

The text is rather intimate, with a broken almost staccato style. The author appears to be concerned only with himself, but he manages to include in the text all that he hopes you will see and remember.

It is not a garden book. It is a book that should open the eye.

The Vegetable Growing Business. R. L. Watts and Gilbert S. Watts. The Orange Judd Publishing Co., Inc., New York, 1939. 549 pages, illustrated. \$3.50.

The reviewer detests growing vegetables but if vegetable growing were to be his portion, this would be his guide and companion in desperation. It is written as a text book, simply and clearly one author the school master, the other the practical man. It moves relentlessly from A to Z and no part escapes. If you wish to learn about fertility or irrigation or rhubarb, you will find the appropriate page. It is singularly free of regional advice although all the ideas that are principles are enunciated so that any one may translate for himself.

Wall Shrubs and Hardy Climbers. By W. J. Bean. The Macmillan Company, New York, 1940. 182 pages, illustrated. \$2.25.

Anything that comes from the hand of W. J. Bean, late Curator Royal Botanic Gardens, Kew, England, commands respect for few have had so rich and wide an experience and achieved so vast and sure a store of knowledge. This book is no different from his others in that respect. Curiously enough, though designed and written for his own country, it has within its covers more for more parts of our own country than do some of our own books that are supposed to cover the field.

The use of shrubs on walls may have its origin in pure design or may

represent the solution found by eager and greedy gardeners in that temperate climate for the successful growth of plants that would find nowhere else the warmth and light that they need. In this book are many plants which need a wall in England which we may grow in the open. The Southerner might never think of planting the camellia against a wall; the Californian might never think of putting his native ceanothus in such a spot; we ourselves could hardly be induced to plant a Japanese honeysuckle or a kudzu anywhere, but if we did it would never be in so splendid a place as this. No matter, it may be that if we embrace the principle of his text, we may find plants, not hardy free standing that we can induce to growth and flowering against a wall and so astonish Mr. Bean with our choices.

Plants from all over the world are included. Many are familiar, some are strange. This is as it should be in any garden book which deals with plant materials for unless the book provokes the gardener to action, it has failed of its first purpose.

The Gladiolus, 1940. Published by The New England Gladiolus Society, Inc., Boston, Mass., 1940. Sent to members. 272 pages, illustrated.

Once more this indefatigable Society presents its excellent yearbook. The plan follows the usual outline, General Interest, Research, Culture, Hybridizing, Trial Ground Reports, Activities, Exhibitions, Reports. As always, the reviewer reads with greatest interest the papers that relate to hybridizing, but this time he also finds a paper Tracing Gladiolus Parentages, by the Rev. C. H. Birch, that is most interesting, especially in this family in which interbreeding has gone on so long that occasional study of the populations

from each cross should be rehearsed. The Society is to be congratulated.

House and Garden's Book of Gardening. Richardson Wright. The Condé Nast Publications, Inc., New York, 1940.

Much of this we have seen before in the pages of *House and Garden*, maybe all of it. It concerns itself with the so-vital factors of horticulture that are easily lost in *House and Gardens*, where the house, its decorations, design and inhabitants so easily overpower the simple things of horticulture with almost flagrant wit and the urgencies of the moment.

The book has a rather basic plan: Earth, Air, Water, Sun, Seeds, Roots initiate the text before one slips into the special phases and projects. The illustrations are mostly marginal ink drawings that are diagrammatical and good. There are some color reproductions that are entertaining and mostly beautiful (saving a few of the too utterly flower show type) and pages of black and whites, a little on the grand side but very nice. We think you'll like it.

Planting Design. Florence Bell Robinson. Whittlesey House, McGraw-Hill Book Company, Inc., New York, 1939. 215 pages, illustrated. \$2.75.

Professor Robinson, who teaches at the University of Illinois, has prepared her work with care and set it out simply so that the reader who is not a student in the profession of landscape architecture will find it his book, quite as much as will the professional. Design in planting requires a knowledge of the materials that go to make up the design and a knowledge of the principles of design which are more or

less common to all materials. In this field, the essential difference from all others is that the materials themselves are alive and subject to change some of which is predictable and some of which is open to accident. To the professional student all of this is more easily kept in proper relation than by the amateur. The latter is so often swayed by his interest in the nature of the plant material itself that he forgets that it must become subordinate to the design he is attempting to create and that only through the proper relative importance that it receives, will his final design rise to perfection.

In this book and quite properly we feel, there is no undue stress laid upon plants as plants. They are considered more as materials from which the design is to be created. The design factors are given as color, texture, mass, the life factors as ecology in its several parts; the creative factors, are given only as they may be had from the discussion of certain types of creation. It is the sort of book that the too ardent plantsman ought to read and probably will not.

There are useful lists of suggested titles for further reading after each chapter.

Herbs. Helen Noyes Webster. Hale, Cushman and Flint, Boston, Mass. Second Printing, 1939. 160 pages, illustrated. \$1.00.

This is a very pleasant book which starts from the premise that if we are again to grow herbs earnestly we should know something of herb growing through the ages before we set out on the practical details of the moment. The first six chapters are devoted to that phase of the subject and the rest are given over to what one needs to know in order to grow herbs well, to arrange them beautifully and

to use them when they are ready for the harvest. If one wishes only one part of the book, he may leave off on page 70; he wishes only the other he may begin on page 71. The reviewer, who is not specially concerned with either has not only read them all, as good reviewers are supposed to do, but has read the first portions again and again with interest and pleasure. The illustrations, which are for the most part excellent suffer in some cases from the soft paper and in a few cases from poor reproduction, but all should be studied.

Begonias. Reprinted from The Journal of The New York Botanical Garden. March 1939-January 1940. T. H. Everett, James Esson, John Watts, Hildegard Schneider. 44 pages, illustrated. \$.25.

For those of us who have seen these articles as they appeared in the Journal, it is no surprise that they should be even so much more impressive when brought together. Mr. Everett and his colleagues are to be thanked for having done this particular task so carefully and so well. One realizes that it is not intended to be a monograph but one almost wishes that it were, so that a bibliography might have been included and that botanical authorities might have been cited after the accepted names. No matter about this now, for we hope the group will continue with the genus and do still more before they entirely abandon the project.

The Small Garden. Katherine and Arthur Storm. Frederick A. Stokes Company, New York, 1939. 241 pages, illustrated and a few kind words by Walter Wilder. \$2.50.

This is a "we-did-it" book and a very nice one as such things go and

provided you still like to read about the early trials of the ignorant beginner. If you are an ignorant beginner yourself, you may find unexpected comfort; if you are old and experienced you may be bored unless of course you are quite old enough not to care much any more.

The style is easy, the story simple but not particularly new. Some of Mr. Wilder's pictures are superb and some are pretty much routine. There is no special "message" save by implication and you know that anyway.

Gardening for Fun in California. Jean-Marie Consigny with Charles Palmer. George Palmer Putnam, Inc., Hollywood, Calif., 1940. 250 pages, illustrated. \$2.50.

It is a very pleasant thing to find a book in which the author has the wisdom and the courage to put into the title the idea that gardening should be fun. So many books are so desperately earnest that one feels that gardening is almost as complicated as the salvation of one's soul. Perhaps it is, but each has its own peculiar delights that should not be set aside with too Puritanical vigor.

The book is for California, but the portions that have to do with planning, the basic features, might be read by any one anywhere since they are actuated by sound reasoning and good taste. It is not impossible that there may be plenty of advanced amateurs in California who may feel that horticulturally the plant materials will not take one far into the realm of good materials. Apparently it was not the author's intention to do that but only to make a safe and sound beginning, counting upon the intelligence and imagination of the garden owner to develop the later and more mature phases of garden life that bring the in-

evitable impress of the personality. This too is a perfectly reasonable program.

There are some curious mannerisms in printing that might have been skipped and this reviewer for one, likes his fun a little less sprightly. There are a few actual mistakes in botanical names, and one regrets that the jacket has to have a picture of the author with a parrot, a watering pot, a hand cultivator and zinnias. But she, poor thing, probably had this "put over on her" by the publicity department.

We think you'll like the book, even if you do not live in California.

Bouquets and Bitters. Julian R. Meade. Longmans, Green & Company, New York City. 271 pages, illustrated by John O'Hara Cosgrave II. \$2.75.

Many people will find pleasure in reading this gossipy medley concerning the great, the near great and those who would like to be considered great in both the gardening and in the outside-of-the-garden world. The book also discusses gardens, both public and private, and flowers. It ranges in its subject matter throughout the length and breadth of this great land of ours and presents some vivid pictures of various parts of the country in a pleasant travelogue style. As one reads one gains the impression that the author had a good time writing the book and that he often had his tongue in his cheek as he worked on it—sometimes there might have been even a wicked glint in his eye.

Of all the people who walk across his pages the most delightful and most human is the ancient and honorable Mrs. Baines. She was a person who gardened and as such she had a cold contempt for those who play about with the notion of acquiring social prestige through color arrangements. She had that sixth sense which knows a plant

and recognizes a gardener; may her tribe increase. Compared with Mrs. Baines the other names "trot their stuff" and slide out of the book.

One would have liked to have heard her comments upon the gardens touched upon in the Hollywood adventure. These Hollywood chapters are the least pleasing parts of the book. They are flat and rather like press agent copy and could very well have been omitted except for the fact that they contain the banner "boner" of all garden literature. Near the top of page 249 one is startled to read "While we were plucking sprigs of saffron and fennel . . ." Now with all due respect to California I do not think any native son boasting of the wonders of his state has ever conceived the idea of producing so gigantic a *Crocus sativus* that "sprigs" of its deep red stigmata could be gathered and combined with fennel.

Another amusing botanical innovation occurs on page 145, where the author, after discussing the plants which might be used to cover a new wire fence, decides upon English Ivy. "Well, I might have known I would end with English Ivy . . . and set them out along the base of the fence in narrow trenches of rich earth, if I water faithfully until the tendrils take hold . . ." An English Ivy with tendrils would indeed be a novelty worth its weight in gold in both the horticultural and the botanical world. Such slips may be overlooked in fiction but they cannot pass unnoticed in books that make their chief appeal to the gardening public.

Throughout the book there runs a thread of good gardening sense and taste which promises well for the future when Mr. Meade has outgrown the present fad of mixing flowers with the social column. Others beside Mr. Meade have wanted to pull off blue ribbons at Flower Shows and won-

dered over the right of any one set or group of people to say what is or is not good taste in a flower arrangement or even in a flower itself. This reviewer sees eye to eye with the author in what seems to be his standard of gardening; that each individual is sole judge as to what he likes and where he wants it planted and if the "elect" do not like it they need not look at it. All praise be to J. R. Meade for holding on to his old hemerocallis which no one liked and his Duchesse de Brabant which is no longer to be found in "select" rose catalogs.

While it will not find a place on the book shelves of the earnest gardener it will afford moments of pleasure and amusement to many others. My main quarrel is that the author too often tries to be funny and uses a news reporter's style when he can really do good writing when he gets down to it as several parts of the book clearly show.

A. B.

Plants with Personality. Patrick M. Syngé. Lindsay Drummond, Ltd., London. 1939. 244 pages including index and 20 full page illustrations, some reproductions from Dr. Thornton's Temple of Flora and the others being drawings by John Nash. 12s -6p.

Here is another English book about plants which will certainly find a place on every gardener's book shelf. Mr. Syngé is a botanist who has gone plant hunting in many strange parts of the world—he was author of Mountains of the Moon—and a gardener who grows plants because he likes them; always a happy combination. In this volume he has singled out a large number of plants which have made strong appeals to him in one way or another; but he

assures the reader that there are many others which were omitted only for lack of space. Probably every reader will criticize the list; but that is a matter of personal opinion. The author's taste is quite catholic and we will find many a humble old friend as well as some of the bizarre and exotic grandeurs of the floral world—and nightmares. But what may be an evil dream to one person may be a thing of beauty to another—beauty being undefinable and a quality which no one person or group may limit.

In the introduction the author clearly defines his creed in regard to beauty and "personality" in plant life. With this all gardeners will wholly agree. "All plants attract me. All plants have beauty, but there are nevertheless some whose beauty makes such a violent impact on my mind that I regard them as definite personalities. They are the true exotics. To my mind the word exotic does not necessarily imply a stove plant or even a greenhouse plant but a strange plant with a personality. They are the kind of plants which get me out of bed half an hour earlier in order that I may see whether their flowers have opened, the kind of plants which I would gladly cross half a continent to collect, the kind which flower and in their flower-life, fill for a moment that emptiness which we all have in our lives at times, and give us a brief understanding of the all in all, the eternalness of beauty and truth." This, of course, is the author's definition of exotic!

Some of the plants described are of questionable hardiness even in England and the writer makes a strong plea to the gardener to test them out before condemning them. To test them in an understanding manner and not haphazardly as is so often the case; to try to give them something like the

conditions under which they have developed in their native homes; to try to meet them half-way in their effort to adjust themselves to their new environment. And this is only a common sense attitude which every adventuring gardener should adhere to.

In almost every case where a stranger is being described the author after giving the detailed descriptions under which the plants grow in the wild adds his own experience with the plants under cultivation. In several cases he found that neither heat nor cold were so great a factor as soil; and that a definite period of complete rest for the plant often determined its hardiness. He is not above erecting temporary wind brakes or shelters during the winter and not averse to using clothes to provide protection. And why not? Our gardens are after all really workshops where we strive to create beauty and any contrivances, even though they may be ugly and artificial, which make for greater beauty later on in the year should not be frowned on.

Plants from all parts of the world and from all latitudes are brought before the reader. To show the range it will be well to list the various chapter headings: Water Plants, Magnolias and Camellias, Insectivorous Plants, Fly-pollinated Plants, Sun Lovers from South Africa, Gigantic Plants of the Equatorial Mountains of East Africa, Fierce Wonders from Chile, Children of the Mexican Sun, Cacti and Succulents, Blues and Purples and The Garden in Winter.

The illustrations are excellent throughout but this reviewer must acknowledge a preference for the drawings of John Nash. It is to be hoped that this book will become available in America for it should find a welcome place in every gardener's library.

A. B.

The Gardener's Pocketbook

Corrections

In the article, The Unusual Grape Ferns by Warren C. Wilson on page 41, the Ternate Grape Fern should be given as *Botrychium multifidum* ssp. *silaiifolium* (not *salaifolium*) and the legend for the illustration on page 41 should read: Upper, The Cut-leaved Grape Fern with Oak Fern in the writer's garden; lower, Two somewhat different forms of the Common Grape Fern.

On page 37, the upper right hand illustration is of *Chaenactis Douglasii*. The lower left is correctly a detail of *Chamaebataria millefolium*.

Lapeyrouisia fissifolia (see frontispiece)

In the ever useful Botanical Magazine on plate 1246, there is a colored plate of this very intriguing species with its curiously arranged leaves and even more curious series of bracts that subtend the individual flowers. The flowers in the copy here show a pinkish flush over the ivory white and a deepening of the pink to rose color in the older flowers. The plant itself is a rather small specimen, but drawn at natural size upon the sheet. The author points out that "our figure does not show the outer campanulate shell of the Bulb-tuber; it had been taken off previous to planting." He also records that the plant was introduced that year into Britain by Messrs. Lee & Kennedy of Hammersmith, in whose greenhouse they flowered in September.

In this volume for 1809 there are countless other flowers, bulbous, cormous and otherwise from South Africa,

but it was not until 1936 that we found this species offered in the catalogue of the Winton Nurseries, Bonnie Vale, Cape Province, South Africa.

The plant has been given cool greenhouse treatment, in a pit that has just enough heat to prevent freezing in our winter. Here the plants, grown in pots and given the treatment for most South African cormous plants, have grown well, flowered freely and set seed.

Most assuredly it is not a plant to "set the world afire," but it has a singular beauty, a part of which is shown most clearly in the finely arranged inflorescence with its crowded bracts that suggest the beautiful pattern of a rattlesnake's rattle!

Mrs. Paxton's "The Ladies Flower-Garden of Ornamental Bulbous Plants" (1841) supplies a good color plate (Pl. 6) with this, other species of *Lapeyrouisia*, two strange *Galaxias* and our familiar *Areomotheca cruenta* and a brief cultural note which suggests that at that time at least, the corms were stored over winter, planted out in April, allowed to flower from July till September and then stored. "Seeds ripen freely, and the plants raised from them generally flower the second year."

The plate in Géel's *Sertum Botanicum* (Vol. III, page 107) looks strangely like the other two as if there had been some borrowing back and forth or perhaps only by the engraver for Mrs. Loudon. The text (1828) adds to the note in the Botanical Magazine only the reminder that the genus was established by the Abbé Pourret (see Vol. III des *Transact. de l'Académie des Sciences de Toulous*; item Vol. XXXV, page 431, du *Journal de Phy-*

sique) in honor of Picot, Baron de La Peyrouse, etc. All known species are from the Cape of Good Hope and the subject was introduced into England in 1808.

It would seem from experience here that increase by seed would be the easy method rather than by corm, but it might easily be that in southern California, where so many South African species grow well, this plant would do as well out-of-doors as at home.

Ixia paniculata De La Roche (See page 121)

Having fallen into the apparently common notion that most ixias, of which there are many, possibly twenty-six species, looked more or less like *Ixia polystachya* or the garden clones, the first sight of this species was a very pleasant surprise.

In the first place it was a first sight of an ixia with a nearly three foot stem, moreover with a stem that branched, with branches long enough to see and furnished with flowers with long tubes that hold the flower faces well away from the stalk. Anyone who can read may know from any general description of the genus that such branching inflorescences are not uncommon, but the flower description for the group usually provides a "short, more or less cylindrical tube."

Only the top of the flowering stalk shows in our picture, nearly life size with long creamy-white flowers and deep golden anthers. The type is supposed to show a "purple-black basal blotch" and as ours had none, it may be that it represents the var. *temiflora* (Ker-Gawler) Baker, but that is hard to accept since the tube is not less than two inches long and the segments scarcely warrant the term "shorter" unless the type should be widely starry.

Having no recollection of scent, a

search through books is our only recourse. Here again there is no reference, so doubtless there was no perfume to record.

According to the records, the species was described by Francois De La Roche (1766) in his *Descriptions Plantes Nouvelles*, but no copy of that work is at hand and the only works from his pen to be seen are some of the slender descriptions that accompany part of the texts of Redouté's famous *Liliacées*. Several ixias appear in this but not our present species.

No attempts have been made to grow this out of doors. It has been given the usual cold greenhouse treatment given most Cape bulbs and with entirely adequate results for it flowers freely, sets good seed and gives a moderate increase.

Babiana stricta Ker-Gawler (See page 122)

In the early 1800's when English garden books and papers were filled with records of plants newly brought back from Cape of Good Hope, it is not astonishing to find in the volumes of Curtis Botanical Magazine, gladiolus, ixia, moraea, tritonia and the like. In volume 17 we find two pictures (t. 621 and t. 637) of our present plant and plates of two other species.

Although it is rarely fair to judge any plant by its behavior under glass, we have had enough of babianas to feel that, unlike so many irids that push up from the soil with a vigorous rush, these plants are more lumbering and awkward with irregular fascicles of leaves from their corms.

The leaves themselves are rather handsome, broad, deeply plicate with shortish petioles that stand free from the flower stalk. They are conspicuously hairy, especially along the margins.



Lilian A. Guernsey

Ixia paniculata

[See Page 120]



Lilian A. Guernsey

Babiana stricta rubro-cyanea

[See Page 120]



Lilian A. Guernsey

Hyacinthus amethystinus albus

[See Page 124]

According to the strength of the corm, the stalk may have one to several flowers and according to the variety, these may vary somewhat in size and color. The colors are essentially those hues that compose the range from red violet to blue violet, with both lighter and deeper examples and, in some extreme cases, almost pure blues of the greatest intensity.

While the six perianth segments are approximately equal in size, they are often disposed in such a fashion as to suggest an almost two-lipped flower, which is made more apparent in some cases by the pattern of the segments.

The flowers of this species do not seem as much scented as do those of *B. disticha*, a plant that has the merits of considerably more robust growth than this plant.

In Colonel Grey's "Hardy Bulbs" (Vol. 1, p. 28) six varietal forms are noted, several of which were described in older papers as distinct species.

It is probably impossible to escape a paragraph of general remarks beginning with the inevitable reference to the name which has been derived from "the Taal name Baviaantjes" because the edible corms are sought out by baboons. Mrs. Loudon (1841) states that the "Babianas have solid bulbs or corms, consisting of a white floury eatable substance, which, when roasted, tastes like a sweet chestnut. These roots are eaten by the Hottentots; and the monkeys are said to be so fond of them, that the Dutch settlers at the Cape of Good Hope called them Babianer, * * * *."

Since they are all native to a region where there are marked wet and dry seasons, they will likely be of outdoor use only on the southern Pacific Coast and Southwest, but for the rest of us they can and do make interesting winter house plants. They must be given a soil mixture that is well drained but

with enough humus to keep them growing well. Temperatures may fall fairly low, but there should be no freezing.

Hyacinthus amethystinus albus (See page 123)

The blue-flowered type of this charming small species is illustrated in Redouté's famous "Les Liliacées" (text on p. 14). The text is not of much account although it is stated that it had been "discovered in the Pyrenees by L'Ecluse and Raymond, and in Russia by Pallas."

The exquisite plate which is of a rather slender individual brings out, as does our photograph, the fact that in this species, *Hyacinthus* stands rather close to *Scilla* in some of its species, a relationship that one might never guess should one know only *Scilla sibirica* or better still only *Scilla autumnalis* and the garden forms of *Hyacinthus orientalis*.

Although a rather wide range of the garden forms of *H. orientalis* have grown in our hill for many years, it is only recently that any attempt has been made to gather up the small fry of the genus. Colonel Grey's work with its intriguing pictures of *H. hispidus* and *nervosus*; a chance sight of *H. dalmatica* at Kew and as seedlings here; a few curious species among *Muscari* and *Bellevalia* have all conspired to urge us on.

H. amethystinus and its white form are so easily available that only sloth has delayed their arrival. On first sight, as bulbs and as plants, they might easily pass for very slender examples of *Scilla nutans*. They flower after that plant has passed its prime with us, nearer mid-May. It must be confessed that unless when longer established they make a greater mass of bloom, there may be little point in growing them when the scillas may be



Lilian A. Guernsey

[See Page 126]

Kaempferia rotunda

had, except for one's passion for collecting. As compared with the common hyacinth the plant is scentless, but in its own right it does have a faint and pungent odor if one really noses it out! Our plants seeded, both blue and white forms, and in time the usual parade of small seedlings will appear up and down the slope they adorn.

The soil is deeply dug, well drained and heavily enriched with leaf compost. The slope to the southeast gives ample morning light.

Curtis Botanical Magazine (t. 2425) has little to say except that "Though cultivated by Philip Miller in 1759, it is still a very rare plant." (1823). One might repeat this even for today.

Lindley's Botanical Register (t. 398) shows a rather more robust plant but with flowers as blue as an old-fashioned delphinium. The author points out that the Russian specimens described by Pallas (and mentioned by Redouté) are not this plant at all but are a *Muscari* and that the plant described by "Mr. Marschell of Bieberstein, by the title of *Hyacinthus pallens*" are the same plant. He goes on to say that "As at present defined, we know of only two species of this genus, viz. the subject of this present article, and the Garden Hyacinth (*H. orientalis*) familiar to everyone." Since this time our knowledge of the genus has been widened, even if our experience is still limited.

Sweet's British Flower Garden (Vol. II, t. 135) shows the robust blue-lavender forms and still remarks (1825) that this is a "handsome and rare plant" and that the plant came from the Garden belonging to the Apothecaries' Company at Chelsea, which had also furnished the plants for the B.M. 2425 already cited, those plants being new and weak and these established.

A pleasant note in the now defunct or metamorphosed "The Garden," by A. H. (Mar. 3, 1895, p. 147-8) sings

its praises but gives no clue to the character of its "delightful shade of blue so different from that of all other spring flowers." A. H. also states that it is rare in gardens.

All of this may seem a great commotion over so small a plant, but as grown here, it gives every evidence of as permanent a residence as any squill, narcissus or grape hyacinth. Since in our climate, with its beautiful turn of spring, so soon forgotten in mid-summer, all plants are most welcome that, once established, require little handling. This is brought forward again for note and commendation.

Kaempferia rotunda L. (See page 125)

Through the kindness of Mr. Wyndham Hayward of Winter Park, Florida, I had the opportunity of growing this flower which seems so utterly unlike our more familiar plants, strangely different even from *Hedychium* and *Roscoea*, the two related genera of my acquaintance.

Native to India, it is, of course, a tender plant, with a thickened crown and several tuberous roots from the crown bearing several buds, from one of which develops the flowers and from the others the later-developing fascicles of leaves.

The dry root that Mr. Hayward sent took hold immediately and sent up an astonishing succession of flowers that shows so clearly in the photograph, two upper lobes a warm white, the broader lower lobes flushed and veined with warm red purple, becoming lighter toward the edges. The three outer petals, narrow and straplike, are clear white.

After these had withered, the bud containing the leaf-fascicle developed rapidly making a fine show of calanthe-like leaves flushed with ruddy purple on the backs and more or less clearly

patterned with lighter and darker green on the upper surfaces.

As an experiment, one plant was allowed to die down gradually in the autumn and was stored in an unheated pit greenhouse. Here the temperature fell to about 28 degrees F., which proved to be too low for this plant. The root, however, had remained firm and apparently sound until this drop, so that presumably *Kaempferia* might be useful outside as far north as Savannah, Georgia.

During the growing season our roots, which were planted in very rich soil, were kept uniformly wet, almost sodden with water, a condition that they apparently enjoyed to the full.

Various species of *Kaempferia* are mentioned in Colonel Grey's "Hardy Bulbs," but our species is not among their number. He admits, however, that all four are plants "which can easily be grown in a cool house and may possibly be hardy with a little protection in sheltered gardens in the south and west of Great Britain." That gives us little chance but should be more indicative for the South. The essential difference might lie in the fact that low temperatures in Britain would have less divergent high temperatures and less bright sunlight than our winters.

Ilex vomitoria Ait. (See page 128)

According to Hough (Handbook of Trees of United States and Canada, p. 317), the Yaupon makes a "small tree occasionally attaining a height of 20 or 30 feet, with dense top of many branches and usually more or less inclined trunk from 6 to 10 or 12 inches in diameter. It is often shrubby, sending up several trunks from a common base. It is confined to the immediate vicinity of the coast, * * * excepting in the lower Mississippi valley, where

it ventures further inland." * * * "The leaves of the species possess strong emetic properties, as implied in both the specific name and one of the vernacular names—Emetic Holly—which was a fact known to the Indians in early days."

The map shows distribution from mid-south along Coastal Plain, across upper Florida to Mississippi valley west into Arkansas and Texas.

Plants raised from seed here are not hardy, which is greatly regretted as the handsome evergreen foliage suggests in a way a larger variant of *Ilex crenata*. Unlike this latter species which has dull, black berries this native has brilliant scarlet fruit rather on the orange side. They have a glossy surface and suggest the translucence of a current rather than the opaque character of most holly berries.

In Sargent's "Manual of the Trees of North America" (p. 617), the distribution is given as southern Virginia to the St. John's River and Cedar Keys, Florida, and westward to the shores of Matagorda Bay and the valley of the upper Rio Blanco, Texas, and to southern Arkansas. The author reports that the berried shoots are sold for Christmas decorations and that the tallest trees are to be found in the Texas range.

In nearly all the reference books something is said of the decoctions prepared in spring by the Indians of the area. Mrs. Lounsbury, in her "Southern Wildflowers and Trees" goes farthest and reports that day after day this emetic brew was used until the Indians considered themselves sufficiently purged. In other references ceremonials are mentioned but none are described nor is there anywhere a description of the process of brewing.

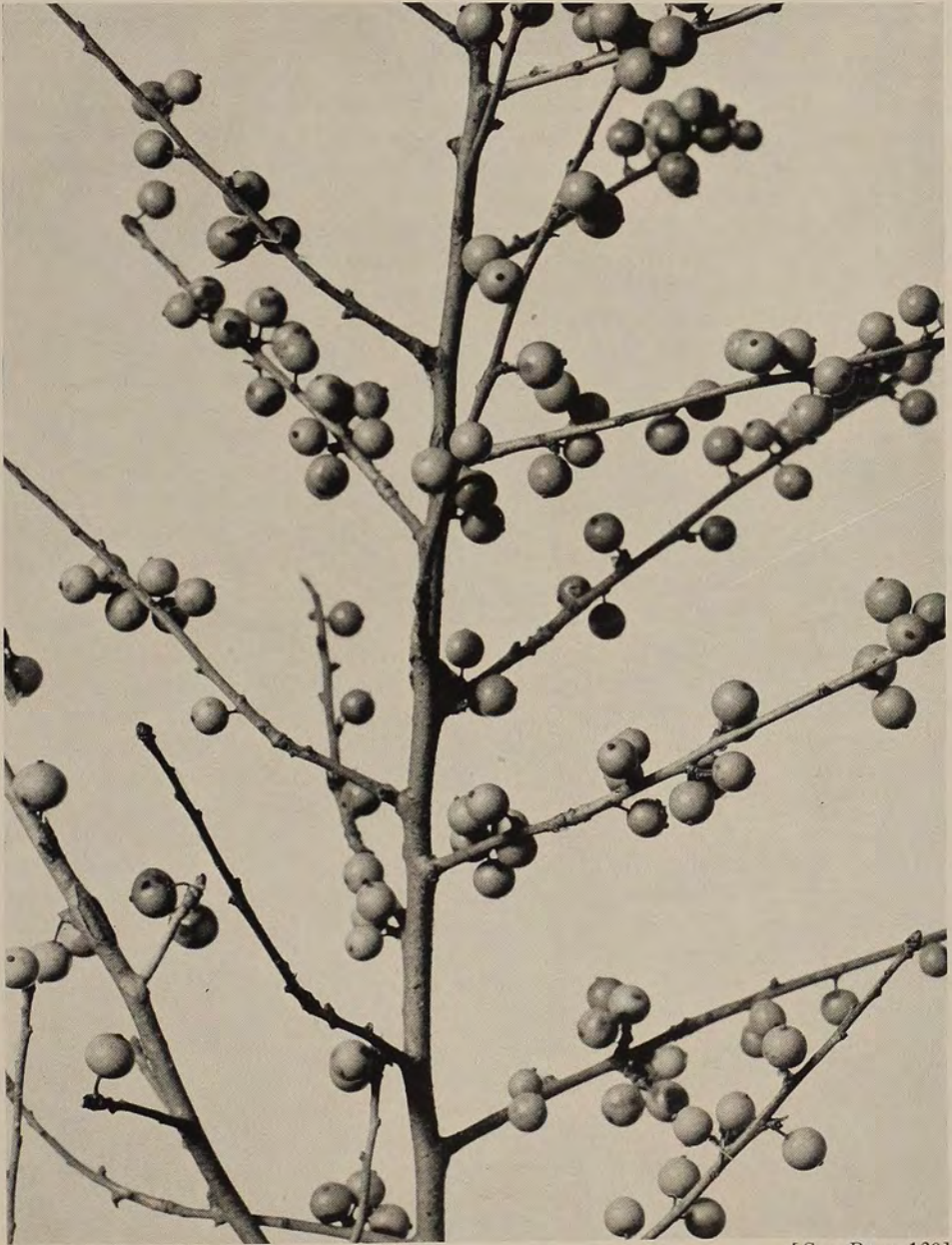
In "Trees of the Southeastern United States," p. 283 (Coker and



Lilian A. Guernsey

Ilex vomitoria

[See Page 127]



Lilian A. Guernsey

Ilex decidua

[See Page 130]

Totten), there is cited a reference to Venable (Journ. Eli. Mitch. Sci. Soc. 2:39. 1884-85) in which it is stated that young leaves contain "considerable amount of caffeine, about 0.27 per cent of the dry weight." Quoting again (from Coker and Totten)—"According to Dr. G. F. Mitchell, the caffeine content in some samples may run as high as 1.6 per cent. As the name indicates, the leaves are generally supposed to have an emetic effect and the Indians certainly used a decoction containing them to produce vomiting. It seems, however, that this effect was the result of other herbs that were added and not to the Yaupon leaves (Howard, Bull. Torr. Bot. Club 23:41, 1896)." And so one comes again to the point of personal experiment.

Some time, it is hoped, someone will examine plants from the coldest range to see if seedlings raised from them might not extend a northward range for this very beautiful native shrub, which is becoming more common as a planted ornamental in its native ranges.

Ilex decidua Walt. (See page 129)

According to Hough (Handbook of Trees of United States and Canada, p. 319), this is usually a shrub of irregular growth, rarely more treelike in Arkansas. His map shows a more inland range, Piedmont in North Carolina, South Carolina, and Georgia, westward and including Kentucky, southern Illinois and Missouri, southward to the Gulf.

It is particularly showy after the leaves have fallen. It occurs in swampy soil, borders ponds and streams with "redbud, prickly ash, soapberry, Mississippi Hackberry, Rusty Nannyberry, Roughleaved dogwood, cypress, etc."

This, like *I. vomitoria*, has berries largely crowded in masses, as compared with the more scattered fruits of

I. monticola Gray. *I. vomitoria* itself is like *I. Cassine* L., but the latter makes a small tree, has more slender leaves and fewer more scattered fruits.

In Sargent's "Manual of the Trees of North America" (p. 618) the range is given approximately as above and reports that the most arborescent forms are from Arkansas and Texas as was the case with the last species.

Our illustration shows no leaves on the specimen. These, though properly deciduous, do sometimes hang on well into the fruiting season. They are rather like those of *I. vomitoria* in general shape and pattern but larger, often 3 inches long, thinner, of course, and with less conspicuous serrations.

No special references have been discovered to suggest the absolute northern limits of this shrub under cultivation and indeed little is recorded of its use in cultivation. Whether it would give as fine a display as our northern, shrubby, deciduous holly, one can not guess. Certainly it is a plant worth investigating if it will reward good cultivation as nearly all hollies do.

We should particularly like to hear from members who may have used this handsome native in their garden plantings.

Brodiaea Bridgesii Wats. (See page 131)

It seems unlikely that the general public can even be persuaded to think of planting brodiaeas as freely as crocuses, but it might be that a few favored persons who live in a happy middle ground, neither too warm to suit the crocuses nor too cold to discourage the brodiaeas, will devise a wild garden scene of small grasses and the like where crocus will come first and later brodiaeas before the grass may need mowing. Certainly a



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Brodiaea Bridgesii

[See Page 130]

warm, well drained but not too arid soil, with fine sun overhead would suit most.

Here, where most things are given a good spot before they are abandoned to independent life, it has seemed wisest to make no general attempt as yet at such a wild planting. The crocuses have already marched far from their original planting, but the brodiaeas are still just where they were first put without much sign of increase even from cormlets.

The gardener who is concerned only with mass effects or color schemes need not worry himself too much with this species, if he has already established large clumps or sheets of *B. laxa* from which Bridges' brodiaea is separated chiefly by minor characters, such as the point of the insertion of the stamens, an intimate detail that does not show unless one snoops. As the illustration clearly shows, the species belongs to the group which produces large umbels of erect trumpet-shaped flowers that develop from the outer edge inward. The old flowers fade decently like immortelles and do not in the least detract from the younger open flowers in the center.

Colonel Grey's excellent book contributes no special gem of text and repeats Watson's "open woods in the foothills of the Coast Ranges and of the Sierra Nevada, usually in stiff soil."

Watson, writing in *Garden and Forest* (1: 126 [1888]) has a brief note and a woodcut from which the figure in Bailey's *Standard Cyclopedia of Horticulture* is adapted. The little piece has only one paragraph devoted to the species itself with only one statement to cause a moment's delay, namely, that the flowers are "of a bright sky blue color." Maybe they are in California, but not elsewhere. The original publication is not available at the mo-

ment, but it seems scarcely probable that Doctor Watson would add much to what had already been cited here.

Symplocos paniculata (See page 133)

This large shrub or small tree for which we have an overweening fondness is usually written about for the sake of its amazing fruits which are almost lapis-lazuli color, a pleasant variant from the yellow to orange to scarlet to plum-purple colors of autumn. It has been illustrated as a fruiting specimen in our journal (*NATIONAL HORTICULTURAL MAGAZINE*, October, 1936), so no special comment need be given here on that point.

As far as we can discover, it has not been illustrated in its flowering appearance. Our photograph will answer for that purpose, showing at approximately natural size the short panicles of white flowers with their conspicuous stamens.

On those trees with which I am most familiar, the flowers are almost as transitory as those of a pear, showing one day as a mass of milk-white buds, the next as flowers, the next not at all. Such fleeting beauty would outlaw the plant from most gardens where longer effects are wanted, but for the curious this would be an extra charm in a plant that is of value enough for its fruits in October.

Eurycyles silvestris Salisb. (See page 135)

The only illustration listed in the *Index Londonensis* for this handsome amaryllid from Amboina is accompanied by an almost fervid cultural note by Kamel Haggag written from Cairo, Egypt. (*Revue Horticole*, March, 1913, pp. 110-111.) He begins by pointing out its superiority to many *Pancratiums*, *Crinum*s, etc., on account of the handsome leaves which suggest those



Lilian A. Guernsey

Symplocos paniculata

[See Page 132]

of "certain Alocasias" and particularly the long duration of its flowering.

"The leaves are from three to six depending on the vigor of the bulbs; they are cordiform, from 25 to 26 cm. in diameter, rather like those of *Funkia grandiflora* (now known as *Hosta plantaginea grandiflora*) with veins strongly netted, of a beautiful green color and borne on strong cylindrical petioles deeply channeled from the mid-rib to the base of the leaf."

The writer recommends in pot culture a soil of equal parts of peat and sand with a small portion of manure. The bulbs should be potted high to assure good drainage and the leaves wiped with a soft sponge for cleansing rather than syringing. After flowering, which comes in May, the plant should be encouraged to make vigorous leaf growth using ample water and extra feeding. This treatment will also assist in the formation of the seed pods. The resting period should not come on until the approach of winter and the temperatures should always be kept high, but if kept too high the seed capsules will fall before ripening.

These notes, roughly paraphrased rather than translated, are quite as good today as then. Under the circumstances available for us, it has not been possible to give such tropical temperatures, but the plants have developed well, with the characteristic foliage and an inflorescence as here shown. The flowers are glistening white and, although they are by no means as exquisite as the more ample flowers of *Eucharis*, they have something of the same beauty.

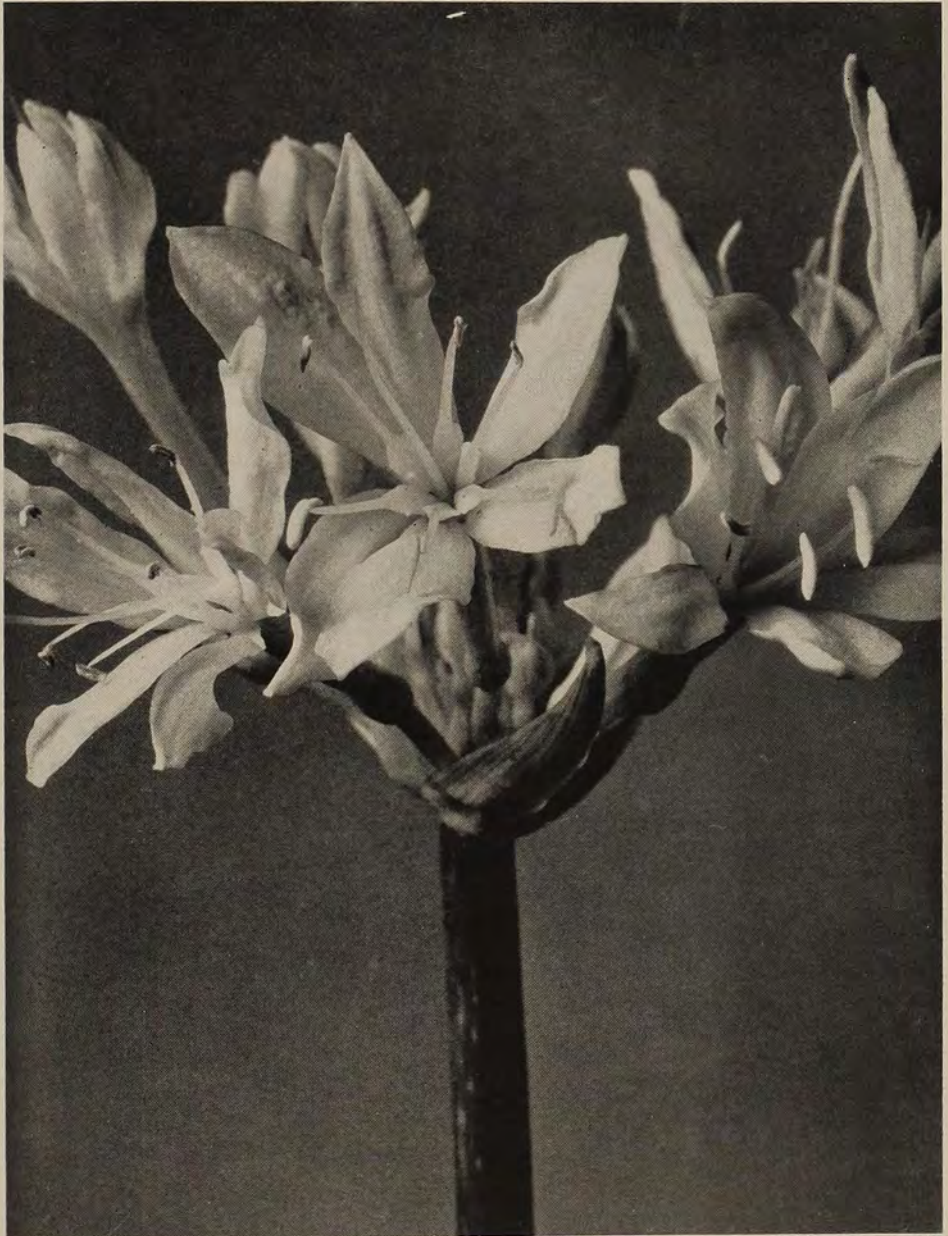
If it should be that our plant is really more tolerant of cold than Mr. Haggag's note would suggest, and as would be indicated by our short experience, this may become a more useful plant than some of the hymenocallis with their stringy, fugitive flowers.

Salisbury's original note in a paper read before The Horticultural Society on January 6, February 4 and March 3, 1812 (published in 1820) is a brief paragraph among many noted in the paper, "On the cultivation of Rare Plants." "This is a tender plant, native of the Islands of Java and Amboyna, where it grows in shady woods; it should be kept dry after the leaves decay, especially when plunged in the bark-bed; it will succeed, however, upon the flue of the stove and by fecundating the stigma in hot sunshine, seeds of it may be obtained here. It differs so materially from the following genus in the structure of the crown that I do not hesitate to separate it; but that part is not divided to the base even on its inner side, as Mr. Brown describes it, being quite entire there." (The next genus is *Hymenocallis*. Ed.)

Salisbury cites the plate and text in the *Botanical Magazine* (t. 1419) for 1812, where this plant figures as *Pancratium amboinense* with an excellent plate of a fine flower head and one large leaf. In this text are found the first notes of dissent on some of the earlier descriptions.

Homeria collina Vent. (See page 137)

When figured in the early 1800's in various journals, this plant was sometimes listed as a *moraea*. It appears as *Moraea collina* in the *Botanical Magazine* (t. 1033) and its var. *aurantiaca* is also shown (t. 1612). In the latter plate there is a small detail drawing of the columnar arrangement of the style-branches and stamens, which differs from that of *moraea*. These figures, like our present photograph, also show clearly the almost equal perianth segments, which lie in one plane like those of *sisyrinchium* or blue-eyed grass, rather than in two planes like iris or *moraea* in each of which we find



Lilian A. Guernsey

Eurycles silvestris

[See Page 132]

enough differentiation to warrant the popular names, standards and falls.

The plants from which the illustration was made were grown from corms from South Africa and were given the usual cold pit treatment of all their neighbors. As a plant for a deep pot, it is scarcely decorative enough in its leafy stages to warrant much attention. The flowers which open about noon and close soon after are of a brilliant color as if the ground were essentially a clear yellow over which was laid a wash of coral red with faintly deeper veins. More than one flower occurs in each flowering head.

As Mrs. Coombs points out in her "South African Bulbs," plants of most species of *Homeria* are poisonous to cattle and as they appear to be abundant in pasture lands in South Africa are likely to become serious problems should they escape. This difficulty is also mentioned by J. M. Black (*The Naturalized Flora of South Australia*, p. 150) where this species and one other, *H. miniata* Sweet, are reported as established in "pasture, Adelaide plains and hills."

Possibly the only areas in this country where it might become a useful plant for outdoor cultivation would not allow its escape to pasture lands. Certainly in the East where it can be grown only as a pot plant, there would be no danger, since it has no contact poison and is not reported as having poisoned humans.

The note by D. Don in Sweet's *British Flower Garden* (Second Series II: t. 178 [1833]) gives the correct name and a rather more enthusiastic report on the beauties of the plant. The illustration shows an inflorescence with several secondary flowering heads and recommends a treatment much like gladiolus out-of-doors. Possibly this more ample treatment was responsible for the greater flowering.

This suggestion is fortified by the note in the *Gardeners Chronicle* (Dec. 20, 1911; p. 476) with a photograph to show the writer's success. Mr. Fitzherbert recommends a raised border, a light sandy soil and a position at the foot of a south wall, all British treatments to insure a warm dry location! The picture shows a rather lax mass of grassy foliage through which rise the flowering stems with their open starry flowers. The notes in Colonel Grey's ever useful work, *Hardy Bulbs*, written in 1937, would suggest that out-of-doors, this is useful only in the warmest part of Britain. He adds the suggestion of fir-needle peat for the soil mixture.

One wonders, therefore, what portions of our own Southwest might not prove a suitable home for this vigorous South African.

From the Midwestern Horticultural Society

Clematis tangutica

There are not many hardy yellow flowering vines available for landscape use. Consequently we are fortunate in being able to obtain within the last few years the beautiful *Clematis tangutica* and its variety *obtusiuscula* from Mongolia and Northwest China. Growing about 8 to 10 feet high, it bears during June and again in August, large bright yellow lantern-shaped flowers. They are usually produced singly on slightly hairy stalks 3 to 6 inches long. From a decorative standpoint the flowers when cut lend themselves to many unique arrangements. The large heads of feathery fruits are very attractive also.

Tsuga caroliniana, Carolina Hemlock
(See page 139)

Of all our native American conifers



Lilian A. Guernsey

Homeria collina

[See Page 134]

there are none more graceful and beautiful than the hemlocks. My favorite in this group is the Carolina Hemlock, *Tsuga caroliniana*. Although it is more compact in habit and more handsome than its northern relative, the Canadian Hemlock, it is not nearly as well known.

Although found in the mountains of S. W. Virginia to N. Georgia, this evergreen is hardy in the Middle West in all but the most exposed situations. The Carolina hemlock grows from 30 to 50 feet tall in cultivation, is unique in habit with darker, dense, tufted foliage on sweeping pendulous branches. Its cones are much larger than those of the Canadian hemlock with oblong scales, whereas those of the latter are nearly as wide as long.

Hemlocks are often spoken of for planting in the shade, but here are two kinds of soil in shade places—moist and dry. Carolina hemlock likes a cool, moist but well drained soil. Another advantage is that it seems to be more adapted to city conditions and does not sun scald.

Tilia cordata, Littleleaf European Linden (See page 141)

Although a strenuous effort is being made by the U. S. Department of Agriculture to keep the Dutch Elm Disease under control, its progress westward is cause for grave alarm. Home owners in search of a lawn and street tree that can be planted with safety should consider *Tilia cordata*, more commonly known as the Littleleaf European Linden. This is much like other lindens but has a more compact habit and smaller, daintier leaves. The leaves are $1\frac{1}{4}$ to $2\frac{1}{2}$ inches long, abruptly acuminate, roughly heart shaped, sharply and rather finely serrate, dark green and glabrous above with a slender petiole half an inch to an inch long.

One of the greatest features of the

Littleleaf Linden is the mass of fragrant yellowish white flowers in June or July, the latest linden to flower.

Lindens are trees of comparatively rapid growth, regular in habit, free from disease. They are not particular as to soil, but enjoy a fairly moist situation. The only objection I can think of is their habit of shedding their foliage very early in the autumn.

Tilia cordata has frequently been used in Europe for a tall hedge. No other linden will tolerate so much pruning and can be shaped into such splendid dense hedges.

Physocarpus monogynus, Dwarf Ninebark.

For the discriminating gardener who wants a hedge that is perfectly hardy, leafs out well from base to top, stands shearing well, free from insect attack, I would recommend *Physocarpus monogynus*, a dwarf form of ninebark. Here is a shrub to relieve the monotony of the over-planted privet or Japanese barberry hedge. Its range is from South Dakota and Wyoming to Texas, reaching a height of about 3 feet. The leaves are from $\frac{3}{4}$ to $1\frac{1}{4}$ inches long, incisely 3 to 5 lobed with rounded, incisely serrate lobes.

When allowed to grow unpruned it makes a neat little shrub of dense habit, bearing umbels of small, fluffy white flowers, with pink centers. The flowers bloom in early June and are followed by decorative seed pods.

Along with its other attractive features is the fact that the dwarf ninebark is not particular as to soil and will grow in either sun or shade.

ROBERT VAN TRESS.

Crocus minimus

Although this species has been mentioned several times in the pages of our journal and probably will be men-



Courtesy the Arnold Arboretum

[See Page 136]

Tsuga caroliniana



Courtesy the Arnold Arboretum

Tilia cordata

[See Page 138]

tioned again later when it will also be illustrated, it is worth calling to the special attention of gardeners who are interested in long flowering seasons. All the reference works that report it at all, remark on its late flowering but few call special attention to the fact that it does not produce all its flowers at one time or even at approximately one time, with the result that it has a season of well over a month and here in Washington prolongs its flowering into the time when daffodils are the main glory of the scene and crocus are admittedly passed by. Its small flowers so beautifully pencilled on the backs of the perianth segments are well worth the minute attention that is often bestowed only on rock garden plants whose main beauties are for close examination.

Fritillaria meleagris

The guinea hen flower has long been known in gardens and its white form has often been remarked as of even more exquisite beauty than the natural type with its checkering and dull chocolaty red purple color patterns. It is now a matter of not very many years since special segregations have been made from the mass of the colored form and offered under separate names. Now under very classical names some of these are easily available and are certainly worth growing as they add spots of quiet color in the spring galaxy.

Aphrodite is the white form offered separately and differs as far as we can tell chiefly in the extra purity of the white color which shows very little of the faint green pattern that sometimes tints the usual white form. It seems a trifle less robust, a little shorter and perhaps more inclined to give a single flower to the stem rather than the usual pair.

Of the darker colored forms, Orion

and Charon were grown here. Orion flowers first of all the series and differs very little from the type. It belongs in the dull plum purple group with more or less solid checkerings and the darkest colorings across the shoulders of the flowers so that at a distance the flower carries as a dull purple. When the others are in mid-season, it is beginning to go off. Charon, as it first opens, seems almost identical but as the flowers come into full maturity shows a lighter tonality with more of dull rose showing than in Orion. Both it and Orion are likely to give single flowers to the stalk.

Artemis and Poisedon are essentially the dull rose colored sorts, again very similar when first opening. As they expand one feels that the ground color looks as if it meant to be a greenish white with a honeycomb pattern of dull rose starting from the shoulders of the nodding flowers and going off toward the tips. As the flowers age, the pattern appears more and more clearly until the whole segments are covered and then the cells of the pattern begin to fill with dull pinkish colors that bring these varieties closer to the tonality of Saturnus.

All make the usual plant that one expects of fritillaries, a smallish lily-like stalk with narrow leaves and terminal nodding bells possibly two inches deep. Unlike some of the species of the genus, this one does not have the unpleasant scent that really outlaws others from the garden scene. The usual recommendations are for planting in grass or moist humus filled soil. Grass is almost never a safe place in this country for anything save the toughest plants, so our bulbs were planted deeply on the edges of the azalea bed where the soil is well filled with peat moss dug in deeply. So far apparently it is much to their liking for not only have the bulbs sent up the

flowering shoot but a very decent little ring or single leaves that would appear to indicate the normal program of increase.

1940 Lily Yearbook

At the same time that this magazine is going through the press, the current issue of *The Lily Yearbook* is going through page proof. Like the *Daffodil Yearbooks* each issue differs from the others so that the really keen growers must have all. Last year, the emphasis was laid especially upon what lilies looked like in their numerous forms, with reports of experience by amateurs

in the growth of lilies in various parts of the country. Dr. McDaniels gave the key-note of the disease problem very simply and clearly. This year the emphasis is laid upon the problems of culture, especially as related to diseases and since these are problems which the amateur must meet with understanding, if he is to succeed at all in his work, they must be read without fear and with attention. Notices will be sent to all members who have not yet booked an order, but this reminder will be of use in calling it to your attention. The price will be the same as last year, one dollar postpaid.

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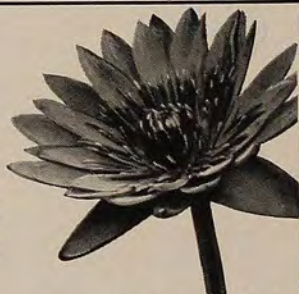
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AMERICAN HORTICULTURAL SOCIETY

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821 WASHINGTON LOAN & TRUST BLDG.,
WASHINGTON, D. C.

The American Horticultural Society

INVITES to membership all persons who are interested in the development of a great national society that shall serve as an ever growing center for the dissemination of the common knowledge of the members. There is no requirement for membership other than this and no reward beyond a share in the development of the organization.

For its members the society publishes **THE NATIONAL HORTICULTURAL MAGAZINE**, at the present time a quarterly of increasing importance among the horticultural publications of the day and destined to fill an even larger role as the society grows. It is published during the months of January, April, July and October and is written by and for members. Under the present organization of the society with special committees appointed for the furthering of special plant projects the members will receive advance material on narcissus, tulips, lilies, rock garden plants, conifers, nuts, and rhododendrons. Membership in the society, therefore, brings one the advantages of membership in many societies. In addition to these special projects, the usual garden subjects are covered and particular attention is paid to new or little known plants that are not commonly described elsewhere.

The American Horticultural Society invites not only personal memberships but affiliations with horticultural societies and clubs. To such it offers some special inducements in memberships. Memberships are by the calendar year.

The Annual Meeting of the Society is held in Washington, D. C., and members are invited to attend the special lectures that are given at that time. These are announced to the membership at the time of balloting.

The annual dues are three dollars the year, payable in advance; life membership is one hundred dollars; inquiry as to affiliation should be addressed to the Secretary, 821 Washington Loan and Trust Building, Washington, D. C.

