

*The* NATIONAL  
HORTICULTURAL  
MAGAZINE



JOURNAL OF THE AMERICAN HORTICULTURAL SOCIETY

JANUARY, 1937

# The American Horticultural Society

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1937

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*Lilian A. Guernsey*

[See page 82]

*Nerine undulata*

# Thirty More Climbers for California

KATHERINE D. JONES

IN the January, 1936, issue, we presented a series of vines that are useful in California, and in this issue a second series. Even these two do not exhaust the possibilities. In that article it was suggested that Santa Barbara and San Diego were the two great centers for the growing of vines, particularly those that approach the limits of hardiness. In the discussion that followed, the use of vines in and about Santa Barbara was taken as a basis for the descriptions with comparative notes from other parts of the State.

In this issue we shall similarly use San Diego as our base and discuss various additional species, once more with comparative reports from other parts of the State, outlining the changes in vine planting during the last twenty years, and offering some brief comment on the development of a local style.

Located at the southern extremity of our coastline with a moderate temperature range and delightful sunshine, the local architecture early developed a preponderance of low white houses with flat roofs and meager planting, the latter usually the result of the shallow soil in many parts of the town. Vines such as the Australian Pea Vine (*Dolichos lignosus*), German Ivy (*Senecio mikanooides*), and the aggressive *Ipomoea tuberculata* were common. Later Miss Sessions devised the scheme of building up the soil depths artificially so that other climbers and shrubs and herbs could be added to the planting. As an aid to the growing of more herbaceous plants lath houses were introduced chiefly by Mr. Robinson of

begonia fame. These, too, called for the use of vines.

At the time of the Exposition in 1915-1916, a great impetus to the work of planting came about not only from the Exposition plantings but from the development of new homes and apartments, each with their own planting problems.

The most interesting developments came on the building sites in the various canyons where vines contribute greatly to beautiful walls and pergolas that so often form features of these developments, often with vines used for ground covers as well as to trail over walls or to clamber up them and over trellis and pergola. Such necessities have brought about a keener interest in variety of planting vines than could come elsewhere.

There has also come about a wider knowledge of the treatment of the vines themselves which are not left to climb at will but are pruned and kept within bounds but natural and architectural. This fits in well with the greater variety of vines chosen which now show a far greater range of color in their flowering than once and a more studied relationship to the color of the houses that are no longer limited either in color or style to the earlier white.

*Bauhinias*, Mountain Ebony; Orchid Flower

The species that have already been introduced into California are very ornamental and the supply seems almost unlimited, since Index Kewensis gives at least 275 species from



which we may hope eventually to select a goodly number that will thrive not only in Southern California but also in the Bay region and possibly in the Great Valley, since some of them are from China. Most of them, however, are from the tropics of the southern hemisphere, South Africa, Brazil, East Indies and China.

Bauhinias may generally be recognized by their characteristic leaves which are usually simple and look as if the sides have been folded together and a notch made both at base and apex, the shape of the leaf depending more or less upon the size of the cuts. All leaves show a prolongation of a petiole between the two leaflobes.

Bauhinias have been cultivated as ornamentals in many countries and the Bureau of Plant Industry has often received seeds of various species not directly from its native country but from another country that is cultivating it. This fact should prevent our calling a Bauhinia a failure on first trial, as an introduction of seed from a country of more nearly equal cultural conditions as ours might be a success, whereas seed from its native country might be a failure due to various causes.

Bauhinias are either trees or scandent shrubs of the tropical or subtropical regions and seem to do well in Santa Barbara and San Diego, and are also cultivated as far north as Golden Gate Park, which lists four species, namely: *Bauhinia candicans* from Uruguay and Argentina, with creamy white fls., P.E.I. No. 94766; *Bauhinia Galpinii* from South Africa; *Bauhinia purpurea*, East Indies, introduced into England in 1778. *Bauhinia corymbosa* is sold by Mr. Hugh Evans; the white-flowered *Bauhinia heterophylla*, from Cuba, is growing in Franceschi Park, Santa Barbara.

*Bauhinia Galpinii*  
Pride of de Kaap

Leguminosae

Tropical and South Africa

This plant was first reported as having been discovered in 1880 by Mr. W. Nelson at Dorn, under the Tropic of Capricorn. It was later found in the Transvaal region, both at Baberton and in the Kaap Valley, where it is very abundant and colorful as it climbs over low shrubbery in that locality. It is also seen in Natal, but as a cultivated plant, where, according to Pole Evans in his "Plants of South Africa," it "grows very lank if left unchecked, and is kept down as a trimmed shrub in the lawn."

It is also often used as a shrub in California, but Mr. Orpet thinks it had best be treated as a climber for warmth against a wall. It is mostly evergreen here, but in some seasons may be semi-deciduous when it drops its old leaves as the new ones appear. It then looks shabby for a short time. It flowered in Kew in 1895, an illustration in Botanic Magazine showing it as having a rather pink color, probably due to its having been grown in the greenhouse. It becomes a favorite at once but the color of the flowers have been variously described as red, orange-red and an orchid tint, since it is an elusive shade of red and shows up quite brilliantly in the full sunshine.

The leaves are heart-shaped at base and widely notched at apex, wider than long and have prominent veins; a lighter green below, a dull green above and from two to three inches long.

The flowers are hard to describe since they are more like those of a glorified nasturtium than they are like a legume. A glance at a full-bloom flower would show five petals, somewhat unequal in size, three larg-

er than the others and all with long claws that serve to give the flower a light and airy grace. There is the central tuft of stamens with showy anthers. A close examination will show how the long tube of the calyx encloses that of the corolla although this may turn back like a single sepal, as the flower ages.

This charming plant has been in California at least twenty years, as it was seen at Arthur Letts, in Hollywood, in 1916, where it was on the side of a barn up to twenty feet. According to the gardener, it bloomed each year for about six months, from July to December. It was still in full bloom when the barn was sold and the *Pride of de Kaap* pulled down. One wonders why such a glorious scandent shrub had not spread more largely through the state. Possibly because it was not on sale at the time and the World War cut off all further supply. Now that nurserymen are having it on the market again, we hope to see it more generally grown about the state, and we can then learn more about its cultural requirements. It likes the sun in Santa Barbara at Mr. Orpet's, where it is growing on both a north and a west exposure of a small building. The roots were on the west exposure and got the full heat of the sun. It blooms several times a year on new wood. It also blooms while quite young. Mr. John Manning states that it wants partial shade in Pasadena and makes a moderate growth. Blooms from late June through November. Lovely in September and October. Mr. Ross, of Rust's Nursery, says, "It is slow until it gets well started and it takes three years to get a good start. It makes long shoots that harden up in about three years."

Mr. Hugh Evans, of Santa Monica, reports as follows: "One *Bauhinia*

*Galpinii*, the old plant at Arthur Letts', was about twenty feet high and fifteen feet across, and a very rapid grower after the second year. Propagated by seed, occasionally by layers. Will not come from cuttings. Does not require much pruning. No diseases that I know of, or pests. Has stood without injury in Arizona ten degrees of frost. Likes a very warm, sunny situation. Source of seed supply very limited in India and South Africa, hence its high cost." Mr. Orpet propagates it from seed, which he says is like baby limas.

Its blooming period seems to vary in the different cities, as reported. Fall and winter (Miss Hoak); from June to September (Mr. L. de Forest); in bloom for many weeks (Orpet); it bloomed for six months at Mr. Letts' place. It was full of bloom in December when we pulled it off from the barn (Mr. Ross). "But if you want a real thrill, walk up into Upper Hillside Park until you find the orange-flame *Bauhinia Galpinii*. The flowers are beyond our power of description in form and shape; perhaps like some vivid orchid, and the tree is covered with them," (Lockwood de Forest, in *Santa Barbara Gardener*, Sept., 1931, issue.)

*Billardiera longiflora* Pittosporaceae  
Apple Berry Tasmania; Australia

This slender, twining little climber from Tasmania and Australia excites no particular interest when first seen, as its leaves are small like those of *Sollya heterophylla*, though better in texture, and its pendulous flowers are of an inconspicuous greenish-yellow that is quite disappointing; but when you see the mature fruit of the most perfect azure-blue imaginable, you at once begin to sense that we have something outstanding and precious beyond words. We begin to plan for a

suitable place in the garden for it where it may be seen while at its best but may be sunken into the background for the rest of the year where it will not be noticed and will not call forth disparaging remarks from those who have heard glowing accounts of its beauty and expect it to be on parade every day in the year, as certain of our cultivated plants undoubtedly are. There is a portion of the year, however, when Apple Berry is very retiring and no amount of praise at that time will enable you to foresee its future loveliness. Now, after this glowing tribute to its beauty, are you going to be disappointed? It is the color of the berries that appeals and in Tasmania there are many different color forms growing throughout the varied hills and valleys. The white form has also attracted a great deal of attention, especially when mingled with the azure-blue one now cultivated in California.

It was introduced into England in 1910 and according to Mr. Ernest Markham, "It is given the choicest positions on sheltered walls where the slender shoots will twine among anything which offers support. The flowers appear in July and lend a very graceful, though not conspicuous, aspect to the plant. They are succeeded in October and November by the most astonishing oblong, violet-purple fruits unlike anything else known to me. These exquisitely colored fruits are borne in such numbers as to render the plants both attractive and conspicuous." (From Royal Hort. Society of England.)

The late W. Robinson in "The English Flower Garden" mentions the Tasmanian Apple Berry as a charming shrub for low walls, or it may be grown in pots plunged outside and trained on old bamboo stems, so as

to be taken indoors when the fruits are colored. It is readily increased, either by cuttings or layers, or by seeds sown as soon as the berries shrivel on the stems. *Billardiera cymosa* from Australia is also in cultivation in England. A. T. Johnson, in his book "My Garden," also mentions the white form mingled with our Apple Berry, and that it has stood twenty degrees of frost in his garden in Wales.

We may get some hints as to the culture of Apple Berry from these English plant lovers, but our methods are a little different in some respects. For example, our specimen was photographed in August from a plant in Golden Gate Park but specimens could have been gathered in June or July at Victor Reiter's, where they had been grown from seed, planted on the north side of the lath house and were not only a glorious color but some had already faded, showing that our specimens matured much earlier than in England. Our plant was grown from seed, germinated in three or four months, and is between three and four years old and 9½ feet tall. It twists round and round the laths and the berries are beautiful for about six weeks. On the sunny side of the laths the fruits are more highly colored than those in the partial shade.

In Berkeley, one of the fruits was taken home after the plant had been photographed, planted in a pot in the sunroom in partial shade about August 10th. Germination came the next spring and three or four seedlings were obtained. When these were four or five inches high they were set out, pot and all, in the open ground in a corner of the garden under a banana tree but in partial shade. Here they grew but did not bloom until the third year, when one fruit was found. The fourth year

it bore both flowers and fruit rather freely and the fruit was true to color—an azure-blue. It has twined itself about the trunk of the banana and seems to be happy, as it has not been troubled by pests of any kind. No fertilizers have been given it so far. When asked if it had any faults, the reply was, "No, except the branches are brittle and break off easily."

In Santa Barbara the report is not so good. There is alkali in the water and Mr. Orpet's plants died before they flowered, while the plant he sold to a lady in Berkeley is alive and berries every year, but they are not the beautiful azure-blue that she expected,—only a dull red. However, the "cunning" little leaves are interesting against the gate post, which it covers daintily.

From Santa Monica, Mr. Hugh Evans reports as follows: "Ours has blue berries. I have not found it very fast-growing. It seems more or less indifferent to soil. In Southern California, it needs a sheltered, cool situation. An admirable thing for a shady trellis."

This low, twining climber is not for every garden and it needs careful thought in its placement in a special garden. If it is used on a treillage, it can be used as a background to tall pot plants set in front of it when it is out of fruit. Pots of *Campanula pyramidalis* would be quite suitable in fall and winter up to January. Or pots of fuchsias, tall begonias in San Diego or many of our flowering shrubs of late fall and winter in other parts of Southern California.

It probably will need very little pruning, as it is rather slow growing; seems to have no enemies as yet; no fault unless you can call its dull flowers a fault. It is tender in some sections of the state, though seed from

3,000 feet in Tasmania should be more hardy.

Here (Tasmania) they are "found in abundance throughout the island," says J. D. Hooker.

In New South Wales it is found near the bays.

"In Victoria it grows along shady rivulets and in damp mountain forests, ascending to sub-alpine elevations," says F. Mueller.

*Bomarea Caldasii*      Amaryllidaceae  
South America

A subtropical plant that is blooming superbly in the San Francisco Bay region, both in sandy and adobe soil. It likes warmth better but will thrive and bloom month after month in the cool winds of San Francisco. Its color scheme is the cheerful Mexican one of red and yellow and it hangs in large clusters in front of dark but scant leaves that do not conceal but merely enhance the beauty of the flowers. It is not a quiet beauty but one that resembles a colorful woman whose magnetism is instantly felt the moment she enters a room. The gardens about San Francisco should never be dull where this glorious plant thrives. A well-grown specimen could be the feature at the end of a walk where it would create interest not only from its bright flowers but also from its seed pods, which hang in large clusters and have a dominant period of their own.

The flowers are  $1\frac{3}{4}$  inches long with a petiole of same length. In this species the sepals are not as long as the petals, being  $1\frac{1}{8}$  inches long, scarlet in color and with a pale green spot near the tip. The bell-like petals are three in number and are partially scarlet on the outside part that is not covered by the sepals, and yellow on the edges, the inside of the petals being yellow-dotted with dull red.

The flowers are in umbels on the ends of the branches and they may be from 5 to 36 in number, which gives an adequate color note to the whole plant, as there are many stems. By giving the plant proper care, flowers may be obtained more or less continuously for eight or nine months in the year.

*Bomarea Caldasii* was especially good in the New Shrub Garden, Golden Gate Park, San Francisco, in May, 1935. The flowers were in large bunches, quite heavy and the branches hung down gracefully under their weight. They are well shown off by the ample dark leaves behind them. A part of the vine is dead due to the severe winter—that is, hot and cold days and fog—but the rest of the plant is doing especially well this year. The new flowers are fresh and bright red outside and spotted yellow inside. It looks especially well over an arch or climbing high so that we can look into the hanging flower clusters.

The leaves are alternate, a little over an inch apart and with a flat twisted petiole that turns the leaf down back of the flowers and gives them a good background. The flowers grow on the new wood. As long as the fresh wood is kept growing, we may expect new flowers to appear, therefore, until cold weather cuts them off.

It is interesting to see how the new leaves wrap about the flower buds and protect them from both heat and cold. The tip of each leaf shows a little kink quite plainly where this wrapping has been done.

This vine climbs by twisting and becomes somewhat distorted if allowed to twist about itself. It will therefore pay you to train it carefully where you want it to go, and espe-

cially high enough to look into its bells.

This specimen has been in the state many years at the home of the late Senator Bard, where Mr. Eric Walther found it growing over an arch a few years ago and from there introduced it into Golden Gate Park, from which place it was introduced into many gardens in the San Francisco Bay region. We would enjoy seeing more such introductions.

This plant is easily propagated by seed or by division of the roots or more properly suckers, for they tend to spread at the roots though not to be considered a menace in any way.

Mr. Hugh Evans reports as follows: "Have grown this *Bomarea* 15 feet high. The old plant at the Bard Place in Huenema is probably 15 feet across. It can be supported on strings or trellises, as it must have support. Slugs and snails will destroy the young growth. Propagated by seeds or roots. Seems more or less indifferent to soil except that they are better in deep soil. We have distributed a great many of them. I think the roots like to be in a cool place with the flower heads coming out in the sun. It is particularly good twining in and out of a shrub. Blooms with us eight months out of the twelve. If they are frozen to the ground they will come up again and bloom on the new shoots."

Nicholson's Dictionary states that *Bomarea Caldasiana* was introduced into England in 1863 from the Peruvian Andes and eleven other species have also been tried out successfully, *Bomarea edulis* having tubers which are eaten like those of the Jerusalem Artichoke. There may be as many as 40 or 50 species in South America and we are all looking eagerly for the

new ones we hope are among the collections made in Chile and Peru by Mrs. Mexia and Mr. West, from the plateaus of Brazil and Argentina. Mr. E. P. Killip collected Bomareas in Colombia and Peru, and on working them up in the herbarium, found much confusion in the names of the different species. He is therefore preparing a monograph of this genus and has already described some of the new ones in the Journal of Washington Academy of Science 25:370-377, 1935, and illustrated them in the NATIONAL HORTICULTURAL MAGAZINE in April, 1936, which you should read preparatory to the new species we are hoping to receive through the collectors of Professor T. H. Goodspeed, Botanic Department, University of California, Berkeley. It will take some months, however, to have this seed classified before it is sent out through the proper channels. We hope they will be as good as the *Bomarea Caldasii* already in cultivation in various sections of California, but Mr. Killip also mentions those with individually large flowers, instead of these with many-flowered heads like the one in cultivation here.

### *Cissus in General*

*Cissus* are important members of the so-called foliage climbers in which the beauty of the plant is not in the inconspicuous greenish flowers but in the shape and texture of the leaves. They were formerly classed as *Vitis* but have since been classified into *Ampelopsis*, *Cissus*, *Parthenocissus*, and some others, while the *Vitis* is left by itself and includes only the true grapes.

Foliage climbers are especially useful where cool green is wanted either as backgrounds to show off brilliant flowers or to be a foil for colored tiles.

They may even be used as ground covers in case of *Cissus hypoglauca* and *Cissus rhombifolia*.

Of the *Cissus* mentioned in this article, all are noted for their quick growth in the warmer sections of the state, though they are not at all fast growing in the San Francisco Bay region. Although they have a reputation for being tender, they may all be grown in Berkeley if given a proper start and protection for a few weeks during our coldest weather.

They all climb by forked tendrils and have a more or less shining leaf surface, and are considered choice, though perhaps not all are outstandingly so. *Cissus antarctica* and *Cissus capensis* have simple leaves. *Cissus rhombifolia* has three leaflets; *Cissus hypoglauca* five or sometimes reduced to three; while *Cissus striata* has five leaflets. Others have been tried out in the state but we have lost track of them for the present.

The fruit is attractive in all, and is either black or a blue-black. It may vary in shape from globular to round, but this point does not seem to be of much importance to us as gardeners.

They were formerly classified under *Vitis* but later study shows that they cannot be made to fit into such a scheme. However, in literature you will find it helpful to look under *Vitis* as well as *Cissus* for a specimen you are studying.

The *Cissus* group is easily grown in practically any soil. They grow in heavy soil at our Upper Ranch and do just as well at the lower ranch in light soil. However, if it is a hot day, they burn more in light soil than in heavy soil. (J. A. Gooch.)

*Cissus incisa* (Marine Ivy) is or was in the state and has an interesting leaf.

*Cissus discolor* is in the state as a

conservatory plant. It has a velvety green leaf with silvery white markings above, and is red underneath.

*Cissus antarctica* Vitaceae  
Kangaroo Vine  
(Syn. *Vitis baudiniana*)

Australia (Queensland and New South Wales).

This is a vigorous evergreen climber with simple leaves, of dense growth and is well adapted for wide spaces once it is well established. It then becomes high climbing and far reaching in width. The leaves are simple, with a shining, firm and almost leathery texture above and of a lighter color below, while the young leaves have brownish hairs or they may have none. The leaves are alternate with a stout tendril opposite, while the apex shows sharp teeth.

On the lower side of the middle leaf in illustration may be seen some curious glands in the axils of the leaves. They are quite characteristic of this species, but their significance is not known.

This photograph was made from a plant that had been sent by mail from Santa Maria Inn on February 19th, with the buds about to open. By close inspection you can see that the two sets of buds are opposite a leaf in each case, while above on the stem may be seen tendrils occupying the same position with reference to the leaves. The question arises as to whether some of the tendrils also have flowers and fruit on their tips and others do not, but function merely as holdfasts. In *Ampelopsis aconitifolia* the tendrils themselves undoubtedly end in flowers followed later by small fruit and it is possible that in the *Cissus antarctica* the lower tendrils are abortive and are used to climb by while the young foliage bear the flowers and seeds or *fruiting tendrils*. The

leaves are from 3 to 4 inches long and  $1\frac{1}{4}$  inches wide and are the same size and shape as many exotics freely grown in California, such as the Portugal Laurel. It should therefore not be hard to find appropriate companions to group with this species.

At Huntington Library one specimen on a pergola was forty feet long but had already been trained severely to prevent its overgrowing another climber. Here there was only one berry to a place and the plant was so vigorous that it sprouted wherever the old stems touched the ground.

At Santa Maria Inn they are used on several exposures, both in morning sun in the front of the building and in the garden court in at least partial shade. At this latter place it had grown so fast that it was cut down the year before we saw it but it had already caught on one tree after another until it had mounted 4 or 5 trees, a distance of about sixty feet. In April of 1936, Mr. McCoy of Santa Maria Inn stated that he was not so fond of vines climbing trees, as he had just hired a man for two days to prune off the vine from one tree! If left to itself, the vine would have taken the whole garden.

John Manning of Coolidge Rare Plant Garden says it will grow anywhere and it can be sheared on a wall. It does not freeze with him, and has even been known to grow in San Jose at Mrs. Stockton's, but she lives in an almost frostless section of town.

In San Diego at the American Exposition it was not very successful on walls with a south exposure but it was surprising how well it looked on that hard adobe soil in the full sun.

At Berkeley it grew for years in one of our parks, though we would hardly expect it to stand a really hard freeze.

In Santa Barbara, thrips bothered



W. C. Matthews

*Cissus antarctica*



it on the posts of a pergola near the ground but not overhead. In that city it should therefore be available for ground covers if it can stand the alkali in the irrigation water.

*Cissus capensis* Vitaceae  
Evergreen Grape South Africa

This is a contribution to our gardens from South Africa. When introduced into Santa Barbara, it became greatly in demand but no one seemed to be able to propagate it. Dr. Franceschi had had his vine for three years or more and tried again and again to grow it from cuttings, but without result. Other nurserymen tried likewise but without success. Finally an Englishman gave Dr. Franceschi a hint by saying that in his country they often gave refractory cuttings a larger callus to make. Sure enough, he made a cutting by this method and was able to put the Evergreen Grape on the market before any other nurseryman had caught the trick. However, his plants soon began to bear seed and were propagated more easily than the cuttings. So he began to grow it from seed entirely, as he found it came true to type. From Santa Barbara it went into all parts of the state, though it is tender and occasionally freezes in the Bay region. It will grow in localities that do not go below 26 or 24 degrees. It is slow in starting at first until its tubers are well established and then it is fast. Because of these tubers it may live even if cut to the ground but "severe pruning will kill it" (Orpet). As it grows so rapidly it must be pruned to keep it in its allotted space. This pruning must be done frequently but not severely. Some gardeners go over the vine every month and cut off the long shoots.

"It is the most prolific and best foliage vine in Santa Barbara and the most neglected." This may be due to

its early introduction and to the fact that it has become so common in the older section of town that they fail to realize what a "precious" climber it is. Such a vine should not be allowed to dangle about in any fashion, for it is too fast-growing and luxurious and its tendrils will carry it far out of bounds if allowed to have their own way. But if led and trained, there is almost no limit to the use you can make of this climber. Even if you had no other evergreen vine, you could make Santa Barbara distinctive with the use of this one climber alone if it is properly trained, trimmed and supported. In its class as a foliage vine it made the handsomest and most satisfactory cover to a pergola that I have ever seen. The corky stems had been coiled carefully about the pergola posts and the leaves trained above until they made a perfect bower, not too thick and not too thin, and formed a welcome green shade and shelter from the hot sun. Some might object to the stem being wound round and round the pillar. Very well, it could be equally effective by training it straight up the side of a square post without trying to encircle it, as they did at El Paseo, Santa Barbara, where it was carefully pruned so as not to hide too much of the pillar. It was leafy to the ground and above spread out over the roof very gracefully. One felt grateful for its suitability and beauty. Look about town and you will see other delightful uses of this indispensable climber, such as being used instead of an awning above a terrace. It is used as a pot plant on either side of a door to meet above and make an arch. It was used to hide the parts of a garage above the doors supported in place by a simple treillage and not allowed to fall down in the way of the automobile. It can be grown on a treillage as a division between two parts of a

garden and trimmed to make a smooth, attractive wall. It can be used on lath houses, arbors, on porches supported by chicken wire,—in fact, where can it not be used? Miss Hoak says its best use is as a grape decoration about the eaves of a low house.

Has it any faults? It catches the balls if used on a tennis court. It grows too fast for busy people to be able to keep it in control and thus disappoints travellers to your fair city.

#### DISTRIBUTION

In Santa Barbara, Evergreen Grape is planted in a court on a hot wall where it climbs for twenty feet, but its *Roots* are planted on the north side of the wall where they are kept cool—a hint for growing several other vines that like their tops in the sun and their feet in the shade. It is used as a ground cover. It is carried up to the third story on treillage. It is used on a trellis twelve feet tall and is thinned out every year so as not to get heavy wood. It is used as pot plants on either side of a door and allowed to meet above.

Ontario—Tender here, unless on the upper lands.

At Huntington Library, Pasadena, it was growing on the west and southwest exposure. In this city the leading nurseries were not carrying it.

At San Diego in the American Exposition they were planting a new form which went under the name of *Cissus capensis Thomasiana*. At Wangerheim's it was on tennis court and on pergola.

In Berkeley it is grown by Mr. McDuffie on a north wall. Was killed to the ground by a hard frost but came up again and grew nine feet in one season. It is the large tubers that allow this plant to survive severe weather.

*Cissus hypoglauca* Vitaceae  
Australia (N. S. Wales, Victoria)

Another handsome foliage plant from Australia, this time from New South Wales and Victoria, where it grows along forest streams and rivulets—a hint to us of its requirements. It is hardier than either *Cissus rhombifolia* or even *Cissus capensis*, although it was frozen to the ground in Berkeley in our 1932-33 freeze and came back again, since it has a tuber or underground thickened stem.

The leaves are five to six inches long, a shining green above, lighter beneath and composed of five leaflets, the largest in the middle and all toothed toward the apex—fit companions in every way to accompany gay tiles in court or garden.

The flowers are more conspicuous than in the other species, as they are a bright orange-yellow just before they burst into bloom. The fruit is black and helps to make the whole ensemble very decorative. It is bitter in taste and not edible.

*Cissus hypoglauca* has been in the state at least twenty years and at last is gaining the popularity it deserves and will have when it is better known.

It is rather fast-growing in Southern California after it gets started; is fairly hardy (15 degrees of frost, Armstrong); will grow in sun or shade and any exposure (Miss Hoak). It is rather informal in appearance and will often give a naturalistic touch where a more stiff plant might alter your garden scheme. It is especially effective in making draperies about a wall or a pergola. At the Huntington Hotel in Pasadena, it formed the covering to an arbor and draped so evenly about the structure that there were no ugly outstanding clumps to disfigure the design as it fitted into the garden scheme. It was

outstanding for its suitability for the purpose, as it was not too dense, it harbored no pests, had no disease, no dead flowers to be picked off, never gets bare below or "twiggy" (Parnay), in fact is ideal for this and also for a pergola, as it climbs by tendrils sometimes as long as eight inches, which reach out longer than the leaves to find an object to climb upon.

"It is beautiful for pergolas. It will twine somewhat, but I think we should take the main stem straight up and let the branches twine about the pillars" (Miss Sessions), July 9, 1916.

At the Huntington Estate, Pasadena, it was supported on a string at first, but was afterward stiff enough to support itself. It also clung to Bougainvilleas near at hand.

It makes an excellent climber on the side of a house where it adds grace and charm by fitting the house into a naturalistic setting. It is said to be the best climber to place next to a tall tree. As to pruning, Miss Sessions says, "Do not trim it very much. Take care of the new growth as you go along."

At Mrs. Lucia Fox Edwards' it was one year old, 13 to 15 feet tall, as it had many stems trained flat—fanlike against the house, but it will also drape down gracefully when caught above.

Dr. Franceschi, on July 29, 1916, stated: "I bought it from Miss Sessions, of San Diego, two years ago. Had it in a gallon can two years and then in the ground six months." It was eight feet wide and stood out three to four feet thick, composed of many stems,  $\frac{1}{2}$  to 1 inch thick, but has neither flowers nor fruit. Mr. James says it is hard to get started.

To sum up *Cissus hypoglauca*, we will give you Miss Sessions' description in her characteristic style—all in a nutshell:

"It needs no care, no fertilizers; can be grown from seed; grows in sun or shade; hardier than *Cissus rhombifolia*; beautiful for pergolas; fruit small and black; makes a fast growth; flowers are beautiful in the bud, a bright orange-yellow before they open. Seed pods are not offensive. It is the one Dr. David Fairchild likes so well."

*Cissus rhombifolia* Vitaceae  
(Syn. *Vitis rhombifolia*)

This attractive species is a native of northern South America and therefore of the tropics and does best where there is heat and moisture. It is much used in San Diego and Santa Barbara, where it is quite abundant, but in the Los Angeles and San Francisco Bay regions, it must be well protected from harsh winds and from cold and extreme heat.

Its compound leaves of three leaflets are rhomboidal in shape, a bright shining green when mature but the young leaves are bronzy and covered with soft hairs on both surfaces. Hair is also on the rhachis and on the two-pronged tendrils. Every vein ends in a point, which adds interest to the edges, while the leaves are alternate with a tendril opposite each. When young, these tendrils are long and reach out eagerly for any support by which they may cling and climb upward or the plant may fall gracefully as drapery. It is rather easy in habit, covering a wall compactly without much play of light and shade or without ugly falling ropes of foliage. It does not get bare at base and therefore make good covering for fences, porch screens, house walls or sides of pergolas. It is also excellent as a tub plant in sunless courts, or as a ground cover and very effective on a pergola post since it retains its leaves. It could be trained easily

either in a broad band encircling a slender pillar of marble or it can completely hide a cheap cement pillar.

It is frequently used as a hanging basket for large spaces or on trees out of doors since its quick growth and long lines would cause it to out-grow its position in small rooms in the house. But most of all we should prize it as a foliage vine, on fences as backgrounds to flowers, as a foil for bright tiles, either in court or on trunks of trees where restfulness was the keynote to the planting rather than gay color.

In Los Angeles it was charmingly used over a covered garden seat that had a treillage back, overhead shelter and a brick and tile floor for neatness and comfort. This climber went up one side and covered the treillage daintily but sufficiently for comfort and was well laden with berries which added to the attractiveness. It was against the north wall of the garden and was thus a bright and sunny spot for the enthusiastic gardener to pause a moment with her friends to spend a quiet hour with her books.

There are many uses to which this plant may be applied since it will grow either in shade or sun, wants plenty of water, but Mr. Verhelle, of City Nurseries, Santa Barbara, says, "It can get along with very little, but cannot stand much frost." It is used in a formal garden at Mr. Knapp's instead of grass and is very handsome so used; in some localities it is hardier than *Cissus capensis*, the Evergreen Grape.

It is sometimes used as a covering to tennis courts, but reports say that it is not good for this as it catches the balls and is so thick that they are hard to find afterward. Propagate from seed (Miss Sessions).

*Cissus rhombifolia*, San Diego, April 26, 1936. Good foliage from top to

bottom and even spread on the ground for a yard. It climbs up for nine feet and along the top of pergola for fifteen feet, which makes it about twenty-five feet tall. It is fast-growing here, as one of the new branches on the ground is seven feet long this season. It is vigorous, with the leaves nearly a foot apart. It has coarse, strong tendrils. (Miss Sessions' home at Pacific Beach.)

Although it grew for years in Berkeley on the north side of a house with wide projecting eaves and shelter from the Bay winds, it never thrived very well and grew only about an inch every season. It was moved to a new home into bright sunshine on a terrace with good drainage and the shelter of a deciduous tree. It welcomed the change and grew twice as fast in the warm sunshine as it did in the shade, which is what it should do, being a tropical plant.

And last of all, it is growing well in the new shrub garden in Golden Gate Park in sandy soil, where it hugs the ground and spreads.

*Cissus striata*

Vitaceae

Evergreen Ampelopsis

Chile, South America

This cissus is growing well over a concrete wall on the east side of the Women's Gymnasium, at the University of California in Berkeley.

Its greenish-yellow flowers are followed by blue-black berries in clusters opposite the leaves. The berries do not seem to be plentiful in this region, but it does not greatly matter as the beauty is in the rather small, daintily-cut leaves of five leaflets with edges serrate above the middle. It climbs by three-pronged tendrils which are opposite the leaves, unless their places are taken up by the berries. The tendrils are long and numerous on the young shoots but none

appear to be on the short branches.

Although this charming evergreen ampelopsis was introduced into England in 1878, it was long in reaching California. At first it was considered very tender and they attempted to grow it only in Southern California, but now field notes show that it is doing well in at least twenty sections throughout the state, even in many places in the interior valleys. Although it is evergreen and now considered only half-hardy and not very tender, it will often survive in regions of frost if planted against a warm wall, especially of brick, whereas if planted in the open, it might not survive. "It will grow in Sacramento, where it only holds on but will not climb walls. It freezes back every winter and comes back again." (Vorriede.)

In Niles, California, "it is perfectly hardy," says the California Nursery Company.

At Stockton, California, "it is used as a ground cover, over rockeries and to hide unsightly places. It freezes but comes back again. (Dobner.)

At San Jose it is evergreen and grown from layering. (O. D. Smith.)

At Saratoga it was doing well on a wall and was used with Yellow Strawberry (*Duchesnea indica*) as a ground cover beneath it. This was a little lighter in color but good as to general shape.

The above instances show that it can be used in various places in regions of frost and it would be desirable to have some more experimenting with this species.

In Riverside, at Mission Inn, it ran to the top of the building thirty feet, and had a spread of fifteen feet and stems 1½ inches thick, showing that it was an old vine and stood conditions there admirably. It was a beautiful specimen and was held on to the

wall by staples. This was probably to avoid the experience with it on the Girls' High School, where it was thirty feet high and "apt to tear loose and grow in ropes and get too thick." (Norton.)

At Pasadena it was on a low wall in partial shade and most charming, though its leaves were smaller than those in Berkeley. "If in full sun here it suffers from 'die back' in summer." (John Manning.)

At Huntington Library it was also in shade on the railing of a rustic bridge in the famous Japanese garden and was far more beautiful for this purpose than Creeping Fig in a similar position on another bridge, as it gave a naturalistic look that exactly fitted its surroundings.

At the California School of Technology it is used as a ground cover surrounded by a low hedge instead of grass and answers the purpose very well, though the hot sun scorches it somewhat.

It is also much used as a ground cover in Santa Barbara, where they are at their wits end to find suitable plants to take the place of grass on their embankments. In years of scant rain, its leaves turn a little brown.

It even does well in the cold fog of San Francisco in Golden Gate Park, where it was planted on the Egyptian Building for the 1894 Exposition. It was set eight feet apart to give quick effect and covered the side of the building to a height of forty feet. Here it thrived for about forty years, when it had to come down with that building a few years ago.

*Cissus striata* is not particular as to soil, doing equally well on sandy soil or on adobe. It will grow either in sun or shade, depending upon your locality. This variety, therefore, is well fulfilling its mission and when there are more patio gardens with col-

ored tiles that call for foliage vines, it will be still more appreciated in regions where it does not get thrips or "die back."

It is hardier than *Cissus rhombifolia* and the Evergreen Grape (*Cissus capensis*), and more artistic-looking than *Cissus antarctica*, the Kangaroo Vine.

*Clytostoma callistegioides*

Bignoniaceae

Painted Trumpet Brazil; Argentine  
(Syn. *Bignonia violacea*)

The Painted Lady is supposed to bloom in spring and possibly early summer, but the plant bloomed in August when the flowering is sparse so late in the season. It was on a fence with an eastern exposure with very little sun except in the middle of the day. It had been planted thirty-one years ago and had been neglected and starved so that both flowers and leaves were below normal in size. It seemed quite a find at the time and until the next year, when a glorious specimen was found on a west exposure about four blocks away that gave us quite a thrill, for it was so full of bloom you could hardly see the leaves. It was about ten feet tall and twenty-five feet broad. It had been severely pruned the year before and now had new shoots that hung down gracefully from the weight of the large, handsome flowers,—every one in full sight and many buds still forming. It is lavender in color with deeper lines of the same shade running down the throat.

The leaves are opposite, each composed of two leaflets and a tendril between them by means of which the plant climbs. When these tendrils cannot cling to any support, they simply dry up and drop off as useless appendages, the way nature so

often does when we refuse to make use of the gifts she gives us. That is why we have to have adult education to keep our brains from deteriorating. The leaves are shining above, about three inches long by one and a half inches wide and evergreen all the year around except in severe winters or in certain regions when they drop just before the new leaves appear. Then the climber looks shabby for a short time, but be patient where this happens and you will see a rapid transformation. The branchlets will droop and come out with surprising vigor and beauty.

The flowers are mostly in pairs in the axils of the leaves, yet on vigorous shoots there may be as many as four flowers at a node, which makes an astonishing show of color.

It is propagated either from cuttings (Miss Hoak) or layers (City Nurseries), grows in sun or shade, will stand 18 degrees of cold and is fast-growing when well established. It grew 40 feet tall in Santa Barbara and ten feet wide, while at the Huntington Library it was twenty feet tall and forty feet wide, depending upon the way it is pruned. Some one has said that "it will grow as tall as you want it," which is probably true, but as it blooms on new wood it must be severely pruned now and then to keep it in abundant bloom.

It seems to grow in any kind of soil and on any exposure, though in most localities it will probably need some shade at the roots though it likes the sun. However, it does not like reflected heat.

Many charming combinations may be seen throughout the state. As early as 1895, Dr. Franceschi, of Santa Barbara, mentioned it in combination with Cat's Claw (*Doxantha unguis-cati*) and later Mr. de Forest spoke of it as being planted on an iron fence to-

gether with the Cat's Claw, where they made a complete cover of yellow and lavender flowers, all growing and blooming together.

At the Huntington Library it may be seen on the same side of the house as the Evergreen Trumpet Vine (*Phaedranthus buccinatorius*). These were placed in proximity to give a succession of bloom to that side of the house as one blooms much later than the other. They have thus been growing together for at least twenty years, and are magnificent old specimens.

Instead of window boxes, it was used in Pasadena to encircle a window and then allowed to fall down gracefully in draperies. The same use was made of it in Pacific Beach, where it was in bloom April 10, 1936, "in the teeth of the wind." It had been planted in a small hole cut into the cement walk and was forty-five feet tall.

If used on an arbor, it must be restrained by pruning or it will outgrow its position. As a pergola cover, it is very satisfactory as its glossy leaves are of good texture and it blooms several times a year.

At Berkeley it is on the west side of a house, in the hot sun part of the day, but is flanked on two sides by clipped *Eugenia myrtifolia* trees that give it partial shade and where it droops enough to protect the door from the hot afternoon sun.

It may be used to festoon a white house where it makes a fine effect, the lavender flowers 2 inches across being intensified by the white color.

Painted Trumpet is an excellent screen to a porch where its falling sprays make a beautiful drapery, while in some localities it blooms more than once a year, (April-May and also in summer, says Manning, of Pasadena.)

#### DISTRIBUTION

It has been quite popular in the southern part of the state and extends from San Francisco Bay region to San Diego along the coast section and inland as far as Niles and Sacramento, but there is hope that it can be grown in the valley towns in sheltered sections and give them another evergreen climber of merit and beauty.

*Dioclea glycinoides* Leguminosae  
Scarlet Wisteria Argentine

A slender, twining climber with scarlet flowers one inch long, in racemes carrying characteristic pea-like flowers in clusters of 10 to 25. The wings are narrowed at the base and show a white ring of stamens that make a light spot on the inside of the standard. The calyx is one-fourth of an inch long with four short triangular teeth, two of which are shorter and narrower than the others. The scarlet color is very attractive when seen with the sun shining through it onto the background of dark leaves of three leaflets.

In general, it blooms in summer and fall. In Santa Barbara it blooms for six months from May to November, says Mr. P. Elling, while in Montebello, near Los Angeles, it was seen to bloom from May to October.

It is of medium growth, as it grew 13 feet in two years at Reeves Nursery, in Beverly Hills, and covers a lath house well but not densely. "It likes light soil and will grow either in sun or shade, but does best in partial shade in Southern California, as the sun is apt to scorch the flowers."

It is good for a tennis court, as it is not dense enough to hide the balls; is dainty as a porch screen and satisfactory as to color schemes in the fall where so many white and creamy



*W. C. Mattheus*

*Dioclea glycinoides*



or yellow flowers prevail. On a pergola, it is dense enough overhead to give a light shade and the flowers fall through and show their color. It will climb up the sides of a house on a string or chicken wire to a distance of twenty-five feet.

Its foliage is neat and the flowers drop of themselves, leaving no dead blooms to prune off. It would be quite satisfactory on a treillage against the house, as it has no insect pests or plant diseases, is rather long blooming, will not require much pruning and will keep its place and show color half the year. It would also look well against a terrace wall where it adjoins the naturalistic part of the grounds as it will fit either scheme and be entirely in keeping.

It is normally an evergreen vine which becomes partly deciduous in some localities and wholly deciduous in others in severe winters. It is fairly hardy down to twenty degrees F. and up to 95 degrees in the shade. Therefore it seems promising for interior valleys against a warm wall or in nearly frostless belts.

From Santa Barbara comes the following report: "Here is a vine with great possibilities. It resembles the red-flowered *Kennedy* in habit of growth, leaves are of the same type though slightly smaller, and not quite such a robust grower. The scarlet flower is reminiscent of the scarlet *bougainvillea* and where a blotch of this sort of color is needed, this *dioclea* would be fine. It is a moderate grower; can be propagated by seeds, cuttings or suckers which are freely produced on old plants. "Native of South America, from the Rio de la Plata Region," says Mr. Lockwood de Forest in *Santa Barbara Gardener*, October, 1927.

From Mr. W. B. Clarke, Jr., San Jose, we have another report, where

the temperature is twenty degrees F. in winter and 95 degrees in the shade in summer: "It blooms in late summer—a cardinal red. Likes light soil, is of medium growth, is pest and disease resistant, likes full sun but also half shade. Propagated by cuttings and seed. If perchance its leaves turn yellowish, give it a little iron sulphate."

Mr. Hugh Evans, of Santa Monica, near the sea, reports its behavior in his locality as being "Practically evergreen unless cold weather defoliates it. It wants the hottest, sunniest situation possible in order to induce it to flower well. Will stand a great deal of drought but does better with some irrigation. Requires very little pruning. I have seen it fifteen feet tall and twelve feet wide. I do not think the flowers would be very suitable for picking. A very good vine for the right situation. The growth is never very heavy."

From Pasadena comes this report, —a city that keeps its plants growing and tender late into the fall and then may have a blast from old Baldy so sharp that they are not able to bear the sudden cold, "We have had *Dioclea glycinoides* for a good many years; we have never used the common name Scarlet Wisteria, however. It is evergreen with us, though not profuse of foliage. We have always given it more or less the same care accorded the other vines—soil being usually loam with some peat mixed in with it in potting. Growth is sufficient, though not vigorous. It resembles *Hardenbergia Comptoniana* in habit, likings and speed of growth. When and if the plants become pot-bound, they seem to become woody and cease growing at once, though the bloom may continue about as ever. The stem becomes heavy and somewhat corky at base. The fertilizers



best, we might take a hint from its native home where, in Queensland, it grows in loose sand and at the side of rocks. In Golden Gate Park, San Francisco, it is also in sandy soil, where its leaves are much larger than they are in Berkeley in adobe or sandy loam; and in Santa Barbara they were much smaller than at Berkeley. That should be expected, however, where the plant was spending its energy in producing so many flowers.

Ontario: "At Armstrong Nurseries it is half shrub and half vine. Has yellow flowers; foliage dark green and fast-growing. It will stand up to 25 or 26 degrees without cover and 27 to 28 degrees in a somewhat sheltered position. Grown here on a west exposure." (Frank Smythe.)

Near Los Angeles, it grows up to ten feet in height, while in the Olympic territory in Los Angeles, it is twelve feet on the side of a house across the porte cochère. It blooms along the stem in regular arrangement and has fleshy leaves. It blooms several times a year. (J. A. Gooch.)

It has been seen on a tree trunk, on an iron grill, on the side of a house and on a pergola, but there must be numerous other uses to which it may be put. It seems to me that it is not adapted to every situation, but its attractive single, rose-like flowers, set snugly onto its handsome evergreen leaves, make it adapted admirably for some special setting where its chaste beauty would have just the right surroundings. It cannot compete with such showy flowers as those which the Bignoniaceae produce, but if combined rightly, could make a very artistic touch. I doubt otherwise that it will be very popular except with those who care for

the rare and unusual and are looking for beauty for special situations.

### *Jasmines*

Of the known two hundred species of Jasmine in the world, we in California have in cultivation not over fifteen or twenty varieties. They inhabit the tropical and subtropical regions and nurserymen do not agree in all their names. Considerable confusion has therefore arisen.

Jasmines are among our most valued plants on account of their fragrance. They may be used as climbers, or can be cut down to shrub size. Some are used as ground covers instead of grass; others in beds instead of flowers. They usually combine well with many other plants on account of their white color. Some are light and airy, others quite dense. Some are erect while others fall down in graceful draperies. They can be used as screens to hide objectionable objects or they may be used to soften harsh terrace walls, or the ugliness of a garage—the most disagreeable feature we have to contend with and the least studied as to how to remedy it, for it includes the architect as well as the landscape architect and the gardener. Some have met with a happy solution in dealing with the garage but there is much room for study and experimentation as to the best way to make the inevitable as unobtrusive as possible.

Jasmines are of easy culture, do well in any situation, under Eucalyptus trees, on north, south or east sides of buildings, as a decoration for the stage or home. *J. gracillimum* and *J. grandiflorum* are practically ever-blooming, the former being a favorite in Santa Barbara and *J. gracillimum* of San Diego. *Jasminum azoricum* is a general favorite and is used in un-

usual ways, the best one perhaps being to fill a formal bed instead of flowers. *J. primulinum* is the most early blooming species and blooms in January, February or March. We have not yet learned to appreciate *Jasminum simplicifolium*, which is noted for its fragrance and for its long-blooming flowers. The less said about *Jasminum Beesianum* and *Jasminum stephanense*, the better for they are lacking in real beauty of foliage and disappointing in flowers.

Jasmines are troubled with nematodes. They are apparently in good condition and then become sickly either from that cause or else from blight.

"All Jasmines like to be severely pruned but not too often, as that loses the flowers." (J. A. Gooch.)

*Jasminum azoricum*                      Oleaceae  
Azores Jasmine                      Canary Islands

An evergreen climber that seems to do well throughout a great portion of the state, even in Bakersfield in a protected place, though not much tried there as yet in the coldest sections of town. It is the best one of the varieties for Santa Barbara and is much used there for ground covers, for beds instead of flowers, as porch screens, sides of houses, in a rock garden, pillars to a house and over low walls. Here it is everblooming and very much prized on account of its various uses and fragrance. On a small cottage at Goleta, it was twenty-five feet tall and twenty years old, showing that it speeds up in growth after it is well established. It is also trimmed to keep it to shrub size.

At the former Shorland Nursery near Riverside, there is an old plant fifty years old and still blooming well. It mounted up to the second story of the old house and is still in very good

condition. It is sheltered by some very tall old trees, however, which protected it from the winter cold.

"Also in Riverside is a very large vine of this, sixty feet of which is in the shelter of a *Pittosporum undulatum* and growing in heavy soil. The plants from Armstrong Nursery were from this specimen and ought to be a hardy strain." (J. A. Gooch.)

At Mr. Duncan McDuffie's, in Berkeley, there are two specimens, one on the western wall of the residence with other climbers, but it might also have been somewhat in reflected heat. It was more vigorous than the specimen on the north wall, showing that it does better in the sun here.

For some reason or other it does not seem to be very much used in San Diego. Miss Sessions does not carry it, but says it is good in that region.

In Niles, the California Nursery Company had it in bloom in September, 1916, but it was in partial shelter of a pepper tree, which was probably an accident, as they recommend it as being hardy and in bloom most of the time. It should then be more extensively tried out in the San Joaquin Valley, though it does not seem to be used in Sacramento.

At Montebello the leaves seem a little smaller than normal, but otherwise it seems to thrive well in that locality.

At Miss Baylor's, in Santa Barbara, there is a most remarkable specimen that is fully twenty years old. It covers the whole side of a house to the very eaves and enframed a window so heavily that a square had to be cut into the plant to let the light and air into a window. In August of 1935, it was so full of bloom and with such large flowers that it was almost starting.

At Mr. Sturtevant's, in Hollywood, it was also a handsome specimen thirty feet high and twenty feet wide, full of bloom in July.

The flowers of the Azores jasmine are very handsome, over an inch long and in clusters of five to eight flowers, a pure white that contrast well with the very dark leaves. These leaves are in threes, the end leaflet being larger than the two side ones. Why is it not planted more in the Bay region? Give it a west wall, but away from harsh winds and enjoy its delightful fragrance.

*Jasminum gracillimum*                      Oleaceae  
Slender Jasmine                              Borneo

This delightful jasmine is supposed to be hardy in all parts of California, but for one reason or another it is very little used in many sections of the state.

Its simple leaves are opposite, ovate in shape, a decided light green, about  $1\frac{1}{2}$  inches long and apt to be undulate on the margins. They are more or less pubescent and hang down in long sprays that are very graceful.

These flowers, when in bloom, form dense clusters on the outside of the leaves and stand out thickly at the ends of small branchlets like 8-pointed stars. They are in crowded cymes, the middle flowers in each side branch blooming first and followed later by its two companions, thus assuring a long blooming season. To prevent a too crowded condition, the tubes of the flowers are  $\frac{3}{4}$  inch long. This gives the inch-wide limbs ample room to develop and not crowd the new buds which must come out later. Each flower is set in a calyx with long linear teeth that make a pleasing background to the glistening white flowers or stand out prominently when the latter have dropped, thus leaving a

clean bush. Slender Jasmine may be used as a climber or pruned down to shrub size.

It seems to be the favorite of all the jasmines in San Diego, where Miss Sessions reports as follows: "It is good from bottom to the top, no perfume or very little; wants good drainage, not a too heavy soil; some fertilizers. Water well but not too often. As the plant grows older, the roots are further away from the stem so the fertilizers must be put further away."

It made a complete screen for ten feet between two pillars of a pergola. It climbed eight feet, the branches drooping gracefully and then spread on the pergola above. Like the maiden-hair vine, it has sprays that stand out at an acute angle and are not very tidy-looking. These branches should be pruned off. The stems will twist about themselves if they can get no other support and should therefore be trained and not allowed to tangle themselves in this way.

At South Pasadena, it is fast-growing, as it grew ten feet in two years at Miss Hoak's home. Here in Pasadena it gets a large trunk and when cut to the ground, will come back again. It should therefore do well in the Interior Valleys. (John Manning.)

At Ontario "It likes an east exposure and protection from the wind if it is on the west. It is better as a bush and likes semi-shade here rather than the full sun. Free-blooming. Will flower three months or more, depending upon the locality." (F. Smythe.)

At Monrovia (Pioneer Nursery), it seems very suited to this region, where it was on an old building and was twelve feet high. It must be supported.

At Santa Barbara it is very popular where it is grown as a shrub in



*Armstrong Nurseries*

*Jasminum gracillimum*

front of other shrubs. Also fast-growing on Mr. Riedel's on the side of a porch, where it grew ten feet in one year. The upper branches climbed up on a string, round and round, and on this account lost most of their characteristic habit.

At Montecito they were exceedingly beautiful climbing some tall trees. They were particularly good along the entrance drive and gave complete seclusion to this part of the estate, so that the public passing this way had no idea of what lay beyond. They climbed these trees by tendrils and hung in drooping sprays on the outside of the trees while quantities of large white flowers leaned downward so that we could look into their faces. Mingled with them were also *Jasminum rigidum* with the same type of flowers and smaller leaves, but of similar shape.

*Jasminum gracillimum* may therefore be used as tall climbers on trees, or on a pergola, though not good on a pergola post unless pruned to lesser width. It may be used for cut flowers and for decorations and as shrubs. Best of all, it grows either in the sun or shade.

Such a useful climber should find more universal use and should be given a more extensive trial in the towns about the Bay region, as well as those situated further inland.

*Jasminum grandiflorum*      Oleaceae  
Catalonian Jasmine; Spanish Jasmine  
India

This delightful Jasmine is grown only in greenhouses in the eastern states but is quite common in California excepting in regions of hard frost. The flowers are white with a pinkish tinge on the outside of the petals and are mostly withering persistent, which seems to be a mistake on the

part of nature, as these dead flowers are annoying on an otherwise perfect plant. Now and then, however, we come across individual specimens in which most of the flowers do drop when they fade and we are hoping that plant breeders will develop this tendency still further.

There seems to be a decided difference in these plants in both Pasadena and San Diego. We wondered why it was that we did not see more of this species used in these cities. Now it turns out that Catalonian Jasmine likes the climate so well there that they *grow too fast* and have *too many flowers* which *fade in the hot sun* far faster than they can be kept pruned off by busy householders. The result is that these people either keep this plant cut to a size low enough to be able to reach the offending flowers or they give up in despair and dig them out. In Santa Barbara and the San Francisco Bay region, they are of *medium* growth and do not flower so freely and consequently do not have so many dead flowers to bother with, while the ones that do hang on are kept clipped off or merely endured for the sake of the delicious fragrance near the dwellings.

The stems are slender, though rather stiff, and the small leaves are too scant to make a good background for the flowers. This is easily remedied, however, by planting some other climber with the Catalonian Jasmine, the Common Jasmine (*J. officinale*) being the plant usually used. These two make a good combination, the foliage of *J. officinale* adding considerably to the strength of the Catalonian, which on the other hand aids by its larger and more fragrant flowers.

As to other associates, *Bouvardia Humboldtii* is often used to hide the bare feet of the *Jasminum grandiflorum*.

*florum*, the flowers combining well, though the foliage is a little different.

"The general opinion is that the Catalonian Jasmine blooms most of the time unless in wet or cold weather. It is also easily propagated by cuttings, which root better with some heat. It is slow to become established, both as a cutting and as a plant. It should always be planted in a warm sheltered place, as it needs a favorable location. It has mealy bugs and black scale. It is scarce in cultivation and it would be better to recommend *Jasminum nitidum* instead of this because the flowers are most beautiful and just as sweet and it is a stronger grower." (Miss Sessions.)

The oldest specimen that we have seen in the state was at Riverside at Mrs. Arthur Shorland's place, which was fifty years old. It was on the grounds of the first nursery people in this section and the plant had probably been cut down many times, as the stems were only 2 inches across, which seems rather small for so old a plant.

"It is very fragrant so that they make perfumery of it in the Mediterranean region, where it has long been cultivated. It is fast growing. Keep it to a pillar form. Cut it to the ground and it comes back again. Propagate it from tip layers." (Miss Hoak.)

"It is on the south exposure and is one of our best, not dense but worth growing for its light foliage." (Frank Smythe.)

"This is especially fine, planted mostly in half shade on an east or west exposure, where it does not get the sun at all and blooms for a long time. It stands 18 degrees of frost without injury but gets frozen in the San Fernando Valley if the temperature goes down. It needs much

pruning." (J. A. Gooch, of Ontario, California.)

*Jasminum officinale*

Oleaceae

Common White Jasmine

Persia, China and N. W. India

The plant from which this photograph was made is in Berkeley and was on the south exposure of the house. It was fifteen years old, fifteen feet high, eighteen feet wide and grown from cuttings. It is rather weak-stemmed, with the flowers borne on the ends of the branches and is somewhat informal looking, with the branches standing out loosely and brought down by the weight of the flowers. The white flowers are in cymes, with the middle flower opening first and the two pointed buds on each side coming on later. They are five-starred, over an inch long and very fragrant,—a fragrance that combines well with that of the Evergreen Mock Orange (*Philadelphus mexicanus*), though quite a different odor. The calyx ends in thread-like teeth nearly a half inch long.

The leaves are opposite, compound and made up of from five to seven leaflets, the one on the end being much larger and tapering to a sharp point. They combine rather well with those of *Jasminum grandiflorum*, which has scant leaves, as it gives that plant a good background for its flowers.

"Pruning is quite important. The best way is to prune a part of the vine every year, leaving enough old wood on to make a good show, as the flowers bloom on the old wood. Do not cut off all of this old wood or you will have no flowers the following year." (George Celaste.)

The common jasmine is not usually considered a large plant. Ordinarily it does not grow to more than fifteen



or twenty feet high and fully as wide, but in Berkeley there are specimens growing on houses thirty feet tall in partial shade of tall street trees. They are light and airy about the house and not dense enough to prevent sun or breeze from entering the house.

It is long-lived, as one was known to grow twenty years at Sacramento at the Bell Conservatory. They can also be cut to renew them, for we know of one plant that was thus cut every year for fifteen years because it happened to be in the way at a certain time. They bloom from March to November in Berkeley and from May to frost in San Jose. (Smith.) It will stand sun or shade but is better in the sun; propagated from cuttings; gets scale and mealy bugs in Santa Barbara. (Beers.)

Its uses are many. At the Ducan McDuffie home it is on the wall of the house court. It is planted on the back of the wall and falls over into the court, where it stands out about two feet from the wall. It is dainty and full of bloom, although in full shade. Its flowers are not unlike those of *Trachelospermum jasminoides* in shape and color, but their texture is more tender. As a pergola plant, it covers enough to give shifting shade, but will not always lie flat on top unless given some training. At the 1916 Exposition at San Diego, it was planted on a pergola with roses and *Tecomaria capensis*. Here it kept its place and hung down well, but the Cape Jasmine was too stiff and stood far above the top of the pergola, whereas we like it to be flat.

It is used in Santa Barbara to some extent, but they do not consider it as good as *J. grandiflorum*. At one home it was trained flat on a south wall but seemed to be injured some by reflected heat. A wall on a north or

east exposure would have been better.

It has been well distributed throughout the state, as it was seen all the way from Grass Valley in the north, through Sacramento, Napa Valley, Petaluma, San Jose and its surroundings as far as San Diego, but in most parts of Southern California they seldom use it as they have other species they like better. It seems to have been introduced into California early by nurserymen (Wm. C. Walker, in 1860) and spread through our milder valleys in the large estates of early days, both on the San Francisco Peninsula and elsewhere. It has therefore been growing in the state for seventy-five years, though more extensively used in the San Francisco Bay region and north. It casts little shade and is itself light and airy in habit. It should be tried out more largely in the milder valley regions.

*Jasminum primulinum*                      Oleaceae  
Primrose Jasmine                              China

This primrose jasmine is a general favorite in the state on account of its winter and spring bloom, as it comes in with the early bulbs and may often be seen in good color in December or January, and then on to March or April—about three months. In late seasons it may continue on into May, with occasional flowers somewhat later in the year. It is a somewhat new introduction to some of our gardens but it has been in the state for at least twenty years, where it became a general favorite at once on account of its spring brightness, its adaptability to various uses, as well as tolerating many kinds of soil. It will grow to thirty feet but to make a good climber, it must be tied at ten or twelve feet and allowed to hang down gracefully in long sweeping sprays. It is thus used on a pergola at Central



*Victor Duran*

*Jasminum officinale*

Park swimming pool at Bakersfield, where it gives great satisfaction to the bathers who sit on the benches to rest and admire its large, yellow flowers.

It is also used as a ground cover instead of grass, either in sun or shade, and is well adapted for this as it grows and roots along as it goes. Two or three plants will thus cover a whole hillside in a short time.

It seems very well adapted for use on a tennis court in regions where it does not grow too dense to catch and retain the balls.

The leaves are from 2 to 3 inches long with three leaflets set on a square stem that is also green. In regions of severe frost they become partially deciduous, as in some gardens in Bakersfield. In that case, leaves and flowers appear at the same time in spring.

Its flowers are double and a pleasing light yellow which covers the entire plant and makes a glorious color. They are usually about  $1\frac{1}{2}$  to 2 inches across and so abundant that they seem like a cascade.

It is our most drought-tolerant jasmine and also makes a good cut flower. If cut in the bud, it will come out and last ten days in water. It is also fast-growing, as one plant in Santa Barbara only two years old grew fifteen feet high with a stem  $1\frac{1}{2}$  inches thick. It will grow on any exposure with seeming disregard to its position, a fact that adds another cause for its popularity.

As a shrub, it is not always gracefully falling. Its habit seems to vary according to the kind of soil it is in but more probably due to method of pruning. In these cases it stands stiffly erect with its branches far apart and looks too sprawling for beauty. This is quite a common fault,

far too common, and we look longingly for a gardener who knows how to prune shrubs intelligently.

As to distribution, it is seen throughout the state from low mountains, from Sacramento through the San Joaquin Valley to Bakersfield, then Pasadena and on to San Diego.

"In Ontario it flowers in January and February, with very dense primrose-like flowers and there are still a few in bloom now in April. It can be cut back quite heavily to renew it or you can make it into a shrub. Its best point is that it blooms in winter, for it is hardy, has green foliage and blooms when the flowers are scarce." (F. Smythe.)

"This is the hardiest of any of the Jasmines. You can see it in the mountains and in valleys, at every station along the Santa Fe Railroad to Williams. Turn off to Grand Station, where it is on the station grounds in the desert, in Phoenix, Las Vegas, Tucson, Arizona, at Brawley, Indio, Palm Springs and on the upper desert. It is the most usually grown vine and is seen from one end of the county to the other. It blooms early in the year and even in November." (J. A. Gooch.)

### *Mutisias*

Mutisias have long been cultivated in England, though mostly in greenhouses, where their large and brilliant flowers at once attract attention due to their decorative value. A few of them were set out of doors and after repeated trials were found hardy enough to live in the warmer sections where they were grown over low bushes or on warm walls mingled with other climbers. The varied success of the enthusiastic growers of these plants out of doors is vividly told in their reports in their garden magazines and

especially in *Gardener's Chronicle*, where they discussed methods and failures and entered into hot disputes. As time went on, however, most of these introductions planted in the open ground died out for a time until the interest and beauty of the flowers caused another effort to be made and they are again carrying on as keen as ever. They are now growing at least five or six species which are doing fairly well out of doors. These are as follows: by E. Markham in Jour. Royal Hort. Soc., Vol. 61, "*Mutisia clematis*—from Peru and Colombia. This is a little tender, but otherwise a vigorous grower, with orange-scarlet flowers 2 to 3 inches across during the summer months." Ill. in Bot. Mag. t. 8391.

*Mutisia decurrens*, moderately strong grower but has not the vigor of *M. clematis*. 10 ft. tall. Difficult to establish. Flowers 4 inches across, vermillion and yellow center. Mr. A. T. Johnson describes his experience with it in "My Garden, Aug. 1936," which see. His culture is as follows: "This superb plant is not easy to start, but once established it will carry on for years. It is happiest, I think, threading its way through a fall shrub, or some small evergreen bush, with its roots in a cool, but freely drained soil." Ill. in Bot. Mag. t. 5273.

"*Mutisia oligodon* from Chile. Large pink flowers. Are used to run up small trees and through bushes and frequently used to veil large rocks and low walls."

*Mutisia retusa* from Chile, which Mr. A. T. Johnson also grows and describes as follows: "White flowers which range from a chalky blue-white to a clear rose-pink. An evergreen with horny, saw-edged leaves and no fads about soil—or situation so long as it has its head in the sun. This

handsome species should be raised by seed from a good color form, such as a bright pink, with subsequent selection from the seedlings." "In My Garden," Aug., 1936.

There seem to be two types of leaves among the mutisias, the ones with compound leaves, the rachis of which ends in long tendrils, found mostly in the northern part of South America, and a simple-leaved type like *Mutisia ilicifolia* from Chile, with leave like those of an English Holly, and quite as toothed on the edges. It is shown in color in the Botanical Magazine t. 6009, while another of this simple-leaved type is seen in Botanical Magazine t. 5273, as *Mutisia decurrens*, with strap-like leaves ending in long tendrils. These you may like to look up, as our interest in California has only recently been heightened by the collectors, Mrs. Mexia and Mr. James West, of the University of California, whose collections have brought in rare and unusual plants from the western side of South America.

#### *Mutisia clematis*

Compositae  
Peru; Colombia

Of all the species yet introduced into England, they say *Mutisia clematis* is the easiest to manage. It is propagated from cuttings of half-ripe wood as well as from seed, and when it is once established it is very vigorous and does not die off suddenly as the others do.

The only specimens we know in California are in the vicinity of San Francisco, and the one at Golden Gate Park, San Francisco, is badly mildewed, according to Mr. Eric Walther. The other one is at Mr. Anson Blake's home in Berkeley, where it was planted at the foot of an arch

with its feet in the morning sun and its foliage receiving the afternoon sun and the breeze from the bay. It belongs to the compound leaf type, with leaves four inches or more in length and its rhachis ending in long tendrils by which it climbs. Each leaf has four or five pair of leaflets  $1\frac{1}{2}$  inches long and are covered with a gray felt that gives them quite a woolly appearance and makes the gray color conspicuous among so many green ones in the garden. Here it grew for some time until the flowers appeared.

These flowers are very spectacular and excite a great deal of attention as they are so different from most of our cultivated plants. They are so heavy that they hang pendant from their delicate stems for our close inspection. The many ray flowers make a splash of color three inches in diameter which is some shade of red, variously described as orange-scarlet or orange-vermilion. Quite as conspicuous as the color are the whitish or gray bracts which line the tube of the flower growing in four or five rows, the hairs even running down the stem. There was only one flower in bloom when first examined, but a month afterward there were ten flowers in full bloom and many buds. It seemed to thrive vigorously in the fresh air and sunshine, but the trade winds came on, whipped the flowers about mercilessly and turned the leaves black on the windy side. The plant threw its long tendrils about, clasped the sheltering hedge and gained as much protection as possible for itself and its flowers until the worst danger was over; then clinging with one branch to the hedge, it threw another branch over a nearby bush and pushed its flowers out into the intervening space high enough so that we could look into the heart of the flower

and admire its ray flowers which on inspection the botanist told us, were female with only a trace of their stamens present while the *disc* flowers had a few flowers that did not open and were *self-fertilized* and the rest of its flowers were *cross-pollinated*. He said the fact that this species had both cross-fertilization and self-fertilization in the same flower might account for its being so variable and so hard to determine. Mrs. Blake resented the treatment given to this rare plant by the wind and later moved it down into the canyon to be between two redwood trees, where it is now growing vigorously.

*Mutisia clematis* is said to have been introduced into England in 1859 and now, seventy-five years afterwards, it is still very difficult to buy in nurseries in that country. Our one plant in this region, therefore, is all the more desirable for its rarity. We are hoping for other introductions not only of this species but of many more.

*Pandorea brycei*

Bignoniaceae

Queen of Sheba

South Africa (Rhodesia)

The Queen of Sheba is evergreen, blooms in winter and though it grows luxuriously in San Francisco region and also near San Jose, it is too tender to flower there, as this is our winter season and early frost catches the young succulent growth. Perhaps as time goes on, a hardier strain may be developed for our colder sections that will bloom at a more advantageous season for the plant. It requires a rich soil and a sunny position.

It is a vigorous grower and at Mrs. Cuttle's, in South Pasadena, a plant fifteen years old had grown forty feet along a porch. Its stem had a diameter of two inches and though it had been severely cut back in the spring



*Armstrong Nurseries*

*Pandorea Brycei*

just after it finished blooming, its new shoots had already grown six feet by July. It had bare stems for ten feet, and needed another plant to cover up this defect. Although the leaves are light and airy, there are so many of them that the vine is heavy and must be supported. The branchlets are slender and the leaves hang gracefully as they sway in the breeze.

The leaves are compound, about 8 or 10 inches long and have from 9 to 11 leaflets 2 inches long with short petioles and long acuminate points. The edges are slightly wavy and occasionally serrate. These leaves are often confused with those of the Ricasol Pandorea (*Pandorea ricasoliana*) but a closer inspection will show that Queen of Sheba has more pointed drawn-out tips to the leaflets and more slender as a whole, while the leaflets of the Ricasol Pandorea are more robust and come to a more abrupt point.

The Queen of Sheba is evergreen, not deciduous like the other, is lighter in color, its leaves looser and longer and its best growth is in fall or winter and therefore apt to have its young shoots injured in times of frost.

The flowers are large and pink, with yellow and darker pink lines in the throat. It may bloom from one month to several months, depending upon the season, for it blooms on new wood which is young and tender and has not had time to harden up to withstand a sudden drop in temperature. As it grows 25 feet tall and 25 feet wide, it is a climber for tall buildings and wide spaces but, on the other hand, it is not adapted to small gardens fifty by 100 feet.

It looks very well on a pergola where it climbs up and over the top and down on the other side, but it ordinarily has leggy feet which must

be covered by some other plant. It can cover an old building completely or will train along a fence.

From the evidence of notes gathered on field trips, we would say that this climber is not very popular at the present time on account of its tall growth, thus being hard to prune, and the fact that it will require a trellis or some sort of support to which it may be tied. Instead of the Queen of Sheba, we would personally rather see *Hardenbergia Comptoniana*, *Pandorea jasminoides* and *Clytostema callistegioides* used on account of their texture, glossy leaves and permanent effect.

*Pandorea jasminoides* Bignoniaceae  
Bower Plant; Jasmine Pandorea  
(Syn. *Tecoma jasminoides*)

Australia

Another choice climber from Australia that is grown throughout the state where the temperature does not fall below 24 degrees F. It is especially favored in Santa Barbara, where its evergreen leaves of good texture have earned its continued popularity.

Its leaves are compound, four inches long and composed of five to seven leaflets of good firm texture that seem to harmonize fairly well with other shining, thick-skinned leaved shrubs and vines so frequently seen in cultivation here.

Its flowers are trumpet-shaped, 2¼ inches long by 2 inches in diameter, and are borne in loose panicles of white flowers with a maroon or dark-pink eye. Not all the flowers have room to bloom at once on account of their size. Nature then withholds a few buds and prolongs the blooming period. It has sufficient blooms but never a profusion such as most of the other Bignoniaceae produce. It has a long blooming period and

is likely to bloom all the time in warm regions but in localities like Berkeley it does well if it has flowers from February to frost and part of that time only scattered flowers. It is of medium fast growth, as seen in Pasadena, where it only grew fifteen feet in seven years. However, it seems to vary in height in different localities. In the Bay region, it may go to twenty feet or so and never seems to outgrow its position. In Santa Barbara there are homes where it is very vigorous and has to be pruned often to keep it within bounds. Mr. Gooch reports that he has seen it on an arbor in Orange County where it was forty to fifty feet long, while one in Riverside on an arcade sent out its runners to thirty or forty feet, and was doing well in a summer temperature of 110 degrees. It was also seen at Redlands with about the same degree of heat. At Ontario it will stand 24 degrees of frost without killing it, and likes a little shade on the east side of the house. It will stand considerable trimming and was cut to the ground twice and came back again, but he does not recommend it as a general practice. He also says that it enjoys the very best soil, will grow in medium sandy loam and even in decomposed granite, though the plant that was struggling there had smaller leaves and a lighter shade of green, probably due mostly to lack of water. All of the specimens he saw had good leaves to the ground but at Mr. Sturtevant's in Hollywood, the Jasmine Pandorea was leafless for ten feet and then went up to twenty feet or more on the side of the house. This was also the case in San Diego on the dynamited soil in Balboa park. Here they had planted it quite freely on the pergolas and on other arbor seats where it was needed to screen the sides and allow some degree of pri-

vacy from the constantly passing Exposition crowds, but it was almost invariably leggy for four or five feet, no doubt due to its hard struggle in that poor soil. At any rate there is no general complaint about its dropping its lower leaves and perchance your specimen has that habit, you can easily combine it with holly or osmanthus or any other of our numerous shining-leaved shrubs of medium growth. There was also a Jasmine Pandorea on a pergola that was naked below but was good above, as the leaves and flowers hung through and the top of the pergola was well hidden. In this case they had planted with it, to hide its nakedness, the Cape Honeysuckle (*Tecomaria capensis*), which is a climber, though often treated as a shrub, and it grew so fast that it pushed its way far above the pergola top and held itself stiffly erect instead of softly draping the top of the pergola.

"It will not live at Sacramento, as the winters cut it to the ground, though it probably needs but a slight shelter to bring it through the winter. It has been to the top of the lattice house but froze down again. It blooms on the new wood, so we do not see the flowers." (Mr. Geisreiter.)

It is bothered by black scale if there is any plant about that is heavily infested with them.

It is especially prized for its clean, neat flowers and its thick, glossy leaves, also because it does not outgrow its position. You will prize this choice plant, as it is always neat and effective, moderate as to amount of water and not particular as to its soil.

If perchance you would like another color, why not try one of its varieties? They seem to require the same culture and care.

*Pandorea jasminoides alba* is similar to the *P. jasminoides* but a pure white and is the one used in Santa Barbara



in the white garden of charm. It is also used in Montecito in front of a pergola post planted to English Ivy. This ivy makes a good background for the flowers but it will eventually crowd it out though the Jasmine Pandorea has already been there for twenty-one years. It is considered very choice.

The other variety is *Pandorea jasminoides* var. *rosea*, which is the choicest of all, though perhaps a little more tender. At any rate, it is more rare. It was seen at Santa Barbara 25 feet tall and growing on a trellis. It was just beginning to bloom on August 29th and is a delicate pink with a deeper pink throat. Another one was outside and climbing by twisting about a post for eight feet and then on top of a lath house for fifteen feet. It was a good shining green and in general had five leaflets, the odd one being the longest, as it is in the species. It was in full bloom (July 24, 1916), making a dense shade with the flowers on top and some of them falling through. It is new here and we do not know yet how to combine it with other plants.

*Pandorea pandorana* Bignoniaceae  
Wonga Wonga Australia  
(Syn. *Tecoma australis*)

Another vine from Australia which is used largely for climbing tall buildings and to fill wide spaces. It is drought-tolerant, fast-growing and the foliage is used for decorative effect rather than the flowers, as it blooms but a short time in the spring, with perhaps a few flowers later in the season, as in Montecito, where it had a few scattered flowers in August, white in color with a brown eye. It made a wonderful growth at the Exposition in 1916 and Mr. Bode says "it is still our fastest growing vine, hardy and

growing in any exposure. Stands wind and seashore conditions." Not so in Beverly Hills, where Mr. T. H. Spargo reports that it will grow in full sun or half shade but would not bloom in the shade. It stands cold, frost, drought, but the more water you give the better it grows. In good soil it grows within one hundred feet of the ocean *but not in full wind*. Prune it at any time. Subject to black scale. It gets down to 26 degrees here in the Beverly Hills Nursery and touches the tip of this plant.

Mr. Gooch reports that it makes a good ground cover, as he saw it near "Tustin on a wild bank where it grew like a weed. Cut it off the bank and it soon grows again. It has very little care and is in a poor gravelly soil, rocky with no substance in the soil. It blooms in April and a little later. It is in bloom at the same time as the *Solandra guttata* and Paul's Scarlet Rose. Bees like the blossoms."

*Ontario*. "This plant is attacked to some extent with black scale when in combination with other plants suffering from this pest. It is rather a difficult vine to control and must be given plenty of room. We have the variety *rubra* growing at the Ranch at Armstrong Nurseries with deep pink flowers. This plant is excellent for covering large areas, particularly a bank, where it can be planted at the top of the bank in fairly good soil and allowed to droop down over the bank to make a cover." (J. A. Gooch.)

"In Ontario it is growing on an east exposure, rapid-growing. It is better to grow it as a bush over an embankment. Hardy; blooms early in the year—January but not long—a month or so. It has small flowers." (Frank Smythe.) Mr. Smythe also has the one they call *Pandorea pandorana* var. *rubra*, which is planted on



*W. C. Matthews*

*Pandorea pandorana*

a south exposure. It is smaller than the type and grows more dense, not so rank. Foliage fine, glossy leaves, red flowers." April 17, 1936.

In speaking of its hardiness it is rather surprising in how many towns of the Great Valley it is actually growing though under hard conditions. It looks as though a little shelter would bring them through the hardest part of the winter. We have had reports from the following:

*Hayward*, on tennis court.

*Niles*, California Nursery Co., where it was 13 feet high.

*Morgan Hill*, Coate's Nursery.

*Sacramento* Capitol Grounds, climbing a tree and was protected.

*Stockton*, where "it freezes but comes up again. We do not want any of the Tecomas for the same reason." (Dobner.)

If this climber, then, could be kept alive until it had established its roots well in the ground, the probability is that it can be grown in the warmer sections of the San Joaquin Valley if given some shelter. It is hardy and persistent, as shown by one specimen on the University of California grounds in Berkeley. This climber had been grown for some years on the high board fence of the old track field. When this tract was abandoned, the fence was taken down and the plant cut to the ground. Here it continued to come up for four years in succession, although buried by a "fill" or cut down by accident. This year it is growing as lustily as ever at the rate of one or two inches a day, even faster-growing than the Evergreen Trumpet Vine (*Phaedranthus buccinatorius*) on the same bank but half a block away. When compared with that species, it is hardier to heat and cold, faster-growing in the individual branches but does not make as many

stems and consequently, up to date, December 16, 1936, it did not cover so large a space on the bank nor would it make so dense a screen, though eventually it makes a more dense one. Neither sun nor cold has harmed its leaves while those of the Evergreen Trumpet Vine had turned quite brown wherever they had hugged the ground too closely. Wonga Wonga has much the handsomer leaves, longer, glossier and more vigorous. Nothing seems to stop its growth when it is well established. We are therefore hoping that it will grow in the warmer sections of the valley towns to give them another evergreen climber.

At Santa Barbara Mr. James says, "It has black scale and mealy bug, but not as bad as Stephanotis. A very vigorous grower. Has a tendency to pile up a lot of brush underneath. I would class it as drought-tolerant. The heaviest bloom is in winter with scattering flowers until summer. There is a young growth coming on most of the year which is always bronze in color and makes a pleasing combination with the glossy green of the mature leaves."

The plant from which our photograph was taken grows in Piedmont, has grown so fast that its leaves do not look like ours in Berkeley which have the leaflets nearer together, much more glossy and scalloped on the edges, while this photograph shows a lush leaf somewhat wilted and limp. The young leaves are so different from the old ones that our nurserymen called the young plant by a different name until it was discovered that they grew into the mature Wonga Wonga. This illustration shows only five leaflets but in Australia there are from five to nine leaflets and either entire or crenate and may be from one to three inches long.

The flowers are small for those of a Bignoniaceous plant, being about an inch or less long and half an inch in diameter. Usually in dense clusters, white in color, with a purplish or reddish spot in the throat. They do not hang on very long and the beauty of the climber is in its leaves.

*Philadelphus mexicanus* Saxifragaceae  
Evergreen Mock Orange; Mexican  
Mock Orange

Mexico

A charming plant from Mexico that may be used either as a shrub or as a climber, depending upon its treatment. It will grow 30 or 35 feet tall and 20 feet wide or may easily be cut down to shrub size. There seem to be two forms, both fragrant; one consisting of single flowers and a double-flowered form which seems to be the one most in general use throughout the state.

Its time of bloom varies so greatly in different localities and in different soils that it is hardly possible to set a good date for a wedding which must have this plant as its leading decoration. It has been variously reported as blooming in spring, in summer, and "in Pasadena it blooms from Christmas time and intermittently on through the spring until June." (Miss Hoak.) "In San Diego it blooms freely in winter and spring and is a more or less continuous bloomer." (Miss Sessions.) In Santa Barbara, "Blooms in winter—full bloom in February, and more or less in summer" (Mr. Petingell), but it has bloomed in September in that city, as Mr. de Forest reports in the October issue of *Santa Barbara Gardener*: "Last year the Mexican Orange curled up and was valueless as a decoration to the September garden unless specially watered. This year it heads the list as

the best all around vine, with fragrant flowers for September." But why prolong this discussion of bloom, for it has been seen in flower every month in the year in one or the other sections of the state.

There is another discrepancy in the use of the two varieties. Mrs. Lucia Fox Edwards claims that the single-flower type is a "weed." Miss Hoak also says that the single-flowered *Philadelphus* gets scaly and the foliage is not so good as the double-flowered one. On the contrary, for San Diego Miss Sessions likes the single-flowered form, "as it is a better bloomer and has better foliage than the double-flowered form." The specimen from which our photograph was taken was on the gardener's house at Mr. Duncan McDuffie's place and was photographed in May. It had also been in bloom in July. The gardener said it bloomed for four months, April to July, but in other gardens in town it also bloomed in the fall.

This specimen was eight years old, 20 feet high, 15 feet wide, and still rather good, with 3 or 4 blooms on the ends of each branch. The flowers are withering persistent but can easily be knocked off with a rake, which makes that an easy problem. The flowers grow from short branchlets that spring out from the old wood. So if the old wood is cut away in pruning, there are no flowers the following year. It is therefore best to prune only *part* of the old wood every year and thus leave enough on the plant to supply the short new growths from which the flowers spring.

The flowers are white, semi-double, and fade to a cream color. Whether single or double, they have an unmistakable fragrance. "Its perfume is so strong that you cannot mix it with other strong perfume plants." (Mr. L.

de Forest.) It is a very clean vine, as there are no aphids or other garden pests on it.

According to Mr. Riedel (Santa Barbara), it was introduced into California by Mrs. Robert Louis Stevenson, who secured a specimen in Mexico and gave it to the late Charles Abraham. Mr. Riedel secured a piece from him and in turn was able to supply the other nurseries with it. It is grown from cuttings, and well have the Santa Barbara people learned to use it. It may be seen on arbors, summer houses, drooping gracefully over front porches, on entrance walls to driveways, etc. At Dr. Princhett's it is charmingly draped over the window of his white house and also over the front door. It is a very artistic touch with its dark drooping vines against the pure white house. It is also growing well over his pergola and droops gracefully to hide its rustic wood and to add to the green color of the scant leaves of the Cup of Gold, also on the pergola. It was also mingled with the Evergreen Grape (*Cissus capensis*) on the walls of the terrace.

At the Bernard Hoffman place, it is over a low wall in the garden and looks more graceful in that position than even the *Hardenbergia Comp-toniana* on another wall.

It does nicely here, under most any soil or moisture conditions. Will stand a great deal of drought, although it gets rather woody if it gets too dry. It is used very seldom as a drought-tolerant cover for banks, though it could be used more than it is. It is almost a continuous bloomer here, especially if it has distinct periods of wet and dry. The flowers are on new wood and have a pleasant fragrance. The foliage is a pale green. It has a tendency to pile up a lot of dead brush

if not pruned every year or so. (W. M. James.)

It grows well at Mission Inn (Riverside) and is a beautiful plant with runners twenty-five to thirty-five feet long, growing in the patio. It is near the dining room and in connection with the outdoor dining room and is a delight to visitors when it is in bloom, as it is fragrant both night and day. The roots of this particular plant are on the north side of a building in a very cool location, while the top of the plant is quite exposed to the sun. It is free from pests and blooms for quite a long period during the spring and early summer. It blooms all through May but stops when it is very hot. It does not like to be pruned, as it dies back for several feet. It stands pruning on soft growth. No diseases but snails and caterpillars bother it, as the foliage is soft.

It is planted along the coast to San Diego and east to Redlands but is not in the desert. It is fairly hardy and stands cold probably to 18 degrees in Riverside. I think the greatest reason why this variety is not grown more in the hot interior valleys is due to its requirements of cool root location.

*Hollywood.* At Mr. Arthur Letts', it made a good vine for an arbor. It has many small stems and though they look stiff they can be grown in almost any direction.

*Pasadena.* The sun burns it here. (Ross of Rust Nursery.)

*Bakersfield.* It was in the shade in one case and leaf hoppers injured it so I moved it into the sun on a west exposure. Mrs. Sydney Greeley.

*San Diego region.* It was not in bloom there in April this year, neither at the Parker School nor at Pacific Beach. At Coronado, Mrs. Terry's, it was combined along side of the



*Victor Duran*

*Philadelphus mexicanus*

house with *Asparagus falcatus*, both climbing high, then caught upon a treillage to support them—a very charming combination.

“It is ideal for pergolas, as it blooms on the ends of the sprays, good for covering fences, for falling over walls, covering embankments or to decorate porches.” (Miss Sessions.)

*Quisqualis indica* Combretaceae  
Rangoon Vine

Burma, Malaya, Philippine Islands

Twenty or more years ago Dr. Doremus planted this climber in the open ground in Santa Barbara. He showed it to his friends in great glee, for it had grown well on the side of the house where he had visions of it covering the place as he had seen it in a tropical country, where it rambled delightedly over pergolas and summer houses. Later, when it did not bloom, he moved it to a lower section of his garden at the foot of a palm tree where it climbs up the trunk. As time went on he secured scattering blooms but to one who had seen it at home in all its luxuriance, these few flowers did not satisfy. He therefore now grows it for its young bronze foliage, which later turns a good green, and prunes it sufficiently from growing up beyond his reach and enjoys it as it is.

Last year we saw it at Mrs. George Hamilton's, also of Santa Barbara. It is on a south wall, the warmest place she has. It is four years old, bought from the Armstrong Nurseries, where they told her they never knew it to bloom outside in California. However, she took the risk, as the leaves are beautiful. It bloomed feebly last year, but this year it is full of buds and beginning to bloom well. (Aug. 28, 1935.) Its flowers were white at first, then turned pink and darker.

She said, “It grew very fast and this year I cut it off and sliced up the sides of the vine so that it is now mostly new wood, and that, we think, is why it is blooming better.” In November, 1936, she reported that “it had bloomed sparingly, compared with the Burma description of it, in July, August and September. It was trimmed some time last spring, more to keep it within bounds than for any effort to make it flower. Personally, I am not very keen about it and consider taking it out.” Here she has succeeded in making such a plant bloom out of doors for three months and does not seem to realize that hers is a great achievement!

“At Armstrong Nurseries it is growing outside at the upper ranch, which is in an almost frostless belt. It makes a bush and then a runner on the fence. There was no frost the first year, but snow fell on one of them and still it did not kill it.” (J. A. Gooch.) This is the way the plant acts in England, as described in Bot. Mag., t. 2033, which says, “The young plant was an upright shrub to 3 feet with few irregular branches and scattered leaves without order. In six months it put forth a runner from the roots which climbed the neighboring trees, throwing out branches in all directions but not twisting about their support. Then the original shrub ceased to grow and perished and the plant looked and acted like a climber.”

*San Diego.* It is said that there are no good Rangoon Vines growing outside in San Diego, but at Mr. Ed. Fletcher's it is growing in a square patio with a glass roof and blooms from April until December. This is an old climber, has been here twenty years or more. Miss Sessions presented a basket of flowers of this rare species to Mrs. Woodrow Wilson at the time she and the President visit-

ed California. On April 24, 1936, it was just beginning to bloom and said Mrs. Fletcher, "It will bloom from now until next November and is FULL of bloom in October. There is no limit to its growth. It always seeks to lie next to the glass but cannot stand the heat, so I pull it down about a foot away from the immediate vicinity of the glass. I water it down a pipe during the year, but during the winter I take out the furniture in the court, open the glass roof above, and let the rain pour in so that the roots get a good soaking. You can cut it any time and it does not care. It gave me 1,000 blooms last year. In January I trim off every leaf in the patio, and they soon grow, as you can see, and it is in bloom again in three or four months." It is a beautiful specimen and together with a *Thunbergia grandiflora*, occupies the whole ceiling and part of the sides of the patio.

The flowers are in spikes five inches long in the axils of the leaves. The calyx tube is green, 3 inches long and so slender that it allows the flowers to hang in graceful clusters. The petals are first white beneath, turn to a pinkish shade and finally deep pink or almost red, and gleam among the leaves with much beauty.

The leaves are 4 inches long by  $1\frac{1}{2}$  to  $1\frac{3}{4}$  inches wide, oblong, acuminate and have a petiole nearly half an inch long. They are smooth above but hairy beneath, especially on the veins.

As conservatory vines, they are especially attractive and this specimen bloomed intermittently from June to December with the exception of August and November, when they were resting and did not bloom at all.

They are propagated by soft wood cuttings, taken with a heel, in sand or they may be placed in a bell jar.

Whether we ever flower it outside in California to our satisfaction or not the prospects are that some one will learn the secret or if it is really too tropical for our climate, we can at least use them gloriously in enclosed patios with glass roofs, as they seem to have no pests or diseases.

#### *Solanums*

The genus *Solanum* is a large one, some 1,200 to 1,500 species having been reported. They grow mostly in tropical and subtropical regions and some of them extend into temperate lands. We may hope in the future to be able to grow several more of these desirable plants, especially the climbers. Like other tropical plants, they want heat and water. These Nightshades have a bad reputation, since so many of its species contain poisonous principles, although others are valuable foods.

We already grow several of them as climbers which we regard highly and will be interested in seeing still others introduced. Those commonly seen in our gardens are as follows:

*Solanum Gayanum*. This seems well adapted to wild woodlands and parks, and is rather drought-tolerant. Seen in the Golden Gate Park, San Francisco, and in a few gardens in Berkeley.

*Solanum jasminoides*. The old-fashioned Potato Vine which seems to grow from Del Norte County to San Diego. Dr. Franceschi speaks of growing it and a variegated-leaved form, as well as another with "larger pure white flowers, being a more profuse bloomer than the ordinary type." It is sold as *Solanum jasminoides alba*.

*Solanum Seaforthianum*. This, he says, "is a native of Mexico and West Indies of recent introduction and bears



blue flowers like those of *S. Wendlandii* but smaller and in bunches like those of *S. jasminoides*.

*Solanum Wendlandii*. "The grandest of them all, from Costa Rica, is of quite recent introduction and appears to have been grown in gardens in California before it was known in Europe. When in bloom it is truly a magnificent plant and the grandest of all *Solanums*."

Dr. Franceschi published his article containing this information in 1895 in "Santa Barbara Exotic Flora." Therefore *Solanum Seafortianum* and *Solanum Wendlandii* were introduced into California shortly before this date.

*Solanum Gayanum*

Solanaceae  
Chile

This is a scandent shrub or low vine that climbs happily over trees and shrubs, holding its flowers well in sight to give an intermittent show of color through the spring and summer, and some seasons even into late fall. It is seldom seen in California other than in the Bay region. This may be because it seems to belong not so much to small home grounds as to the broad out-of-doors of woodlands and parks and is especially suitable for naturalistic planting, as the leaves are green and inconspicuous and easily blend into the surrounding landscape while the flowers, although a light blue in the sunshine, are almost indigo-blue or even darker in the shade. However, though the flowers are dark when they first open, they are brightened materially by touches of sun on the yellow stamens, which stand close together and offer a fine contrast with the blue of the corolla. When in bloom, the flowers do much to enliven the general scene, but when they have past, the whole plant is pleasantly inobtrusive and fits

into the surrounding landscape. As thus seen, it seems to belong to parks and woodland estates and may be seen in walks through the Golden Gate Park from February to October if you happen on them in years when there is sun and little fog.

The leaves are 3 to 4 inches long and an inch wide, long-ovate in shape and of good texture. The flowers blue in rather large bunches at the ends of the branches. Both flowers and leaves vary a great deal in size and it is a question how to remedy this condition. It is fast-growing, will re-sow itself at times and loves to climb high on other plants. A good example of this was in Golden Gate Park at Garfield Statue near the Conservatory, where it had been grown for ten years and was the loveliest specimen yet seen. It was in full bloom on May 10, 1935, clambering over a dark-leaved *Phillyrea medium* and still back of that over *Pittosporum eugenioides* with its yellow-green leaves.

The blue flowers and the yellow leaves made a good combination, each enhancing the beauty of the other. It made one regret to have missed the brighter picture a few days earlier when the yellow flowers of the pittosporum were in bloom. Accepting things as they are, one wonders whether the light yellow leaves brought out the color of the flowers as well as the leaves of the darker *Phillyrea*, which made a greater contrast.

Mr. Skinner, the gardener, says they do not trim the *Solanum Gayanum*; that it blooms for six weeks; will stand drought and frost affects it out in the open. It will stand sun or shade and a brisk wind.

Again we recall it climbing a tree in the woodland section of an estate where it was very beautiful in con-

trast with a bed of pink primulas down by the little brook just beyond. It had startled us with its larger leaves, as it seemed to enjoy the partial shade, for we had thought of it as a lover of the sun, seeking the hottest places on a wall or climbing trees and shrubs to sway in the breeze.

It is evidently a little unsettled as to when to bloom, as it has not been in the state long enough to become adjusted. So far, records show that it blooms every month excepting January and December, and that it has three periods of maximum blooms, one in March and April, another in June and July and still a third one in October. In January and December they were not seen in bloom in any of the ten years under observation. This clearly indicates its love of heat and the inducement of new wood during the warm spells, with a minimum growth when cold fog comes in and prevents its growth.

In situations to its liking, it resows itself but seems in no way dangerously so. It is also reliably reported that it will be killed if pruned too heavily at one time.

It does not have the subtropical luxuriance of *Solanum Wendlandii*, whose large flowers seem to call for trellis and summer houses, gay costumes and light laughter, but it seems to enjoy a more free and open existence in pure air away from crowded conditions.

*Solanum Rantonnetii* Solanaceae  
Blue-flowered Solanum

Its leaves are rather weedy looking, about 3 inches long and one inch wide. During the growing season, they will come out in bunches of young branches growing out from the axil of each leaf, which helps to hide this barren stem and give a good

background for the flowers. New flowers then come out from the axils of the leaves of the new shoots, but do not all open at the same time. This not only allows each flower ample space in which to develop properly but allows the sun and wind to play freely around them, a matter quite important when they are on a wall that reflects the heat. Each flower is wheel-shaped like that of the Potato Vine; a rich violet purple and an inch or more in diameter. In the center is a small yellow spot and on this spot is a cluster of five yellow stamens to give a contrast of color with the dark blossoms.

Like all the *Solanum* tribe, this species is very free-flowering, but there is a marked difference in the *size* of the flowers in different gardens, due to differences in soil and culture.

Although the fruit is said to be red, it does not seem to have attracted much attention as a berried shrub, as we have so many glorious ones from China that are more showy.

Here is a shrub for the busy man's garden, for it is drought-tolerant, does not require much pruning and gives an abundance of flowers for a long period in the Bay region, from May to frost.

While this plant is a favorite in all parts of California, perhaps its most unique use is in San Diego, where Miss Sessions grows it as a clipped shrub on street parkways and describes its virtue as follows: "It has no dead leaves, no dried seed pods, needs very little water and just a little trimming. Keep it dry. Trim it up as a standard and it is beautiful. Get a young plant about two or three feet high, head it back and keep it about two feet wide. It blooms every day in the year." It seems to like San Diego soil and general climate, where its flowers grow to unusual size and color.

It is also unusual in the manner in which it may be grown. For example, in Golden Gate Park in sandy soil it is grown as a wide spreading shrub of no great height, while in San Diego, at Miss Schwieder's garden, it was used as a narrow climber on top of a wall for about twenty feet. Its roots were in shade but its branches were in the sun and had the full sweep of the wind from the bay.

In order to keep it within bounds, she "prunes it back almost to the bone" once a year in February. It is practically everblooming but is rather straggly in summer. In three months' time the new shoots had grown out three feet or a foot a month, making the total width from 4 to 6 feet, which was narrow for its height and quite an achievement.

As a still different treatment it may be seen in Piedmont, and in the San Francisco region sheltered from the wind by the wall of a sunken tennis court. Here it was used as a climber with wide sweeping branches which arched over gracefully and added charm to the wall.

As we get no seed in the Bay region, it is propagated from half-ripe wood under bottom heat, but to flower it must have sun and not much water. (Andries, propagator.) However, in Southern California it is propagated from seeds.

In Santa Barbara it is also a favorite and is used in a court as wall cover and at Jackson's as a hedge, where it is planted near *Sollya heterophylla* as an added colore note.

As the flowers are rather gloomy when seen from a distance, an effort was made by Ralph Stevens, at Santa Barbara, to lighten it up by planting it with some brighter color. He tried out *Lantana sellowiana* with it at Santa Barbara High School, giving an

unusual or oriental color to the scene and he also alternated it on a wall with *Jasminum primulinum*, which decidedly brightened it up. A still other plant used with it was Hall's Japanese Honeysuckle (*Lonicera japonica Halliana*) at Mrs. Hamilton's on a pergola above the Blue-flowered Solanum. It made a very pleasing combination.

But the most amazing plant was in the San Jose region at the Deciduous Tree Experimental Garden, where it was planted among a number of other climbers on the side of a brick building and it scrambled upon them without other support to a height of twenty or twenty-five feet. We had heretofore regarded it casually as one of the ordinary shrubs in common use in our gardens and here it was a climbing plant, reaching up to get into the sun.

*Solanum Wendlandii* Solanaceae  
Costa Rico Nightshade; Paradise  
Flower

Paraguay; Argentina

This is the loveliest species of all with lavender flowers  $2\frac{1}{2}$  to 3 or more inches across in sprays eight to twelve inches long. Not only is each individual flower large but its texture is delicate, refined and most fascinating in color. The leaves are gray, compound and subtropical looking, making it truly appear like the tropical plant that it is. Not only that, but they are heavy and should do well anchored to prevent their breaking away from their support.

Our specimen was gathered from the second-story of a Sorority House in Berkeley, because those flowers which had been growing below were not within reach, the flowers having tempted the young ladies beyond their power to resist. It had a western

exposure but was sheltered from the cold winter winds of the San Francisco Bay by tall trees on the far side of the lot. In this region, Paradise flowers are essentially sun lovers for in fog or damp weather they drop their flowers one by one and even the leaves become badly mildewed. It was watered by seepage from the lawn.

The leaves are compound, coarse and of various shapes and sizes, the upper ones being simple and rather small, but the lower ones are larger, as much as eight inches long, and may have from three to five leaflets. On the underside are curved prickles with which the plant climbs or scrambles over other shrubs. These leaves are usually a gray-green and decidedly so when touched by fog or mildew. The mild winters of late years has brought to the gardens of the Bay region large numbers of these charming plants, where they flourish and even suckered. However, our 1932-33 freeze cut most of them to the ground and we noticed that those that came back were on well-drained soil and above the lowest places in the garden. Those that were in the direct path of the cold north wind did not generally survive.

These are fast-growing plants and gross feeders and should then be well fertilized to enable them to keep up that fine display of flowers and their succulent leaves.

From Santa Barbara we have good reports. Dr. Franceschi, in 1895, thus wrote in his "Santa Barbara Exotic Flora": "The genus *Solanum*, to which the ordinary potato belongs, contributes to our gardens three first-rate climbers. The grandest of them, *Solanum Wendlandii*, from Costa Rica, is of quite recent introduction and appears to have been grown in

California before it was known in Europe. When in bloom, it is truly a magnificent plant, and the grandest of all *Solanums*." On my first visit to Santa Barbara in 1912, this Paradise Flower was everywhere apparent, largely about the Mexican and Spanish houses. They seemed to be growing without any special care and were a decidedly fine color-note with the white houses. On my last visit, they were conspicuous by their absence. One looked in vain for many that had cheered us on our numerous former visits and had to admit that they were decidedly fewer in town. In talking about this to Mr. Verhelle, of the City Nurseries, he gave me a probable explanation, as follows: "*Solanum Wendlandii* is one of our finest vines. It drops its leaves and blooms. It gets its growth with ample water and you should give it water even if it loses its leaves and then *keep it dry* to get an abundance of bloom. They lose their leaves when overwatered." It is possible that the newcomers in Santa Barbara, not knowing the requirements of the plants, killed them by overwatering them. It is also known that they are injured by root rot and nematodes. (J. A. Gooch.)

At San Diego you will be interested in Miss Session's description of culture and use of this plant. "It is deciduous, but late in dropping its leaves. It begins to bloom in June and blooms until nearly winter. It grows readily from cuttings in late spring when it should be pruned. It needs severe prunings in late spring, say March and April, because the flowers come on the new growth. It grows and blooms and grows and blooms incessantly, differing from almost all other vines in this respect except *Solanum jasminoides*. Snails love it. It will grow more than ten feet high, but it is better kept down to ten feet, as it

is so very heavy that it is impracticable to allow it to grow too high."

"It is desirable to grow over walls or to lie on the top of large pergolas or on a division fence; is very coarse and heavy and should have a strong support. It is sometimes trained up over windows and doors and will grow in any situation, but thrives best in the sun."

In order to learn how it is treated in the inland towns some distance from the sea, like Ontario, California, you may turn to Mr. J. A. Gooch's notes, written on request. "*Solanum Wendlandii* requires good soil of a fairly heavy texture, and if thoroughly fertilized several times a year, it will make a very strong growth. The foliage is much richer if the plant is given plenty of food. This plant seems to enjoy a fairly shady location in our vicinity, although nearer the coast it grows in full sun. In the shade it can be grown in combination with *Fatsia japonica*, *Aucuba*, and plants of a similar nature. One of the most interesting uses is twining it through grille work on a Spanish type house. In this location it grew over the iron grille and up to a balcony on the second story, making a plant about 18 feet in height.

"The main drawback to Paradise Flower is its tendency to die back during the winter months when the weather becomes too cold, even though the plant does not freeze. At temperatures of around 24 degrees, the plant seems to be damaged somewhat but would not be killed until the temperature became somewhat lower. It will withstand dry air but burns badly in the hot sun in Ontario.

"Paradise Flower, in common with most of the nightshade group, is subject to nematode infestation and the dying back during the winter months

may be due either to rot or root damage. This becomes apparent when the plant is in a period of sluggish growth. This may be the reason for its disappearance in the Mexican gardens in Santa Barbara that you mention." It blooms from March to frost.

*Stauntonia hexaphylla* Lardizabalaceae  
Six-leaved Stauntonia Japan

Although the common name Six-leaved Stauntonia would indicate that the leaflets are in sixes, such is not always the case with the specimens in this region. They are more likely to be in fives, or some number other than six. This species is not common in this state as we have only seen it in Berkeley, Beverly Hills, Hollywood, Monrovia, Ontario, San Francisco and Santa Barbara. It is said to be hardy in Washington, D. C., and one of their best evergreen climbers in favored spots. It is also said to be well adapted to the soil and climate of the gulf states, including Florida, where it is sometimes grown but not common enough to have been included in Mr. Harold Mowry's "Ornamental Vines." It was introduced early into Santa Barbara, as Dr. Franceschi mentions it in his "Exotic Plants of Santa Barbara," published in 1895, where he says, "it is still rare." At that time the Southern California Acclimatizing Association was selling it as pot plants at \$1.00 each, but in the 1908 catalogue it is not even listed, proving that it had not become well known in that city. One reason for this may be because they are slow to become established. However, once they get a start they are fast-growing, as seen in the one from cuttings in Golden Gate Park made from pieces gathered from the Mr. Anson Blake specimen and now more than half as tall as its mother

plant, in a very short time. It is growing well in sandy soil, as well as in garden loam and does not seem particular as to soil.

The leaves are handsome, light green when young, but eventually are a rich dark green, unless they need fertilizing, when they turn a yellow-green. They respond to good feeding and soon again assume a good dark color. In England the late Wm. Robinson speaks of this "sickly yellow" in the leaves as having been caused by dry soil and too much sun. That may be, but the leaves turn that sickly yellow here even when the plant is in the shade.

The flowers are white with a pinkish cast and come out in bunches of 12 to 15 flowers, each flower with a pedicel as long as itself. Six-leaved *Stauntonia* is 40 to 50 feet tall at Mr. Anson Blake's and 25 feet tall at the Golden Gate Park, San Francisco. At Arthur Letts' it made a good screen. It is climbing a tree at Golden Gate Park and when grown for its subtropical effect it should be allowed to spread over a wide space, such as the sides of an exposition building.

*Ontario.* Not in bloom April, 1936. "Its large leaves are more leathery in semi-shade." (Frank Smythe.)

*Beverly Hills.* The plant was 12 feet tall, the new leaves being much lighter than the old ones, a fact that might alter your decision as to what to plant with it for spring effect, and what to plant for fall effect with its dark green leaves. The scales about new shoots or about about a leaf and a flower-cluster are very prominent and there may be as many as six or eight, the outer ones thick and shining, the inner ones thinner and lighter in color, showing that mother nature took good care of her young, tender parts.

We like this plant for its elegant subtropical leaves with their rich, dark-green color. We do not like to have the flowers hide under the leaves and we would appreciate their blooming longer.

Although this plant has been in cultivation in the state for forty years, it does not seem to be as well known as it deserved, as it is very attractive for its foliage alone and could be used where a tall, fast-growing plant is needed, as over a pergola, twining on chains, as rosettes, at sides of tall and wide buildings, and in the various shady situations that call for shade-tolerant plants.

*Stephanotis floribunda* Asclepiadaceae  
Madagascar Jasmine Madagascar

An evergreen climber that can be used out of doors in southern California in frostless belts and will become quite popular as it is better known. It will grow either in the sun or the shade, but in the latter case it is apt to have a black mildew. Its name comes from *Stephane*, a crown; and *otos*, an ear, referring to the ear-like processes on the crown of the stamens.

#### DISTRIBUTION

It is seen in various places; In *Pacific Beach* it is growing in Miss Sessions' garden on the west side of the house, "in the teeth of the wind; it grows like a pig weed and must not be planted too deep."

In *San Diego*, at Miss Schwieder's, it is growing on the north side of the house and though only five to six years old, is five feet tall and in bloom, showing that it is fast-growing.

In *Santa Barbara*, it is successful. A leading landscape architect declares that it "is going to lead all others as a fragrant summer-flowering vine

when it becomes more available, as it has style and sophistication." (Oct., 1932, *Santa Barbara Gardener*.)

It occupied the whole side of a house where it had the morning sun and was grown up to and along a balcony in four years. Indeed, it grew so fast that it had to be taken down to have some painting done. In this place it was combined with Star Jasmine (*Trachelosperum jasminoides*) and with Azores Jasmine (*Jasminum azoricum*) clipped to a low shrub at its feet. Associated with it were also other white flowered shrubs, as mentioned in the January, 1936, NATIONAL HORTICULTURAL MAGAZINE under Oxera of the noted all white house and garden.

Mr. James, of Las Positas Nursery, reports that they are very subject to black scale and mealy bug, and are irregular in their blooming period. In cool, foggy summers, it blooms all summer and fall into January or February, but this summer, with less fog and more heat, it is not blooming so late, though the bloom he did have was much heavier than when it blooms over a longer period. He does not fertilize them. At Mr. Deering's it is on the north side of a house and trained about a window encircled by a treillage. At Mr. Orpet's it was in bloom July 25th. Mr. Verhelle, of the City Nursery, adds the caution that Miss Sessions has already given that "it must not be planted too deep. It needs partial shade in Santa Barbara and should be planted up the hill in the subtropical belt. In this city there is a frost belt ten to fifteen feet deep and it is foolish to plant this tender climber in that frost belt."

At Jackson's it is on the west side of a court where it gets the afternoon sun. In bloom August 30, 1934. The gardener says it begins to bloom Au-

gust 1, and blooms until November or December.

In *Santa Monica*, Mr. Hugh Evans reports that "it does quite well in a protected place and should be more planted than it is in situations free from hard frost. The blooms are extensively used in the east and in Europe for cut flower work."

At *La Habra, Orange County*, Mr. J. A. Gooch reports "This plant is doing well in frostless locations in Orange County, where it withstands temperatures as high as one hundred degrees. I have seen it in bloom there in August. The seed pods seem to form during the late summer and fall months, and I have seen a plant with many seed pods on it during the first week in November. These pods are a dull green, somewhat the same color as the foliage and they pop open and release the seeds which are carried by an umbrella-like structure similar to that on Oleanders, dandelions, etc. I believe that the plant can be grown in full sun along the coast but requires shade in the interior. A plant of this species is growing over a patio arcade in *La Habra* in Orange County."

*Berkeley*. Hard as it is to believe, this plant is growing outside in Berkeley. It is in a court at Mr. Edwin Blake's, under the pergola section and with slight protection from above, but has not yet bloomed to my knowledge.

The second instance is at Mr. Duncan McDuffie's, where the plant is growing on the western side of the house and when last seen was well in bud on Oct. 13, 1935. It is on a wall that gives reflected heat but is partly screened by other vines that prevent it from being a scorching heat.

There may be other instances of the Madagascar Jasmine being grown

outside in California that have not been called to our attention. We shall hope to hear from them.

You will notice the large flowers of pearly white texture in great bunches, each flower about an inch wide with 5 petals and a tube that is inflated at the base.

The leaves are of a leathery dark green texture and are a good foil for the flowers. Can you picture some white pergola posts entwined by Madagascar Jasmine, as it sweeps round and round in wide classical spirals or festooned about a light wall in French fashion?

"As a pot plant in the conservatory it may be grown in the same pot for many years if given manure water, green cow manure, or fertilizers, such as Clay's soft-coal soot, a handful to 2½ gallons of water. They should be watered twice between each application with pure water. Or you can fertilize once a month with Gaviota, a complete fertilizer, or pigeon manure liquid. (Mr. J. J. Budd.) He especially stresses the fact that mealy bug is a pest that must be sprayed frequently; watch and spray it before it has become well established or it will be difficult to eradicate."

Mr. Ross, of Rust Nursery, states that *Stephanotis floribunda* was planted out of doors quite frequently forty years ago, but now it is rarely seen, showing the change of fashions, or is the climate changing?

### *Stigmaphyllon*

There are said to be over 50 species of *Stigmaphyllon* in tropical America and we may therefore look with eagerness for further introductions into California gardens.

*Stigmaphyllon littorale* was introduced into Santa Barbara in 1906 and was still growing there and in bloom

in September, 1934, in Franceschi Park, where it was leaning against a fence with its branches hanging down. It was in full bloom, the flowers similar to those of *S. ciliatum*; the leaves were not so handsome though they were larger.

*Stigmaphyllon ciliatum* Malpighiaceae  
Orchid Vine; Butterfly Vine; Brazilian Golden Vine

South America

Orchid Vine is known to have been grown in the state for fifty years, as Dr. Franceschi said it was introduced about 1880. It is not yet at all common, although it will grow outside in frostless regions on the coast in Southern California; otherwise it is grown inside in greenhouses. It is 25 to 30 feet tall, 20 feet wide and must be supported. A treillage is better for this than a chicken wire, which would allow it to twine in and out through its meshes and interfere with its pruning, which is quite an important matter and is not yet well understood for this species. When in bloom it covers daintily with its orchid-like flowers and heart-shaped leaves that are ciliate on the margin and on every vein.

Its flowers are well worth close inspection. They are a clear yellow, resemble an orchid, are about an inch across, with five roundish petals slightly ruffled on the edges, two of which are larger than the other three, each petal with a long claw that allows the stamens to be plainly seen, or at least you can see the leaf-like appendages which are the stigmas. This peculiar feature has given the name to the genera, meaning stigma leaf. The flowers are frail and easily drop their petals but they are soon renewed by new ones that grow from this year's wood, or since there are five



or six in the same cluster they cannot all develop at the same time and part of them are retarded to bloom a little later. It is in bloom for two to four months "in summer" and then again with scattering flowers two or three times a year.

It is generally considered medium-growing, but it is quite fast in some locations. For example, at Reeves Nursery it grew six feet in 1½ years from cuttings of fresh wood early in the season. It is considered tender but stands down to 22 degrees at Ontario.

Prune only to keep it within bounds and to cut off the dead wood which soon gathers and looks untidy when out of bloom and leafless. Pruning becomes a serious matter to one who has managed to grow a seedling through its spindling youth to a good old age and has therefore learned to appreciate it after devoting so much tender care to its upbringing and to mature charm, for, as Mrs. Hazard says, you would never want to try to raise another one and would be afraid to prune drastically for fear of killing it.

As the oldest and largest one we know is in Santa Barbara it seems best to give the results of an interview with the owner, Mrs. Hazard: "As to its common name, we sometimes call it Orchid Vine, but usually just *Stigmaphyllon*. What exposure? It is planted here on the northeast for shade. No bloom is more abundant than it, when at its best. It has its heaviest flowering in April and part of May. This year it has been blooming again freely from Sept. 10th or earlier, until now, December 1, 1936, though its heaviest bloom was probably in October. However, we have had a great deal of really hot weather, with one heavy rain in Oc-

tober, and then heat again. This might indicate that it likes heat in a shady situation with its roots cool. We pay little or no attention to watering so had always imagined that it preferred a well-drained, dry place. However, my gardener tells me its roots no doubt run a very long distance for ample water. Its length of bloom is therefore at least two months and if the weather is to its liking it will run on to three and one-half months, as now. In winter and also at other odd times, we get scattering blooms if it is warm.

"It grows very slowly and is most "choosey" so that any one who can get the first spindling vine-shoot to keep green and healthy, has achieved something and will seldom wish to experiment with more than one, unless it dies!

"As to where it looks best, I cannot think of any place more spectacular than mine in full bloom, a yellow waterfall from eaves of the house, two stories high, to three feet from the ground, with a spread of twenty feet. At its base are thickly planted white anemones. For many years these hid the lower twiggy bare part of the vine which is ugly. If I were not afraid of killing it I should try laying the whole vine onto the ground and patiently cutting out much of the old wood. I would suggest to one who is planting a new one to try pruning back much of the older wood every year. This may remove the ugly part, so prominent. In any case, it is so beautiful in foliage and bloom that I can easily forget and forgive the bare part. Daintily grown loose shrubs of 3 or 4 feet in height at the base of the vine may be successful for looks. As mine is on a dry, very narrow space on the edge of a wall fourteen inches high, climbing and spreading on a



W. C. Mathezes

*Stigmaphyllon ciliatum*

wood lattice and only on one place allowed (on a wire) to go up to the roof, there is only place to let the Japanese Anemones grow as they please—very lovely, and the water is forgotten most of the time.

“As we have no killing frost on our hill and at this spot no frost heavy enough to more than blacken sensitive ground shrubs, I have never seen the *Stigamaphyllon* misbehave. Wind from north or northeast can occasionally be very strong and hits this Orchid Vine very hard. But it only beats about and does not break off. No doubt blooms would come off, but it always has a lot of tight buds. Or maybe the wind comes when there is no bloom on the vine.

“The flowers attract ants, as there is a clear honey in them, but they have no odor at all. We have never seen any red fruit on this vine which has been here over thirty-two years.” (Mrs. E. N. Hazard.)

One has been wondering why so beautiful a long-lived plant was not more grown in the state, but Mrs. Hazard has probably stated at least one reason in its long, spindling stage when it was apt to die. Another reason would be its tenderness to heat and cold. More of it was seen in Santa Barbara than any other town but we saw it only in Beverly Hills, Hollywood, Oakland, Lakeside Park in conservatory, Ontario, Laguna Beach, under lath, Ontario, San Francisco Golden Gate Park conservatory, Santa Barbara, San Diego and Santa Monica.

It may be grown from cuttings and even roots in water.

Mr. Barnhart believes in pruning it, for he said, “Cut it off and let it bloom.” Mr. Riedel also says that it is benefited to be cut down once in a while and let it come up again. It

was very beautiful at the side of his lath house, and we would appreciate seeing it more widely planted outside.

*Streptosolen Jamesonii* Solonaceae  
Jameson's Streptosolen

Colombia; Ecuador

The gay *Streptosolen* is a plant of many uses, due to its rich color, its long blooming season, its drought tolerant qualities and its cultural requirements.

This specimen was particularly handsome as it grew in Berkeley on a hillside with a western exposure, where we could look out over to the Golden Gate and past the new site of the 1939 Exposition, the ground of which we can see in the making just east of Buena Vista Island and the two new bridges that seem to have pushed up out of the sea. *Streptosolen* was leaning against a brown shingled house in company with *Lantana camara*, or its hybrid, and was in a well-drained position. This drainage is important, for this plant is more or less drought-tolerant. We know of one instance in Santa Barbara where it was entirely killed by too much water from the lawn. This fact must be borne in mind in selecting the best situation for its growth, for it wants the sun and perfect drainage. In frostless situations it is everblooming, even a winter bloomer along the coast in Southern California, and will bloom inland “in the winter as far as Pasadena if given a warm wall.” (Miss Hoak.) It is grown inland also as far as Riverside and in the San Francisco Bay region as far as Hillsborough, where it was growing well at Mr. W. H. Crocker's estate, though it was protected by an overhead shelter. In regions where there is more or less frost, as in sections of



*W. C. Mattheres*

*Streptosolen Jamesonii*

Berkeley, it will bloom from spring (March) until stopped by frost.

It is rather rapid in growth but does not attain the size that we would naturally expect from a plant from South America, but it will grow twenty-five feet or more along a protected brick wall. It is more often cut down to shrub size and has even been made into hedges.

A spray of the flowers will show at the same time the yellow buds with yellow tubes which gradually assume an orange tint and then the upper side of the limb of an older flower, which turns quite red in streaks as it matures. It is a hard color to combine with other flowers, since it is brilliant, but we were quite delighted with an embankment on the grounds of the University of California at Berkeley, where it was used in front of Cape Plumbago (*Plumbago capensis*) that was climbing some *Pittosporum undulatum*. The color of the plumbago was heightened by the proximity and the *Streptosolen* itself took on a more subdued color.

In frostless Belvedere, near San Francisco, it was seen climbing a tree in partial shade, though it loves better to be in the sun. As it did not climb very high, it added its orange-red effect to the trunks of the trees rather than to the branches above. We would hardly expect to see so brilliant a flower in a naturalistic setting, but the effect was quite charming, as it gave the needed color to an otherwise somber corner of the garden.

In *San Diego*, *Streptosolen* was used on an embankment in company with *Lantana camara*. They bloom at different seasons and thus kept this bank a blaze of color all the year. At Miss Schwieder's garden, it was full of bloom on a south exposure of the house and nine feet tall. "It will be so full of bloom later, say in May,

that you cannot see the leaves. It is trimmed in late fall, but if it is pruned at the wrong time, that is, after the new growth has come out, then there will be no flowers, as they grow on new wood."

From R. T. Stevens, landscape architect in Santa Barbara, we obtained the following notes: "*Streptosolen Jamesonii* is a sprawling shrub, rather graceful and easy to work in, except for the brightness of the flowers. Propagated by cuttings in October, and by layers. It is always kept and sold in pots. Likes full sun which is best for the flower development. Prune off the year-old flowering stalks. The flowers are mostly on this summer's growth. It clips well. Will make a heavy vine, a leaning shrub or a flat, sprawling shrub, or a ground cover between tall shrubs. Used along walks and drives but used alone.

"Early drought-resistant. Likes heat and moisture, no wind, cold or smoke. The best culture is to give plenty of water and heat up to flowering time, and then starve to induce flowers. A good, sandy loam is best. If used with other colors, they should be yellow or red, or possibly with blues as *Solanum rantonnetii*, *Duranta Plumieri* (now *D. repens* of Hortus), *Iochroma* and *Sollya heterophylla*. It is fine for covering rocks (when moist), winter gardens generally, edge of lawn, for tropical effects, urns and tubs, over low walls or terraces, moist slopes and banks. Much used as a pot plant in conservatories. It has to be cut back every year in Southern California."

*Thunbergia grandiflora* Acanthaceae  
Eky-flower; Bengal Clock Vine  
India; Burma

This handsome species was named after Karl Thunberg, a botanist who

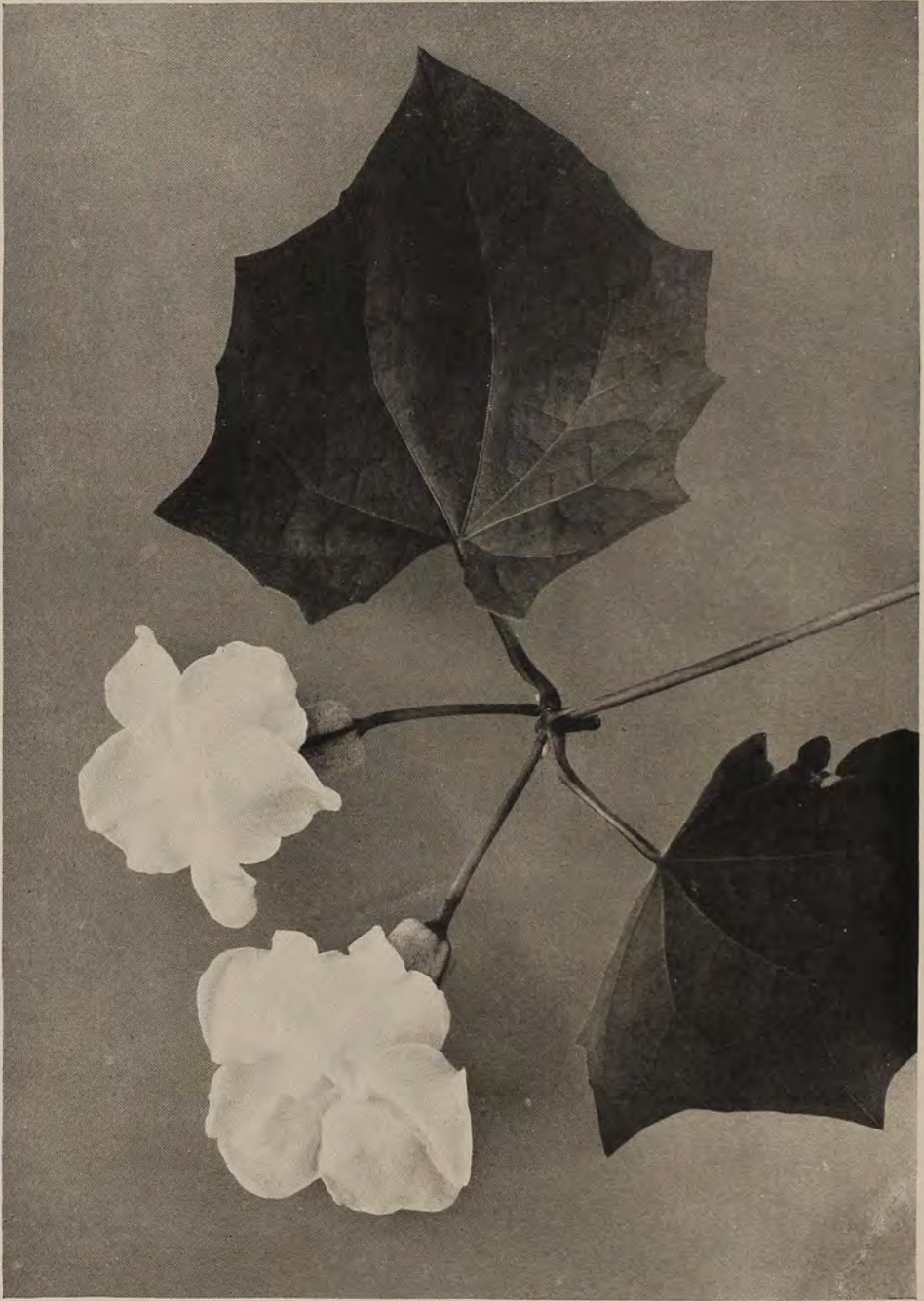
died in 1828. *T. grandiflora* was introduced into England in 1820, eight years after his death and therefore soon after it was discovered and named. It must have been introduced into California some time after that, as it is not mentioned in the Walker Catalogue of 1860-61 nor among the list of plants exhibited at the First Annual Exhibit of the Bay District Horticultural Society in August, 1871. In 1895, Dr. Franceschi mentions it in his "Santa Barbara Exotic Flora" as follows: "Special notice must be made of the most beautiful *Thunbergia grandiflora*, from India, being perfectly hardy. The vigor with which it grows and the beauty of its light blue flowers are not easily forgotten when once seen." We would thus expect to find it in the frostless belt rather up the hill from the lower business section of town and in the better residential district. It has beautiful blue flowers  $2\frac{1}{2}$  to 3 inches across. When young, these flowers come out in pairs, one a little ahead of the other, but as the plant becomes older it may have as many as 5 or more of those magnificent flowers in full sight in racemes above the green leaves. The finest specimen we have seen is on the Dater place, now Ludington's, where it is on an iron railing about the swimming pool. It was in bloom January 4, 1927, and made an unforgettable picture in connection with the water and the colored tiles in the background. It was seen in many other places about town at different seasons of the year and were so lovely that we wondered why every garden in town did not grow it. It is long-blooming and will bloom every day excepting when the weather turns cold. That seems to be a better record than Florida, where Mr. Harold Mowry states in his "Ornamental

Vines," that it blooms summer and winter.

It is very fast-growing but choice, which requires a warm, sheltered place in a more or less frostless belt, though it will stand a little frost as it is growing outside in Berkeley on the western exposure of the Mr. Anson Blake residence, where it has grown and bloomed for several years. It does not bloom all the time there, naturally, but it does have quite a long blooming season.

It grows well at San Diego, but occasionally is killed by frost even there. Miss Sessions speaks disparagingly of its dirty flowers and at Santa Barbara, a man said, "I have to hire a man to pick off old dead flowers every day. Now one begins to see why every garden in town does not display this plant. It is too fast-growing for the smaller lots and it is too much work to prune and take care of its flowers.

But if you want to see a magnificent specimen, step into the enclosed court of Mr. Ed. Fletcher's place in San Diego, and look at the plant that occupies half of the court with the pleasing *Quisqualis indica*, described earlier in this paper. Mrs. Fletcher takes much pride in it, though it is a great deal of work and also expensive to keep in good condition. She said, "I cut it in January. It had 500 blooms last year, five flowers coming on a raceme at once, though it begins blooming one flower at a time. It is evergreen. Drops honey from the mealy bugs and one must work hard to keep it clean, for they are a nuisance. We trim both vines in January and take off every leaf in the patio." It also gets the winter rain when the roof of the patio is opened up and the rain is allowed to fall in and reach every part of the roots in the ground below the floor.



*W. C. Matthews*

*Thunbergia grandiflora alba*

Such care of this plant shows an intelligent and hard-working little gardener. Do you still wonder why this plant is not more used in California gardens?

*Thunbergia grandiflora alba*

White sky-flower

This is the white flowered form of *T. grandiflora*. Its leaves are about as broad as they are long, 5 inches or more, shallow lobed between its points, 5 to 7-nerved with petioles 2 inches long and almost winged.

The flowers are white,  $3\frac{1}{2}$  to 4 inches in diameter, with two green bracts nearly covering the broad tube of the corolla but leaving the spreading limb in full sight. The mouth of the tube is a dainty yellow. The four stamens and the stigma are crowded together in a narrow angle of the tube, which can distinctly be seen on the outside.

This plant is growing out of doors in Berkeley on an almost frostless hillside. Its leaves are coarse and harsh to the touch and have the same general appearance as some of our common vegetable leaves, such as those of the squash, the resemblance being in the *texture* but not in the shape. This point does not show up in the photograph, which happened to be made from a plant grown in the greenhouse that was in bloom at the time, while the one on the outside was not in flower. At any rate, in spite of its lovely flowers, *Thunbergia grandiflora* var. *alba* is not a favorite in this state on account of its plebeian appearance and rasping leaves. When grown in the greenhouse, its leaves lose a great deal of this roughness which the plant assumes as a protection from the cold and also as an inheritance from one of its ancestors. It grows well outside in full sun.





*Lilian A. Guernsey*

[See page 84]

*Cytisus supinus*

# Veronicas

AGNES C. DARROW

The family of Veronica or Speedwell is large and varied. Some are distinctly weeds and not worth a place in the garden. Bailey lists distinct species of herbaceous veronicas and Reginald Farrer tells about those which are suitable for rock gardens. Mr. Maxwell feels that the word veronica should not have the accent on the second syllable, but on the third, the vowel "I" being sounded as in "ravine"—namely Ver o ni' ca. This may take a little practice.

All of the veronicas are herbaceous except those native to New Zealand, where they have developed into a flowering shrub, some of which are quite beautiful. English gardeners have experimented with these and find that most of them do well only in the milder sections and preferably near the sea. *V. Traversii* does well in Kew Gardens and might be tried in certain parts of America having similar climate. Mr. Herbert Maxwell says that the *V. speciosa* is a very superior evergreen shrub, growing from four to five feet tall and blooming from midsummer to frost. The blossoms are in racemes and vary in color from rose and cream to a lovely deep blue. These grow well in the gardens at Lynmouth and Lynton and so should do well in our own Northwest. They may be propagated from cuttings or seed. They are surely worth a trial, as well as some other of the shrubby New Zealanders.

But since there is more or less uncertainty about them, the accompanying chart deals only with the better varieties of the herbaceous species.

Except where noted, all are hardy perennials. They are practically all sun-loving—and will thrive in ordinary soil. They are suitable for borders, rock gardens, and edgings and for walls and crevices in terraces and walks. Better plant growth and finer blooms will be obtained by always cutting the flower stalks as they begin to fade—except, of course, where seed is desired.

In most of the larger families, the species and varieties sometimes are confused. So it is with the veronicas. *Austriaca* is very similar to *multifida*—but blooms a little later. *V. fruticulosa* is a *V. saxatilis* but not all *V. saxatilis* belong under *V. fruticulosa*. And so it goes—but unless we are going to be specialists in veronicas we are more interested in what the varieties will do for our gardens and where they are best planted.

*V. Chamaedrys*, or Germander Speedwell, will grow anywhere, but is fine for the border, sending up erect clumps, from a creeping base and hairy broad heart-shaped leaves.

*V. filiformis* may be a dangerous pest or a great boon. It threatens strong plants in its rampant growth. But it also makes a splendid ground cover. Its foliage is a yellowish green, forming a dense mat, which in the early spring is covered with flower cups of pale, milky blue. It prefers a light porous soil rather than one too stiff. Although it will thrive in hot, dry, parched sections, it grows and looks better during a wet season. In especially good weather it may be treated as grass—clipped or even run

over with a lawn mower! In some places *V. filiformis* is called *V. serpyllifolia*, but this does not seem to be correct.

*V. gentianoides* is another easy one to grow and one useful as a ground cover, growing in any soil and any location, even in some shade. It is not evergreen. In May it is covered with large, lovely blue flowers, borne on foot-high spikes. It is suggested that it be planted among *Tulipa marjoletti* or any of the paler tulips, using it instead of forget-me-nots. There are many varieties of it, including *pallida*, *alba*, *pallidiflora*, *stenophylla* and *foliis variegatis*, which is one of the earliest to bloom.

*V. incana*, because of its beautiful silvery foliage and upright spikes of rich blue flowers is much in demand. It does winter-kill in the colder sec-

tions. I think this is due to dampness rather than the actual cold and may be prevented by using a sandy soil. I have found it difficult to grow from seed—having more success with division. But I now feel that when once established it is best to let it alone. It is worth several attempts. There are varieties *V. incana candidissima* and *V. incana glauca* also.

*V. longifolia*, the Maritime or Beach Speedwell, is one of the handsomest of the family. It has been extensively hybridized and American breeders are still working on it. The hybridized varieties are often handsomer than the parent. *V. longifolia subsessilis*, the Japanese variety, is extremely handsome. Try planting it with *Lilium speciosum*. Besides the varieties given in the chart, we also have *V. longifolia alba*, about one to

BOTANICAL NAME	COMMON NAME	COLOR	FLOWERS	FOLIAGE
<i>Veronica alpina</i>	Alpine Speedwell	Blue or violet	Small. Often solitary	Elliptic—entire or dentate
<i>Veronica armena</i>		Dark blue	Small in spikes	Finely divided. Dark, evergreen
<i>Veronica Austriaca</i>	Austrian Speedwell	Blue	Showy racemes	Erect plants
<i>Veronica Chamædris</i>	Angel's or Bird's eye Speedwell	Blue	Large in loose 3' to 6' racemes	Narrow, pubescent, slender branches 1½" long
<i>Veronica filifolia</i>		White—blue-veined	4-8 lax-fl'd. Slender racemes	Sessile. Stems erect, pubescent.
<i>Veronica filiformis</i>		Blue or white	Bell-like on thread-like axillary stems	Small, ovate obtuse. Light green. Evergreen
<i>Veronica fruticulosa</i>	Rock Speedwell	Purplish blue	Erect spike-like racemes	Leaves ¼"-½" long. Entire or subrenate
<i>Veronica gentianoides</i>	Gentian-leaved Speedwell	Light blue with dark streaks	Erect spikes on leafy, hairy stems	Glossy, smooth in rosettes
<i>Veronica incana</i>	Hoary or woolly Speedwell	Clear blue	Small in slender spikes. 1'-3" long	Downy gray foliage
<i>Veronica longifolia</i> var. <i>rosea</i>	Pink long-leaved Speedwell	Pink	Profuse in spikes	Good foliage
<i>Veronica longifolia</i> var. <i>subsessilis</i>	Subsessile long-leaved veronica	Deep blue-purple	Small in long dense spikes	Showy plant of forked branches
<i>Veronica longifolia</i> var. <i>villosa</i>		Deep lilac	Numerous in tall racemes	Large—narrow leaves
<i>Veronica multifida</i>	Cut-leaf Speedwell	Medium blue	Racemes 2-4 axillary	Fine, narrow—deeply cut
<i>Veronica officinalis</i>	Common Speedwell	Light blue	Small—few. In spikes	Bright green
<i>Veronica paniculata</i>	Bastard Speedwell	Deep blue	Small on long racemes	Broad, evergreen leaves
<i>Veronica peduncularis</i>	Long-stem Speedwell	White	Solitary, large on long stems	Narrow clumps. Narrow dark green
<i>Veronica pectinata</i>	Comb Speedwell	Deep blue—white eye	Racemes on ascending branches	Thin—ovate sharp-toothed leaves
<i>Veronica repens</i>	Creeping Speedwell	Palest blue	Few on racemes	Gray, woolly leaves ½" long
<i>Veronica rupestris</i>	Rock Speedwell	Deep azure blue	Cup-shaped Racemes erect	Minute deep green leaves
<i>Veronica satureioides</i>	Savory Speedwell	Blue	Small on short racemes	Narrow, dark evergreen
<i>Veronica saxatilis</i>	Ledge Speedwell	Light blue	Clusters in spikes	Small, evergreen round leaves—4 ranked
<i>Veronica spicata</i>	Spike-flowered Speedwell	Clear blue-purple	Erect spire of dense bloom	Dark, glossy on woody stems
<i>Veronica Teucrium</i>	Hungarian Speedwell	Clear blue	Thickly flowered racemes	Lanceolate, crenate, downy 1"-2" long
<i>Veronica Virginica</i>	Virginia Speedwell Culver's Root	White or palest blue	Tail spikes of tiny flowers	Ovate to lanceolate
				Whorls of 5-7

one and a half feet tall and var. *glauca*, with glaucous blue foliage and rich purple flowers. All varieties of *longifolia* are best placed in the border. The long spikes of bloom are fine for cutting.

One of the nicest veronicas for the dry wall is *V. multifida*. It has fine, grass-like foliage and makes a loosely trailing, feathery growth. The flowers of chicory blue are borne on stems four to six inches long. It will thrive in poor soil, even in dry hot weather and is surely one of the very choice veronicas.

*Veronica officinalis*, a native of both hemispheres, has much in its favor. It grows in forests and on mountains, is of easiest culture and has a long blooming period. The broad leaves are practically evergreen. The plants growing close to the ground take root

in the soil, thus spreading rapidly either in sun or half shade. It is valuable as a ground cover under trees, or used in the joints of steps or rock wall. The blue flowers are small and Mr. Hamblin feels that the scarcity of bloom is all that keeps this veronica from being the most popular of evergreen rock perennials. Yet better growers have found the slender racemes densely flowered. Try it!

*V. paniculata*, or *amethystina*, or *spuria*, bears narrow, dark green, toothed leaves on slender, erect stems which sometimes attain ten feet. Each stem has several racemes of flowers. The plant, though graceful, is a bit floppy and requires staking. There is an even more-branched variety called *V. paniculata elegans*.

*V. peduncularis* is very hardy and very easy to grow. The foliage is

PROPAGATION	NEEDS	HABITAT	HEIGHT	BLOOMS	COMBINATIONS
Division in Spring	Ordinary soil	Mts. of Europe, Asia and America	2"-6"		Other tiny rock plants
Seed	Gritty soil. Open location. Dry in winter.	Europe	2" Prostrate mats	May-June	Crevice with Saponaria
Seed or division	Good soil. Sun	S.E. Europe. Asia	1½'-2'	July-Aug.	White phlox
Division	Garden soil in sun	N. Europe Caucasus, Syria, Canaries	1'-1½'	May-June	Among late iris
Division	Good soil. Sun	Caucasus	6"	Early summer	
Seed. Division. Annual or perennial	Moisture	Asia Minor	Flat mats	April-May	Ground cover or as a lawn
Division or seed	Sun. Any good soil	Mts. of Europe or Greenland	4"-5" Thick mats	Mid May	Border or edging plant
Division after blooming	Sun or shade. Any soil. Moisture	Wet Alpine fields. S.E. Europe	½'-2'	Late May	Cover for bare spots anywhere
Division	Garden soil. Sun	S.W. Europe. N. Africa	1'-1½'	April-May	Edging for perennial border
Division or cuttings	Sun. Garden soil	Europe	2'-3'	June-July	Border
Division	Sun. Rich loamy soil	Japan	2'-3'	Aug.-Sept.	Best border
Seed or division	Good garden soil. Sun	Siberia	2'-2½'	July-Aug.	Speedwell
Division cuttings	Any soil. Hot, dry weather	Asia—Asia Minor	Less than 1'	Very attractive in border	Rock wall
Cuttings	Any soil. Shade	Europe. N. America	4"-6"	Late May	Carpet under tree
Seed or division	Sun	Forests of E. Europe and Russia	1'-1½'	Early July	Border
Division	Sun. Good soil		6" to 1'	May-July	Edging or rock wall
Cuttings	Sun or shade. Any soil	Asia Minor on dry hills	Prostrate mats	May-June	Dry spots in rock garden
Seed	Moisture	Corsica	Prostrate mat	May	Between stepping stones
Seed. Division	Any soil		Low—only few inches	May-June	Rock garden or edging
Division, seed	Very robust		Creeping	June	Rock garden
Seed. Division	Sun. Worth a good place	Hills of Europe	Few inches	June	Ledges in rock garden
Seed. Division	Sun. Any good soil	Hill pastures. Europe—N. Asia	2'-3'	June-Aug.	Wild garden
Seed. Division	Any soil. Sun	C. and S. Europe. C. Asia	½'-1'	Border	Border
Division	Sun. Rich soil	Eastern U. S. A.	2'-6'	May-June	Rock garden
				Aug-Sept.	Wild garden
					Border

yellowish green and the white flowers are lined with reddish purple. It will make a well rounded, somewhat compact little bush in the edge of the border or a more trailing mass in the rock well. Worth while in either place.

*V. pectinata*, sometimes called Scallop-leaved Speedwell, is a creeper, rooting at the nodes as it travels over the ground. The racemes of large cup-like pale blue flowers are among the prostrate creepers, peering out rather than rising above it. It is a fine ground cover. Try using it as such for your autumn crocuses or colchicums. Sometime the parent plant dies out in either too hot a summer or too wet a winter—but the rooted offspring survive and new beds may be propagated from these. Variety *rosea* is a very lovely deep rose pink.

*V. repens*, though it usually winter-kills in New England and will just wither away in a hot summer drought, is worth a good deal of effort. It thrives in moist corners. The plant practically has no height, but is a mat of blue flowers in May, and a moss like mat of tiny glossy green leaves the rest of the time. It is splendid for rock work, either in walls, terraces or among stepping stones.

*V. rupestris* is listed in Bailey as *V. Teucrium* var. *prostrata*, but since it is listed in many catalogues as *rupestris*, it has been described under that name in the chart. Var. *trehani* is another one of this species. The plants have bright yellow leaves and pale azure flowers. *V. rupestris* var. *nana* is only about three inches tall and var. *alba prostrata* is covered with white fuzzy blossoms in May. All are hardy, are easily divided, will grow in any good soil and give a color variation of white, pale blue, rose and lavender.

*V. satureioides* is unique in that it is like a very small evergreen shrub.

Another one of these tiny evergreen shrub-like veronicas is *V. saxatilis*, growing only a few inches tall and suitable for sunny rocky places. The small, opposite leaves are evergreen. Different forms var. *alba* and var. *rosea* have white and rose-lilac blossoms.

*Veronica spicata* grows in leafy clumps up to three feet in height. The narrow, roundly toothed leaves are dull green, the long racemes are many-flowered. They are nice neat clumps in the middle border. They should be divided about every three years and fertilized with bone meal. *V. spicata* has many varieties worthy of the garden; var. *nana* is a dwarf of four or five inches, suitable for the rock garden; var. *rosea* is a neat, compact plant with pink blossoms. Then there are var. *alba*, *corymbosa superba* and *variegata*. Also var. *Erica* somewhat resembles a small pink heather and is very lovely. Variety *orchidea* from the Balkans is probably a form of *V. spicata* and grows freely everywhere from seed.

*V. Teucrium* is a pubescent perennial that is not too large for the rock garden—though the blooms are often a foot or so above the soil. In June the plants are a sheet of deep violet blue. There are also white and rose forms. Here again we have confusion—*V. rupestris*, *V. fruticulosa* and *V. Teucrium prostrata* may all three be garden forms of the same species. Plant them, whatever name they come under, and keep the ones you like the best.

*Veronica Virginica*, used as a medicinal plant, is suitable only for the wild garden. Blooming at the same time, it is fine planted with *cimicifuga*. A Japanese variety blooms a month later than the native one and var. *alba*

grows four to five feet tall, with graceful spikes of white flowers, with golden anthers and foliage of a deep green. It is found from Canada to Georgia and west to the Mississippi, blooming freely in mid-summer.

So we come to the end, not of all

veronicas, but of those selected for the chart. There are others, of which some may be better. Try them in your own gardens. If these as given in the chart arouse your curiosity sufficiently to urge you to play with them, then it has been worth making.

# Amorphophallus Rivieri

WYNDHAM HAYWARD

This beautifully grotesque plant is one of the great horticultural curiosities of the world, and should be grown, if only once, by every enthusiastic indoor gardener. Its reputation is rather notorious, perhaps undeservedly so, for the plant is rarely seen in greenhouse collections and in choice collections of warm climate growers.

The flower is a magnificent thing, if rather sinister-appearing, and the unpleasant aroma becomes prominent only after the bloom has reached its prime, so that there is ample time to enjoy the remarkable and interesting plant at its best, before relegating it to temporary oblivion when the carrion odor becomes too strong for comfort. As a matter of fact, the writer finds the odor of the flower much less unpleasant than that of other related aroids, especially *Saurumatum guttatum*.

*A. Rivieri*, as we will call it for the sake of brevity, has a huge flower resembling a giant chocolate-red calla. The flower is handsomely proportioned and will be produced by the dry tuber in January or February if potting is delayed at that time. In Florida the dormant buds on top of the tubers begin to swell in early February. The flower develops rapidly, in about two weeks or less, and fades in another week or so.

Tubers of 5 to six inches diameter may be expected to bloom. The tubers are cup-shaped, flat at the top in general shape, with one main bud in the center. They are an inch or so less in vertical diameter than from side to side. The outside skin of the

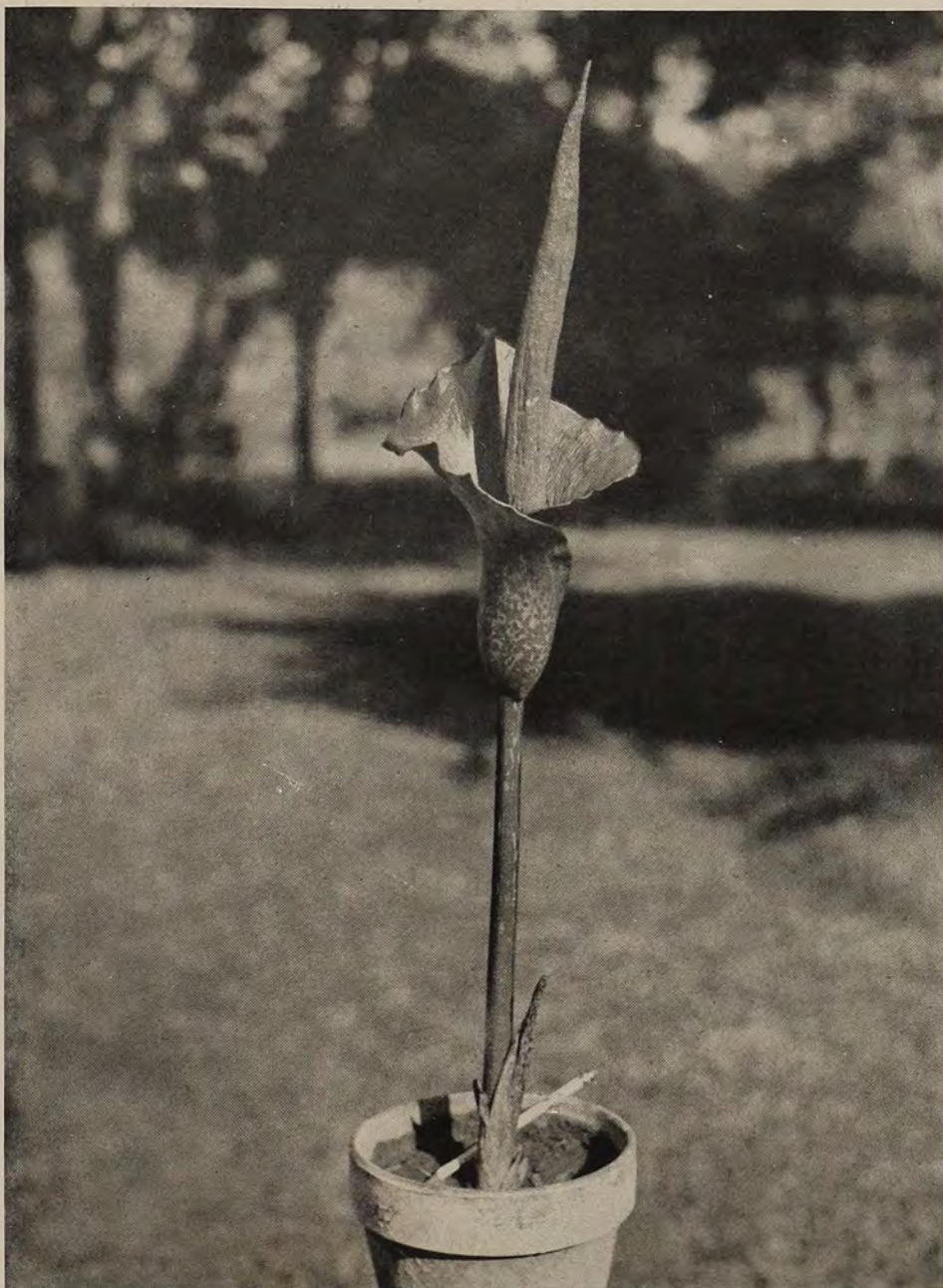
tuber is a dark grayish red, and the flesh is pure white like an "Irish" potato.

Several efforts to set seed on the flowers by hand pollination have failed and the writer has never seen them formed either by natural or artificial means. The published authorities list the plant as native of Cochin-China, and experience with the bulb in Florida indicates that it is at home in rich, tropical leaf-mould humus and dense shade.

Under such conditions it would seem that there would be no lack of the common forest insects, to account for the evolutionary development of the extraordinary carrion odor of the flower, as would be the case if the bulb were native to bare desert wastes where plant and insect life was rare.

The foliage of the plant appears several months, two or three at least, after the flower scape has faded. There is a single leaf, which stands upright on a strong, sturdy petiole from two to three feet tall. The leaf may be as much as three feet wide in cultivation. It is tripartite with numerous segments, all designed in a very ornamental lace-work of green. The foliage is as distinctive as the flower and never fails to attract attention. When fully expanded the leaf bears some resemblance to an umbrella turned inside out.

The tubers propagate naturally by offsets, which are young tubers of various shapes and sizes. They are produced on the ends of curious stolons, which twist and turn about in pot culture so that the offsets are found in all parts of the pots. When planted



*Leon A. Page*

*Amorphophallus Rivieri*



in the open ground, the stolons travel straight out from the parent tubers. In the case of some of these stolons buds appear at intervals along the length. Usually the stolons shrivel up to nothing when the bulbs are dried off. The living stolons may be the size of a pencil or slightly larger, and a foot or more long.

Examination of a large tuber in the early spring, will reveal a number of minor buds or "eyes" on the rim and exterior of the outer edges, in addition to the main "eye" in the center at the top. These extra buds remain dormant for the most part if the central bud is allowed to grow normally. A few of them will produce the stolons.

These extra buds suggested the artificial propagation of the bulbs by cuttage, as in the case of Fancy Leaved Caladiums. The easiest method was apparently evolved generations ago by the natives of the Dutch East Indies. J. J. Osche in his "Vegetables of the Dutch East Indies," (1931) treating of a related species, *Amorphophallus campanulatus*, which is cultivated as a food plant, remarks (page 50) that "the plant may also be reproduced by parts of the rind bearing one or more eyes." He adds that "this material gives new tubers, fit to be reaped, after 9 or 10 months." The method holds good in the case of *A. Rivieri*, as the writer found by experiment during the summer of 1936.

In this experiment two large tubers were cut on a vertical axis into sixteen pieces, exactly as a cake or pie is cut. This operation destroyed or mutilated the central bud, and caused the extra buds on the rim of the tubers to sprout. One or two of the pieces refused to grow at all, but the remainder produced nice, plump young tubers in about five months.

Some of the pieces sprouted from two places and produced two tubers. The whole result from the sixteen pieces was in excess of 20 small tubers from one to two inches in diameter, and a number of offsets besides. This was considerably faster than the natural propagation of the two original tubers would have been. Sometimes the large tubers will produce five or six small offset tubers naturally in a season, from half an inch to one inch in diameter, but the writer has known of several cases when no offsets were produced at all by large tubers despite a normal growing period.

The above propagation method is very simple and is like cutting a potato for planting. Care should be taken to have a strong bud "eye" on each cut piece. In the experiment described, the cut pieces were first planted in a flat of sand until they had rooted, and then were transplanted to a deep bed of rich lake-side soil. They were in part shade most of the time.

An interesting fact brought to light by the experiment was that the tubers renew themselves completely every year, as the young tubers obtained from the wedge-shaped cut pieces were round and perfect.

Any good, medium sandy loam, well enriched with humus or well rotted cow manure is suitable for growing the *A. Rivieri*. The blooming size tubers are best potted in January when the blooming period is imminent. Small tubers can wait until May. It takes two to four years to grow a full sized tuber from a small offset in Florida, and probably longer under greenhouse conditions. An eight- or 10-inch pot is needed to grow the large tubers. The smaller tubers can be potted up individually in four to five inch pots.

Watering should be done with caution after potting until the bulbs are in leaf growth. Drainage is very necessary in the pots. Watering can be more liberal during the summer growing period, and when the leaves ripen off in September or October, the pots should be dried off. The tubers can be taken out of the pots or stored in them as dried off during the winter. They should be kept in

a warm, dry place. While growing, the plants appreciate plenty of food, and occasional feedings with manure water are helpful. Every attention should be paid to obtaining a healthy leaf growth and a proper ripening-off period, as the strength of the resulting tuber will depend on this factor. In potting the buds should be some two inches under the top of the soil in the pot.

## Plant Hunting in Old Mexico. Part III

ERIC WALTHER

In the brief space of a single month it was manifestly impossible to do more than scratch the surface of the extreme wealth of plant life so characteristic of Old Mexico. However, the results obtained, in the form of field notes, herbarium specimens, photographs, seeds and living plants, both of old and new species, were so gratifying that the writer simply had to go again the next season, in order to attempt collection of the types, etc., still needed; and in October, 1935, we again found ourselves in Mexico City.

Having left Los Angeles early in the morning we sat down on the evening of that same day, to a real German dinner, at the family table of our friend Herr'n Halbinger, and made up for meals cautiously gone without while in the air.

The very next day we were already out in the field, near the City, on the search for *Cotyledon* (*Villadia*) *parviflora* Hemsley. The type-locality of this was supposed to have been Mount Atzacualco near the well known suburb Guadalupe, but nothing was found that agreed with the species mentioned, unless someone made a mistake.

Of course, the law of diminishing returns also applies to plant collecting. To again gather as many novel plants as we had done on our previous visit was now a more difficult task, requiring us to cover more ground and to go further afield. The first longer excursion, as guest of Mr. C. Halbinger and family, took us into the State Guerrero, via Cuernavaca and Taxco,

to the "Cañon de la Mano" near Iguala. This narrow gorge drains a large area once undoubtedly a lake, and today is traversed by the railroad to Balsas. Its surroundings are hot and dry, due to the low elevation, but the Cañon proper is sufficiently shady and moist to harbor most interesting plant life, including bamboo, *Achimenes*, a singular *Begonia* with but one leaf closely appressed to the ground, numerous ferns, as well as two *Crassulaceae*. Of these one, *Thompsonella platyphylla*, Britton & Rose, is here at its type locality; the other, growing on the more shady northside of the steep cliffs, was what unquestionably will turn out to be a new species of *Echeveria*. After returning to our car by hiking through the broiling sun over the railroad ties, we were glad to reach Iguala for lunch, and had a stroke of luck in incurring a flat tire just as we finally arrived. On our way home we stopped long enough to call on Mrs. Abbot at Taxco, so well known to American tourists, but wishing to return to Cuernavaca this same day we wasted little time here. The road was being resurfaced and should be in excellent condition by now. One of its unexpected hazards arises from the queer habit local cattle have of ruminating in the dust of the road during the often very dark nights, usually choosing the very middle of the right-of-way. Only the skilled driving of our host prevented a serious accident. Characteristic of the vegetation seen on this day were *Crescentia* *sp.* and *Caesalpinia* *pul-*



*Orizaba from the tropics, framed by gigantic mangoes*

*cherima* at lower levels, with *Juniperus flaccida* at higher elevations around Taxco.

Next day, Sunday, we spent at Cuernavaca, where the balmiest climate we know invited to a day of rest. In the afternoon the return to Mexico City took us over a now familiar road, at this season lined with a wealth of flowers, including masses of *Lopezia*, *Bidens*, *Tagetes*, *Eupatorium*, *Salvia*, *Stevia*, etc. A brief stop was made near the summit, at Cima, where last year we had found a new species of *Echeveria*, i.e., *E. crassicaulis*, and our host here posed for us against the trunk of the largest specimen we had yet seen of *Juniperus mexicana*. Here also grew some fine specimens of a *Lamourouxia*, a genus of the *Scrophulariaceae*, very tempting to the plant collector, but culturally impossible because it is a root-parasite like the related *Castilleja*.



*Echeveria gibbiflora* DC. near kilometer 86 on railroad to Cuernavaca



*Lamourouxia* sp., near Mexico City

On another day we had occasion to again visit this vicinity, on the hunt for typical *Echeveria gibbiflora*, seen the previous season from the window of the rushing train on our very last day in Mexico. We simply had to come back to photograph and gather this, as well as to make certain of its identity. Utilizing the one daily train from Mexico City to Cuernavaca, we got off at El Parque, and thence hiked over the ties to Kilometer 86, with a literal jungle of wild flowers lining the way. The *Echeveria* proper occurred in a rather drier location on an old lava flow, as part of a more xerophytic plant association. One member of this was a species of *Hechtia*, a genus common in drier parts of Mexico and memorable by reason of its vindictively hooked leaf-margins. We established to our satis-



*Dahlia maximiliana* (?) and  
*Sechium edule* near  
Tenancingo

faction that here was indeed the real *E. gibbiflora*, with its characteristic, orbicular, blunt leaves which occasionally shaded to the deep vinaceous-lilac typical of our well known *Echeveria metallica*. Having gotten our plant, both alive and in pictures, we just had time to rush back and catch the returning train for home at El Parque.

A visit we paid the little town of Tenancingo turned out to be one of the season's most interesting trips. Situated at the foot of the Nevado de Toluca, this lies at about the same elevation as Cuernavaca, with nearly similar vegetation. Here we were bound for the waterfall of Santa Ana, at the verge of which we found what appears to be *Echeveria fulgens*, growing within the very spray of the cascading waters. The surrounding woods are full of interesting plants, further

explored next day. Here we first saw flowering specimens of *Taonabo pringlei*, a close relation to our *Camellia's*, with masses of single, white flowers followed by equally decorative, red-seeded capsules, the latter regrettably scarce here at this season. A visit to an abandoned monastery nearby also proved most interesting in its view of novel plant life, even if this did not yield any novelties in *Crasulaceae*. Here we met with our first flowering specimens of *Laelia autumnalis*, actually growing wild, perching in numbers on the trunks of the local oaks. Even more numerous were the various epiphytic *Bromeliads*, apparently preferring Madroñas as hosts, and looking like so many gigantic birds' nests.

Leading to said monastery is an avenue of Cypresses, of venerable age, of which our photograph illustrates the variation in habit so frequently noticeable in *Cupressus Benthami*, or *C. lusitanica*, as it should be called



*Laelia autumnalis*

more accurately. On our way home we stopped to picture a tree dahlia, of a species apparently still unknown in California gardens, where its allies, *D. imperialis* and *D. maxonii*, are such a striking feature of our autumn flora. This new dahlia is nearly always seen with double flower-heads, its rays are broader and its stature lower than those of the others mentioned, while the color is soft rose. We are inclined to think this identical with *Dahlia maximiliana*, as pictured in Curtis' Botanical Magazine. Viable seeds were gathered and plants are now coming along nicely in the collection of Golden Gate Park. Our photograph also shows a large vine of the famous "Chayote," or *Sechium edule*, a Cucurbit whose edible fruits are a favorite vegetable of the Mexicans; and some years ago were introduced into American gardens by our Division of Plant Exploration and Introduction.

With the recent completion of the new highway to Laredo many American visitors to Mexico will become closer acquainted with the region we visited on our next excursion. This led over the new road, as far as it was ready at that time, to Encarnacion, by way of Ixmiquilpan and Zimapan. Our goal of course were further type-localities of *Echeveria*-species; but even aside from these the country traversed proved to hold a most interesting and varied vegetation. Dry and desert-like in the lower, hotter portions, with Cacti in variety and numbers, this region is the natural habitat of *Hunnemannia fumariaefolia*, the Mexican Bush-poppy, so well known to all Californians. At higher elevations the road passes through woods of oaks, madroñes, pines, of much more Northern aspect. In our photograph we show a portion of this section of the Laredo road after the

quite frequent morning fog has lifted. Near Encarnacion we found another locality for *Echeveria subrigida*, evidently of fairly wide distribution, in a rocky cañon densely smothered in vegetation, of which the most memorable features were *Brittonastrum mexicanum*, the Mexican "Cedronella," and also the aforementioned *Taonabo* in full fruit. Seeds of the latter, gathered here, have now become seedlings over one foot tall and promise to become a worthwhile addition to our flowering evergreens, being undoubtedly hardy in most portions of California. We have vivid memories of this trip, in the form of a thrilling stage ride with a driver showing off before his girl friend, of a typical, small-town Mexican hotel where the soup was colder than the beer, of hikes in dizzying heat and a long wait for a bus that never came, in a chill pass where we became acquainted with the very real virtues of the fiery "Mescal"; but a recital of our next and last excursion may prove more interesting to our plant-minded readers.

On our previous visit we had caught one brief glimpse of *Orizaba*, the second highest peak of the North American Continent, and had an irresistible impulse to see its other side. So we took the narrow-gauge train to Jalapa, even if we had to sit up all night in a chair-car owing to lack of adequate sleepers. Arriving at the early hour of 2 A. M. we discovered that Jalapa, even though in the Tropics, at less than 6,000 feet elevation, could be quite chilly; and we shivered under one blanket in our hotel until breakfast time. After which our first steps to the local Plaza located the *Echeveria* species, *E. racemosa*, our real objective of this excursion, growing by hundreds on the bark of the steep trunks of some fine specimens of



*Cupressus Benthami*, showing the usual variation



*Araucaria excelsa*. Later experience of the violent rains occurring regularly every afternoon served to explain this singular habitat. Abundant atmospheric moisture also accounts for the presence here of what is probably the richest flora of North America. There are more different plants known, from the few miles between sea level and the snow line on Orizaba, than from almost any like area. Tree-ferns growing wild testify to the mild climate, but surprising was their association with *Liquidambar*. Coffee and bananas are the most common crops, shipping of the former centering around Teoscelos and Coatepec. A visit to the lost town led to the most interesting discovery of our entire trip, a succulent of which we do not even know the genus, and of unique habit. This is locally known under the name "Cola de Burro," meaning "Tail of the Donkey," making it a suitable complement to *Echeveria*, quite often called "Orejo de Burro," or "Ear of the Donkey." Flowers needed to identify this puzzle have so far failed to appear.

Our return to Mexico City led us over Vera Cruz to Cordova and Orizaba City. At Cordova we visited the Hacienda de la Trinidad, which during its hey-day was a real Botanic Garden. Even today reminders of its former glory exist in the form of fine specimens of various unusual species of *Araucaria*, many fine palms, *Cinchona* sp., *Ravenala*, *Ficus*, and some immense Mangos, from between which our camera caught a glimpse of the snow covered peak of Orizaba.

At Orizaba City we became acquainted with Senor Martinez, whose father was a famous collector of orchids; and even the son still knows them by their scientific names. He guided us to several localities while we hunted for *Echeverias*, on one of

which trips we became painfully intimate with one of the local tree nettles, *Urera caracasana*. Notable amongst plants cultivated at Orizaba were *Cupressus funebris* in front of the City Hall, also *Cunninghamia lanceolata*, *Dombeya Wallichii* in the Plaza, etc. On the same train, but exactly one year later, we again returned to Mexico City.

Temporary suspension of the plane service compelled return home by train with a brief stop at Guadalajara. Here we had hoped to be able to explore the famous Barranca de Oblata, as well as the mountains above Etzatlan, the last the type locality of *Echeveria lozani*. It seemed impossible to find any guides willing to take us on either excursion; and while this would not have deterred us if time had been more abundant, we read with interest only a few weeks later of the kidnapping and holding for ransom of two Americans at Etzatlan. The return home was without memorable occurrence, aside from a train wreck near Matzatlan, and the opportunity for some pertinent comparisons on the relative merits of air and rail travel.

However, mere chronological records of travel are apt to become tiresome reading, even when concerned with plant hunting. What may serve to make worth while are the lessons learned, the inspiration gained and the successful transmission of this to the reader. Now there is not the least doubt that the present writer gained much valuable knowledge, not only on Mexican plants and the genus *Echeveria* in its various aspects in particular, but on the underlying factors governing plant life with its various manifestations in general, some of which we have touched upon in passing. Elsewhere\* we have treated the

\*See "Cactus & Succulent Journal"; Vols. 7-8, 1935-36.



*A new succulent, of merit as a basket plant. Not yet identified.*

botanical findings of our two excursions to Mexico in greater detail, while the final results must of course await publication of our contemplated monograph.

Any inspiration gained from our experiences concerns itself largely with the as yet unfathomed possibilities of Mexican plants in California gardens, both those now here and those yet to be introduced. If our attempt to present our adventures in Mexico succeeds in inducing someone else to follow us, we shall be most pleased; and

would be glad to be of any help possible. With the increasing ease of communication it seems inevitable that more Americans should go and see something of Mexico, which is really the nearest foreign land we may visit. No strenuous efforts or deprivations are involved, even a knowledge of Spanish is unessential; and the cost, too, is surprisingly low.

In closing we express the hope that any plant-minded tourists will not fail to make the slight effort needed to send home seeds or plants of anything worth while they may discover.



*Madroña near Tenancingo covered  
with epiphytic Bromeliads*

## A Book or Two

*The Identification of Trees and Shrubs.*

By F. K. Makins. E. P. Dutton & Co., Inc., New York, 1937. 326 pages, illustrated. \$4.00.

This is a book intended for the amateur who is not a botanist but who would like to be able to identify "any tree or shrub he is likely to meet with, growing in the open in any part of the British Isles."

One is given instructions as to how to use the book, a short explanation of terms used before he comes to the main portions of the book. These are two, over 100 pages of illustrations and almost 200 pages of descriptions. The key which precedes these pages is but one page long and requires only a knowledge of terms related to leaves and each section is related to various figures among the illustrations where one picks out his plant by sight. Then, if he must know more, he looks up that name in the index and is referred to the text descriptions which are brief with many shorthand symbols.

The whole is a very artificial arrangement. Many of the illustrations seem poor. There are many useless inclusions from the American point of view and many serious omissions. Botanists won't care for this book; gardeners may.

*The Garden Calendar.* By Cecile Hulse Matschat. Houghton Mifflin Company, Cambridge, Mass., 1936. 118 pages, diagrams. \$1.00.

If you are the kind of a gardener who needs a calendar this will do very nicely. If you embrace it as your guide, it will be to your advantage to have a cold frame, a hot bed, a greenhouse (at least one little greenhouse) and a pot-

ting shed, because within its pages are all the necessities of an estate garden. You should be a mathematician, too, with some sense of intuition in order to translate for your spot, these data written for New York. But, if you should suddenly need to know what bloomed in July you can turn quickly to the list which is mostly in numbers, and then start looking back at June and May to understand them.

If the book is ever reissued we hope the diagram on page 100 will be redrawn correctly.

*South African Plants For American Gardens.* By Sarah V. Coombs. Frederick A. Stokes Company, New York, 1936. 364 pages, illustrated. \$4.50.

Like a careful author, Mrs. Coombs announces in her preface that her book has two objects: "to give to people of the northern countries some idea of the beauty of the flowers which grow so freely under the Southern Cross;—to indicate the possibility of adding many of these flowers to our store of garden and greenhouse favorites." When one comes out at last on page 327, one is not quite certain about anything save that Mrs. Coombs must have had a grand time and done a fearful amount of assembling. There is no very clear statement of the extent of the author's travels and one cannot help feeling that she never got far beyond a limited area in South Africa, although there are three short paragraphs on the African climate in general.

There is a division into four groups of the materials to be discussed later, a chapter on plans and suggestions in which the suggestions are infinitely bet-

ter than the plans, and then one plunges into the body of the book, where order by order, genus by genus, the plants march by, section by section, accompanied by innumerable pictures most of which are much more vivid than the text descriptions. One wonders why old *Allium neapolitanum* is paraded as a Chinkerinchee (opposite page 48), and what other plant is atop of the even older and more familiar *Agapanthus africanus* (opposite page 64). One wishes that there were some more careful planning of the scale of reproduction for it is alarming to see *Sparaxis grandiflora* (opposite page 112) life size and turn that page to find four moreas on the reverse which do not have any proportionate relation to each other and any one of which is more worth a full page than the sparaxis.

If you live in California there will be much in this for you if you have not already discovered it. If you are already a keen collector of succulents you will find that section, although the best part of the book, old stuff. If you are interested in annuals you can commence your struggle to prevent overmuch food and summer showers and to fume when your surviving annuals finish their life cycle long before frost. If you are keen about bulbs, you can prepare to do your work in pots. If you are interested in shrubs and trees, you might as well move to California anyway. If you don't live in California and do garden you won't pay any attention to what any reviewer says.

*Plant Propagation for the Garden.* By David C. Fairburn. Doubleday, Doran and Company, Inc., New York, 1936. 115 pages, illustrated. \$1.00.

This book is addressed "To Amateur Gardeners." It would have been more sporting to dedicate it "To Beginning Gardeners" since for them it will be useful. The writing is clear and simple

but not literary; the illustrations diagrammatic but often ugly and inexpert. The lists given under the various headings are suggestive but certainly not altogether satisfactory as, for example, when one finds under "summer cuttings are easily made of the following shrubs": azalea, chionanthus, kolkwitzia, lilac. Some azaleas, yes, others, never. Chionanthus rarely. Kolkwitzia only if the right type of cuttings are taken. Lilacs, only certain species. Remember the caption was "easily made." The list of plants propagated from rhizomes contains several plants that are not usually considered rhizomatous. The list of plants that "can be propagated by root cuttings" includes some strange items either for beginner or amateur as, for example, plum, cherry, peach, pear, apple—all of which *can* be so propagated if one has skill and equipment. But, one must be careful to say no more or the author will try to make us one of "the intelligentsia" to whom he pays his regards on page 19.

*Grow Them Indoors.* By Allen H. Wood, Jr. Hale, Cushman & Flint, Boston, 1936. 221 pages, illustrated. \$1.75.

This book is essentially a period piece. It touches upon most of the current fads of the time. It follows the popular style of compilations in which so many topics are touched upon that little can be said of any. It seems to be designed chiefly for the feeble who can neither manage the burden of more than half an idea at a time nor bear the weight of a good cyclopedia in which they could find the meat of the matter.

*The Wild Garden.* By Margaret McKenny. Doubleday, Doran and Company, Inc., New York, 1936. 123 pages, illustrated. \$1.00.

This is primarily a study of native plants brought into cultivation in prop-

er associations, with suggestions as to their needs and preferences. It is filled with lists already prepared for use, and has one chapter on general propagation practices and several chapters on special propagation subjects. The one vital thing it does not have is any discussion of what your house, your beautiful, or even not so beautiful suburban house will look like with a wild garden on its side or how your whole back garden will appear from a design point of view if you give it over to such a planting.

The illustrations are supposed to be decorative but are neither accurate nor beautiful.

The materials are chiefly from the Eastern United States with a bow to the Southeast and a wave of the hand to the Pacific Northwest.

*Hardy Californians.* By Lester Rowntree. The Macmillan Company, New York, 1936. 255 pages, illustrated. \$3.50.

This is a delightful and intriguing book, the sort that one reads through from cover to cover and then goes back

to reconsider. The author fixes rather definite limits to her field but does not, in the opinion of this reviewer, make a very good defense of her use of the word hardy. If she intends intriguing the non-Californian, as apparently she does, she should have remembered that the word hardy connotes first of all winter hardiness and it still remains to be proven that plants from high altitudes will endure similar temperatures at low elevations elsewhere. Some do, some do not. We shall need a comparable volume on Californian Survivors Away From Home!

Also it must be remembered that wild plants do not all respond equally well under the arbitrary conditions of cultivation. This is particularly true of plants that grow sparsely in their native habitats because of limited available water, when introduced into climates and gardens where water is relatively abundant.

Perhaps we need new types of gardens or new unit areas. At any rate this is a good and provocative book that should set in motion any adventurous gardener who is not hopelessly bound to practices of the past.

# The Gardener's Pocketbook

## *Rosa damascena*

The damask rose has a long history. It is said to come from Persia by some, and from Syria by others. In the sixteenth century it came to France and was brought to England before Gerard's day. Until the Great War the variety called "Kezanlik" covered miles of rolling country in Bulgaria where it was grown for the fragrant oil extracted from its petals. In May, when it flowered, the fragrance of the rose was so strong that it was almost overpowering. In the Near East a jam is made from the petals. The hard yellowish heel is cut off and the petals removed from the roses which have been picked early in the morning of the day they opened their delicate rosy blooms. The petals are then cooked with sugar and water. This jam which is like culinary poetry can be bought in Turkish and Syrian restaurants in New York City.

When growing in my garden the flowers are not particularly fragrant, but when the petals are dried or when they are being cooked, they are delicious and smell of the rose without any admixture of spice or fruit. For centuries the *Rosa damascena* was the source of rose oil or attar of roses but now much of the perfume of roses for perfumery, soaps, and flavors is provided by the rose geranium.

Years ago when I returned from Turkey I wanted to grow these roses to make the jam or rather conserve, and I went down to visit Dr. Van Fleet. He gave me a pamphlet on the growing and harvesting of the rose petals which also contained de-

tails as to how to distil the petals. In Bulgaria forms with white and pink blossoms shading to deep rose were grown. My bush has pale pink blossoms, and blooms were from early to middle June.

The bush grows three feet high but elsewhere the *Rosa damascena* is said to grow to six feet. It is a graceful bush with spreading branches. The stems are thorny with hooked thorns and growing in with them are glandular bristles.

The leaves are composed of seven leaflets, each about two and a half inches long. Dr. Rehder says the species sometimes have five leaflets. They are ovate oblong and simply serrate, smooth above and more or less pubescent beneath, and have a prickly petiole. The leaves are tinted brownish towards the margins on the upper surface which produces a soft velvety effect. The flowers are in corymbs on slender pedicels and the buds and calyces are covered with tiny bristles. The flowers are thin textured semidouble and the petals in the centre crumpled. The stamens and pistils are partly covered by the petals. The flowers are delicate looking and when picked fade very quickly. But they are pretty while they last.

The fruits are obovoid and bristly.

The damask rose is one of the ancestors of the hybrid perpetuals, and so of the modern hybrid teas.

As with all roses they like a clay soil, and this particular species seems to prefer a dry sunny situation.

HELEN M. FOX.

Peekskill, N. Y.



*Walter Wilder*

*Rosa damascena*



*Ilex verticillata* (See page 83)

This deciduous holly is probably more familiar to city and suburban gardeners as one of the florists' specialties of November than as a growing plant. Then, shortly after the time when bunches of bittersweet and stiff bouquets of strawflowers make their appearance, it too appears in stiff bunches, each twig lined with brilliant scarlet berries, that last in their shining plumpness for a long time if kept in water and in a duller beauty if the branches are kept dry. They do not shatter from the twigs in these dry bouquets, unless roughly handled, until the end of winter when one is glad enough to abandon them for bouquets of flowering shrubs to be forced into premature bloom in the house.

If one knows it, however, either in the swamps that it inhabits or in park plantings where it has been established, it has an even more vivid beauty. There are particularly handsome plants of this in Durand-Eastman Park in Rochester, N. Y., chosen by Mr. Slavin or specially propagated from plants bearing excellent fruits. Seen on a dull November day, with a background of evergreen trees, they make a picture that is not soon forgotten and lighten the grayness with their scarlet in a way that no one need scorn.

Like all hollies, the species is dioecious and there must be a pollinating plant somewhere in the group, to insure the display of berries. Possibly in time there may be found an individual with perfect flowers or some other that will mature infertile fruits even without pollination. Then we can count upon vegetative propagations that will make paired plantings unnecessary.

The plant has a wide geographical distribution from north to south with a fair range from east to west so one

need not fear for hardiness. Doubtless gardeners in the South will be more interested in their own deciduous *Ilex monticola* for even if this does normally develop to the size of a small tree, it will fruit while smaller and just as handsomely.

Like many other hollies, it varies considerably in the number of berries that it bears, in their size and in their coloring. Yellow-fruited forms are known and there is doubtless a chance that a form with white fruits might be found. Gardeners who tramp the countryside, have in it, another subject for examination and a chance to make a contribution to our garden store.

Its Asiatic relative, *Ilex serrata*, which may be listed as *Ilex Sieboldii*, may be considered for similar uses but its fruits are smaller in size though quite as bright and as abundant. If one is interested in deciduous fruiting shrubs whose berries survive early winter freezes both these plants are worthy of a choice even in a smallish place.

*Nerine undulata* (See frontispiece)

In this day of renewed interest in African plants it is needful to remember that many of the things we are so voluble about have been in and out of cultivation before this.

If one turns to Curtis Botanical Magazine, that repository of amazing value, one finds on Plate 369 an excellent picture of this charming species and reads in the brief text that it was introduced "about 1767" and the heartening note that it "is propagated by offsets, which are plentifully produced." Where then has been the difficulty?

Doubtless the years between 1767 and more recent times have seen a rise and fall of interest abroad in



Lilian A. Guernsey

*Ilex verticillata*

[See page 82]

keeping up a supply of these bulbs under glass, for the plant is tender to freezing. At the present time there is no record available to show when the species first might have reached the United States, nor how available it is here now.

Last autumn a delightful planting was seen in Berkeley, California, where heads of flowers much more handsome than these illustrated sat like pinkish bubbles above the greenery. The flowers photographed were grown in a pot from newly received bulbs and show better the character of the inflorescence than anything else. The ruffled edges of the floral segments show how the plant acquired its name. It is less easy to guess the color from a photograph and almost as difficult to put it in words. The color is a pale pink with a faint undertone of lavender. The unopen buds are deeper in hue and seem much more pink.

If there are readers in the southeastern states who have grown this species, a note will be most welcome.

Washington, D. C.

#### *Iris Sintenisii* (See page 85)

As everyone knows there are iris and iris but as some do not realize, some of the lesser species and forms make plants for the garden as enduring and as interesting as many perennials that are given more acclaim.

This small plant is distinctly a poor thing if one finds beauty only in the modern tall bearded iris or the grand Japanese iris, but it has its beauties and makes most modest requirements of the gardener. It is of dimensions sufficiently small to bring it to the field of the rock gardener although it requires no rocks at all for its health or pleasure, growing here equally well in an open field and in a semi-shaded

wood, the first with a sandy soil—the second with a heavy soil lightened only with leaf compost.

It makes a gradually enlarging leafy tuft like a tussock of some wiry evergreen marsh grass, through which rise the small flowers that show clearly in the illustration. These look, as they properly should, like slender first cousins of *Iris graminea*, another useful species of secondary conspicuousness. The hafts of our flower have the same vinous purple color, the standards a similar warm lavender, the tips of the falls the same clearly lined deep blue purple.

There are usually two flowers to each head and these in time are followed by characteristic seed pods with marked ridges and a conspicuous beak. Like other iris of this group, *I. sintenisii* is easily raised from seed.

#### *Cytisus supinus* (See page 58)

There are various small brooms that get into catalogs from time to time and some make much more conspicuous garden plants than others. This species which has grown here for some years is represented by plants that were raised from seed and exhibit considerable variation in the amount of flowering they accomplish. As is shown in the photograph, the flowers are crowded at the ends of the shoots as if in a flattened head.

The bushes here make rounded low shrubs, are rarely more than eighteen inches tall with many stems that die back somewhat in cold winters. New shoots quickly hide any winter loss.

The photograph which is natural size shows the character of the three-parted leaves which persist until frost and the general style of the flowers. These are of a rather sulphury yellow, not the golden yellow one thinks of first with brooms and genistas. As



*Lilian A. Guernsey*

*Iris Sintenisii*

[See page 84]

the flowers age they take on a pinkish brown tint that darkens as they fade, into a warm brown that is by no means unpleasant in the persistent flowers.

One wishes that the time might come or the person would appear, so that some hundreds of these plants could be raised to see the limits of their floral variation to provide some selection of the best forms for vegetative propagation.

While one doubts if even the best forms would be chosen for the rock garden, one wonders if this might not be a useful ground cover shrub for sunny areas where spring bulbs are used. The shrub developing slowly would not hide their flowering, but would hide their waning foliage. Its own season of bloom, midsummer, would bring interest to the planting. The thin winter state would allow leaves to drift in for a natural mulch

and sunlight to warm the dormant bulbs as spring comes on.

Washington, D. C.

Gold medals are given for many things in the horticultural world but they are not often given for books. It is of keen interest to gardeners, therefore, that the Massachusetts Horticultural Society has awarded a gold medal to *The Garden Dictionary*, of which Norman Taylor is the editor. Our congratulations go to Mr. Taylor and to the Houghton Mifflin Company that published the book.

#### NOTE OF CORRECTION

Page 245, October 1936 N. H. M., second column, five lines from the bottom, the date should read 1681 and not 1861.

Illustration on page 247 should read Woodlands Cemetery and not Woodlawn Cemetery.

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APRIL 16-17

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THE GARDEN CLUB OF VIRGINIA

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APRIL 20-21

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W. F. Christman, *Secretary*

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Northbrook, Ill.



**Chronica Botanica**, the year-book of plant science has been designed to bring together the research programs of all laboratories, experiment stations, herbaria, botanic gardens, etc., to give a résumé every April of the professional and personal news of the past year and to promote cooperation between workers in the various branches of plant science in every possible way.

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**Chronica Botanica** sends questionnaires every December to the Directors of all botanical laboratories, experiment stations, herbaria and gardens and to the Secretaries of all botanical societies. Answers must reach the Editor before the end of January; it is impossible to use information received after that date.

**CHRONICA BOTANICA** is published every April as a single volume of about 400 pages, with numerous illustrations, bound in cloth. Annual subscription hfl. 15.-, postage extra. For prospectus, sample pages and further information, apply to the Editorial and Publishing Office, P. O. Box 8, Leiden, Holland.

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# THE AMERICAN IRIS SOCIETY



The American Iris Society, since its organization in 1920, has published 54 Bulletins which cover every phase of iris growing and should be useful to all gardeners. The Society has copies of all but three of these Bulletins for sale. A circular giving list of contents of each Bulletin, price, etc., may be secured from the Secretary, B. Y. Morrison, 821 Washington Loan & Trust Bldg., Washington, D. C. **In order to dispose of surplus stocks of some numbers we offer 6 Bulletins (our selection) for \$1.00.**

Through an endowment given as a memorial to the late Bertrand H. Farr the American Iris Society is able to offer free to all Garden Clubs or Horticultural Societies the use of our traveling library. This library contains all books ever published on Iris and a complete file of the bulletins of this society and The English Iris Society, and miscellaneous pamphlets.

The library may be borrowed for one month without charge except the actual express charges. Organizations desiring it should communicate with the nearest of the following offices:

- Horticultural Society of New York, 598 Madison Avenue, New York City
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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, Mrs. Eugene Ferry Smith, 821 Washington Loan and Trust Building, Washington, D. C.

