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The American Horticultural Society

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CONTENTS

A Diminutive Palm from Mayaland. O. F. COOK and J. F. JOYNER.....	1
Thirty More Climbers for California. KATHERINE D. JONES.....	13
Winter Gardinage. LOUISE B. FISHER.....	59
Rhododendron Notes:	
Rhododendrons of Golden Gate Park. ERIC WALTHER.....	64
<i>Rhododendron serrulatum</i> . HUBERT F. FISHER.....	70
Southern Azaleas. HUBERT F. FISHER.....	70
A Book or Two.....	71
The Gardener's Pocketbook:	
Winter Flowers. F. E. McILVAINE.....	76
<i>Phymosia remota</i> . BERNARD HARKNESS.....	76
<i>Caladium argyrites</i> . WYNDHAM HAYWARD.....	77
<i>Achimenes</i> Purity. WYNDHAM HAYWARD.....	80
Fatshedera. ROBERT A. YOUNG.....	82
Two Tropical Crinums. CLAUDE HOPE.....	83
White Forms of Native Flowers. WILL C. CURTIS.....	87
Conference on Flowering Trees and Shrubs.....	87

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Matthews

Jasminum simplicifolium

A Diminutive Palm From Mayaland

O. F. COOK AND J. F. JOYNER

THE region occupied by the ancient Maya civilization in southern Mexico and eastern Guatemala has a very interesting flora, now being studied as a background of primitive culture. Sentiments of historic interest that have long attached to the archaic civilizations of the Mediterranean countries are extending to Yucatan, Peten and Campeche, where hundreds of ancient cities have been found, buried in uninhabited forests. The Maya architecture in its natural setting of palms and other tropical vegetation is found so attractive that it is being imitated in American cities. Much of the Maya country is very similar to southern Florida, a region of limestone reef formations, and many of the Mayaland plants are able to thrive in Florida, including several kinds of palms.

One of the Mayaland palms may have a much wider use and even a commercial value for growing as a house plant. On account of being so small as to reach its full development in a six-inch or eight-inch pot, and being so tolerant of shade and of variable temperature and moisture conditions as to thrive in dwellings, this diminutive palm may go into general cultivation, with its Maya nativity as an added interest. A living plant is a better reminder of a country and a people than the ancient remains that are kept in museums.

The small palms were first seen in 1902 in the mountain forests of eastern Guatemala, in the district of Alta Vera Paz, but were found in greater abundance in the northern part of

Peten, in 1922, living as undergrowth plants in partial shade, with a slender green short-jointed trunk three or four feet high and half an inch in diameter, and leaf blades only 12 to 15 inches long. *Figs. 1-4.* A few young palms were brought home and kept for many years as house-plants, growing well and flowering regularly under ordinary living-room conditions, but requiring hand-pollination for the production of seeds, on account of the sexes being separate, as in the date palm.

The first pollinations were made in 1926, and several fruits matured. The seedlings were raised in a greenhouse and began to flower in the third season, showing that a much more rapid propagation of the stock would be practicable than with other palms that have been domesticated. Simpler methods of transferring the pollen have been devised in recent years and seedlings raised under household conditions, leaving no doubt of a complete domestic cultivation being feasible, through all the stages of the life history.

The palm was considered at first as a form of *Chamaedorea elegans*, a species described originally from Mexico, whose name has been used during the last century for several other small palms in European conservatories. The original *Chamaedorea elegans*, though considered as a small palm, had leaf-blades nearly four feet long, and the trunk an inch and a half in diameter, three times as thick as the Mayaland species. Also a generic separation of these Mexican



FIG. 1

Young Neanthe palm in the third season, at the stage of beginning to flower.

and Central American palms from Chamaedorea is necessary because the floral structure is very different from the Venezuelan type species of Chamaedorea, *C. pinnatifrons*. Hence the diminutive Mayaland palm has been described as a new genus and species, *Neanthe bella*, in *SCIENCE* August 6, 1937, pp. 120-122. The name *Neanthe* alludes to the habit of flowering while still young, often in the second or third years, and the name *bella* to the attractive appearance of the palms.

The flowers of *Neanthe* are peculiar in having the petals fused to above the middle, and the narrow triangular opening obstructed in the male flowers by a peltate pistillode much larger than the functional pistil of the female flower, which remains concealed in the corolla. *Figs 5 and 6.* The seedling leaves of *Neanthe* are

another distinctive feature, not with a broad V-shaped blade as in other members of the Chamaedorea group, but with several separate pinnae like the adult leaves, so that the small *Neanthe* plants are graceful and pleasing, even in the early stages of growth. *Fig. 3.* The seedlings of many of the cultivated palms have simple seedling leaves, narrow like blades of grass, and this unattractive "pin-feather stage" may continue for several years before the "character-leaves" appear.

Many kinds of palms are grown in greenhouses or conservatories, and several species are used to a limited extent as house plants, though not well adapted to ordinary living-room conditions and usually remaining healthy and attractive for only a few weeks or



FIG. 2

Adult Neanthe palms, male and female, brought from Guatemala and raised as house plants.



FIG. 3

*Seedling of Neanthe bella in 3-inch pot, natural size,
showing the first leaves.*

months. That *Neanthe* finds really congenial conditions in the household is better understood by reference to its habits in the wild state, living in rather open forests on the steep mountain slopes where the soil is thin and retains little moisture, so that even short periods of dry weather induce drought conditions, as shown by shriveling of the ferns and other delicate plants of the undergrowth. Thus the natural habitat of *Neanthe* has favored the development of the two principal requirements of a household plant, tolerance of shade and tolerance of drought.

The greatest extent of shade tolerance is seen among the palms that live as undergrowth in the deep forests of the tropical low-lands, where warmth and moisture are maintained, as in conservatories. At the other ecological extreme are the palms like the cocoanut, that live in open places, on barren rocks, sea-coasts or deserts, exposed to full sunlight and to drought and temperature changes, but not adapted to shade conditions, and rarely grown under glass. The shade tolerance of *Neanthe* enables the palms to grow and to remain healthy in north windows, too much exposure to the sun sometimes injuring the leaves, especially of plants that have grown in the shade.

The palm most generally used for household decoration, as well as in restaurants and hotels, is the so-called "Kentia" (*Denea forsteriana*) a tree palm that grows in a single small island between Australia and New Zealand. The commercial Kentia industry in Europe and America, with millions of invested capital, is based on seed supplied from Lord Howe Island. A resemblance of *Neanthe* to the "Kentia" palm is often noted, the appearance of the plants being so

similar that *Neanthe* has been taken for "a dwarf Kentia," though the floral characters are entirely different. *Figs. 1 and 3.*

Several other tree palms, *Livistona*, *Chamaerops*, and *Trachycarpus*, sometimes are used as house plants, but only the seedlings or juvenile stages, and hence never flowering or fruiting. If kept in thriving condition they soon require large pots or tubs too heavy to move, whereas *Neanthe* needs only a four-inch or six-inch pot. Other small palms in decorative use are *Cocos weddelliana* and *Phoenix roebelinii*, but neither is as graceful as *Neanthe* nor as able to thrive and remain in good condition in the household, the *Cocos* for lack of moisture and the *Phoenix* for lack of sunlight.

TRUNK AND LEAF CHARACTERS

The palms that live as forest undergrowth are reduced in size and specialized in many other ways, some with only simple leaves or a few broad pinnae, and many with no trunks, or only creeping rootstocks. *Neanthe* seems to be the smallest palm that has retained the form of a tree with an erect, many-jointed trunk and spreading pinnate leaves. A thrifty mature palm has a crown of 12 to 15 leaves, with a spread of about 30 inches. *Figs. 2 and 4.* The trunk of an old *Neanthe* palm may attain a height of five to six feet, with 50 to 80 joints, but retaining the same diameter, about half an inch, and the leaf-blades rarely more than a foot long. The petioles, leaf-sheaths and sections of the trunk have the green color of the pinnae and the midrib.

The leaves of *Neanthe* are broadly oval in outline, with the pinnae more or less arched or drooping at the tip, which no doubt is responsible for the marked resemblance to the Kentia

palm. *Figs. 1 and 4.* The largest pinnae are near the middle of the leaf, attaining a length of 5 to 7 inches, and a width of one-half to three-quarters of an inch. The number of pinnae varies from 12 to 15 on each side of the rachis, rarely 16 or 17, usually not standing directly opposite, except the small terminal pair.

FLOWERING AND FRUITING

As the name *Neanthe* implies, the first inflorescences may appear while the plants are still young, in the second or third season. Three or four inflorescences are produced every year on adult palms, from axils of successive leaves, and reach the flowering stage several days or weeks apart. Most of the plants develop their florescences during the winter and spring months, but desultory flowering may occur during the summer and fall. The separation of the sexes on different plants is shared with the related *Chamaedorea* palms and with two other families, the date palms of the Old World and the vegetable ivory palms of South America. Most of the other groups of palms are monoecious, with the flowers of the two sexes variously specialized, but both kinds on the same plant, and usually in the same inflorescence.

Though involving the need of hand-

pollination to produce seeds, the separation of the sexes adds certain elements of scientific interest to the culture of *Neanthe*. The specializations of the two kinds of flowers and the succession of inflorescences through a period of several weeks or months may provide useful material for botanical instruction in colleges or high schools. Also the simple and complete control of pollination may facilitate experiments in genetics, for determining the inheritance of special variations or breeding special characters, as broader or more curved pinnae and flowers of larger size or more brightly colored.

The male inflorescences are somewhat larger than the female, and the flowers more numerous, a single inflorescence having as many as 35 branches, each with 15 to 30 flowers. *Figs. 5 and 7.* On the

largest inflorescences, borne by plants several years old, two or three of the lower branches may be forked near the base, but on smaller plants no double branches have been observed. The axis is held erect at the time of flowering, and the branches also are erect, though curved at the base. The flowers stand well apart, arranged in opposite rows on the sides of the branches, meaning that there are no



FIG. 4

A group of young Neanthe palms, the largest at the stage of forming a trunk.

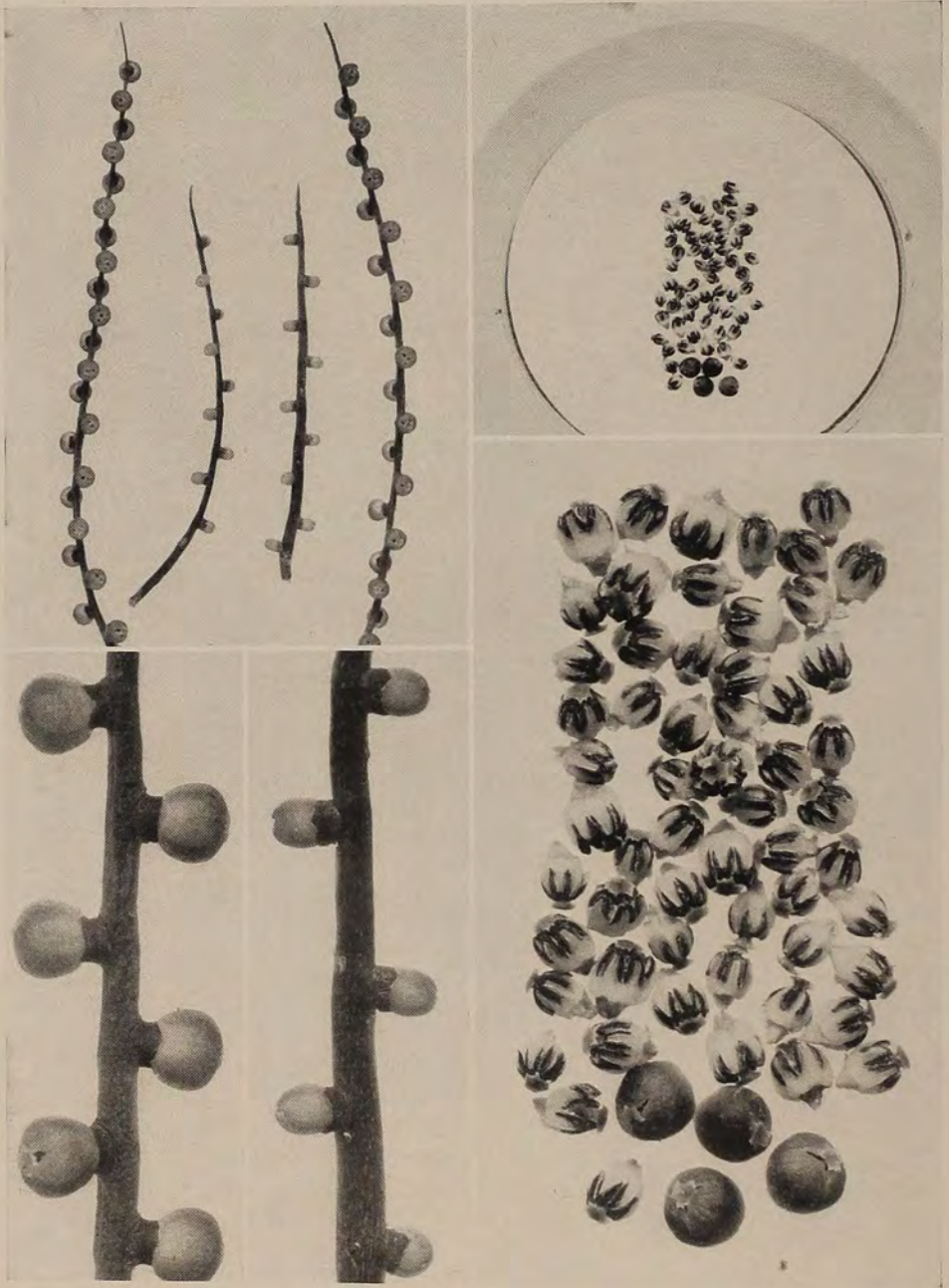


FIG. 5

Flowers of Neanthe:

- (a) Male and female floral branches (natural size)
- (b) Sections of male and female branches, with flowers (enlarged)
- (c) Cores of male flowers, with corolla removed to obtain pollen (natural size)
- (d) Cores of male flowers (enlarged)

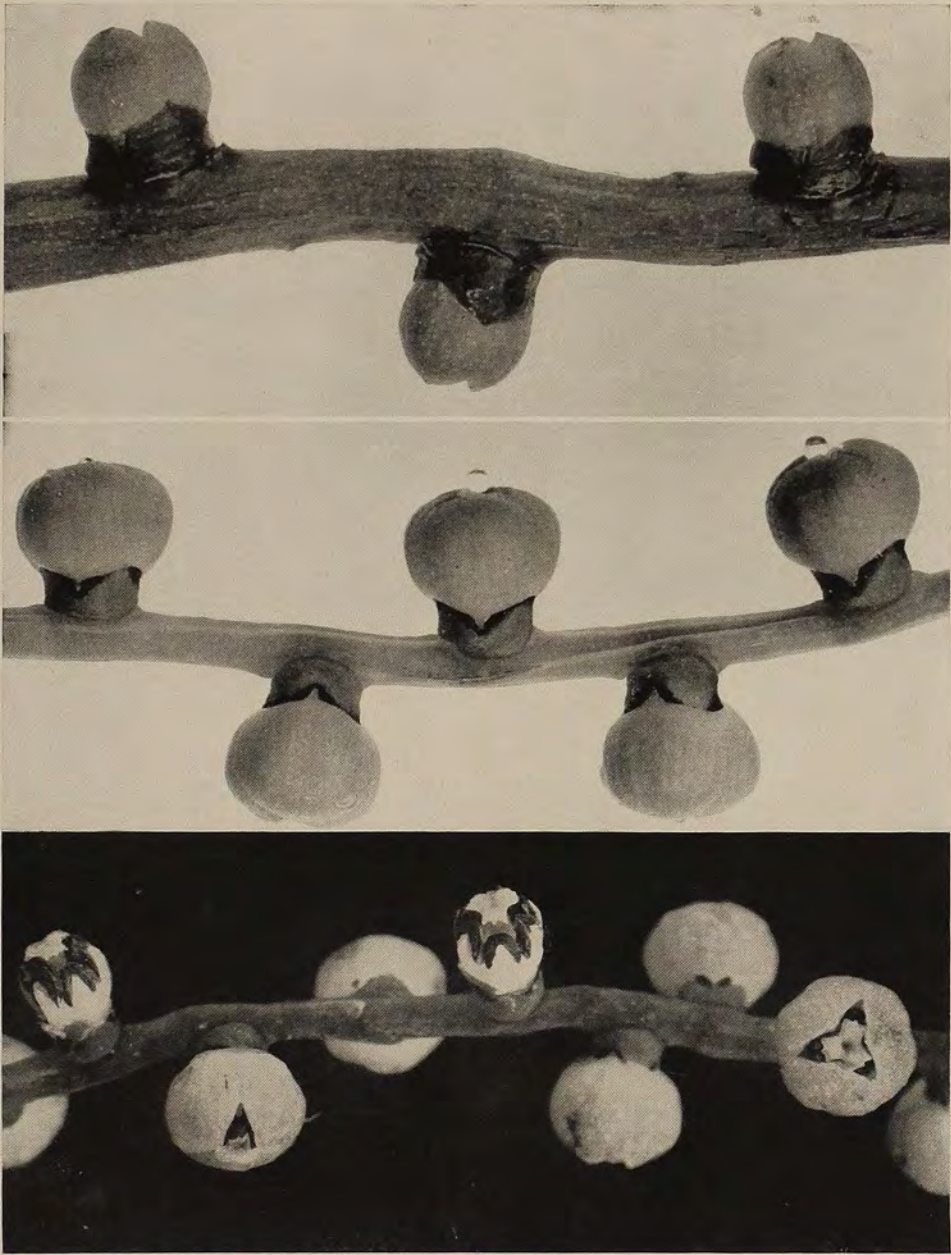


FIG. 6

Specialized Pistillodes of Neanthe:

- (a) Three female flowers (much enlarged)
- (b) Male flowers with drops of nectar secreted by the pistillode (much enlarged)
- (c) Male flowers showing pistillodes and stamens, two with corolla removed, short robust white filaments and strangely divergent dark anther-cells (much enlarged)

flowers on the inner face of a branch, that lies against the axis, nor on the outer face, that lies against the spathe before the young inflorescence pushes out. The branches are square in section and sharply angled, as though by pressure in the early stages of growth. *Figs. 5 and 6.*

The flowers of the two sexes of *Neanthe* do not appear very different on the outside, being small and nearly round, and of a pale lemon yellow color, though the male flowers are broader and sometimes more deeply colored than the female. The petals are alike in the two sexes, rather thick and fleshy in texture and firmly united to above the middle, with the end separating but little at the time of flowering, so that only a narrow triangular aperture is formed, and this obstructed in the male flower by the broad pistillode. *Fig. 6.* In order to see the stamens, with their brown anther-cells releasing the white pollen, the flowers must be opened, either by removing the corolla or by cutting it through. *Fig. 5.* A flower divided lengthwise shows the lower half of the floral cavity filled with a large staminal cushion, described by some writers as a "stipe."

The very large pistillode with its green umbrella top, standing in the center of the male flower, is a characteristic feature of *Neanthe*, not known in any other palm. A minute glistening drop of nectar often is formed in a small depression at the center of the pistillode, giving a striking effect when a male inflorescence is reached by the sunlight. *Fig. 6b.* Many other palms have pistillodes as minute rudimentary organs or slender and white like the filaments, but not developed in structure or function like the pistillode of *Neanthe*.

The sex is obvious as soon as the flowers open, though caution is necessary, since even experienced botanists have mistaken the male flowers for female. The error is occasioned by the stamens being covered by the large pistillode, while the functional pistil of the female flower is much smaller and does not emerge from the corolla cup. *Fig. 6a.* Confusion of the sexes may explain why some of the closely related small palms from Mexico, though long known as attractive conservatory plants, have not been pollinated to produce seed, and established in regular cultivation.

The female inflorescences, though generally borne on longer peduncles, never attain the size of the large male inflorescences, have fewer, thicker and shorter branches, 2 to 4 inches long, and only 6 to 12 flowers on each branch, the female flowers being spaced almost twice as far apart as the male flowers. *Figs. 5, 6, 7.* A single inflorescence may bear 150 fruits if most of the flowers are fertilized. The fruits are spherical, and reach their full size 3 to 4 months after pollination, but take nearly a year to ripen. Though only a quarter of an inch in diameter, they are large in proportion to the size of the palm, relatively larger than coconuts, and actually as large as those of the massive Washington palm of California, with a trunk 3 feet thick.

The peduncle, axis and branches of the inflorescence turn a deep orange as the fruits approach maturity, the bright color being retained for several weeks, the dark green fruits eventually becoming black, in striking contrast with the cluster of orange-yellow branches. The base of the fruit, around the point of attachment, is orange-red like the stem, but the thin fleshy mesocarp remains green under



FIG. 7

Male and female inflorescences:

(a) *Male inflorescence with flowers*

(b) *Female inflorescence with fruits (natural size)*

the black skin, even when the fruits are fully ripe.

The seeds germinate in 3 to 6 months, depending on the temperature of the seed-bed, a rather short period for a palm, many requiring a year or longer. Keeping the soil moist while the seeds are germinating is the chief difficulty. A small germination chamber that served very well under living-room conditions was made with a shallow 4-inch flower-pot fitting the mouth of a deeper jar containing water, and a glass dish inverted over the soil in the flower-pot.

METHODS OF POLLINATING NEANTHE

The flowers are approaching maturity when they take on a lemon-yellow color and the tips of the petals separate, though only a narrow triangular aperture is formed. The actual maturity is ascertained by opening a male flower and seeing the white pollen sifting out of the dark anther-cells, underneath the pistillode. Any simple method of transferring the pollen dust to the female flower may be effective, with a small artists' brush, a slender shred of paper, a wisp of cotton fiber, or even a hair-pointed splinter of wood. Only a touch of the brush or other pollen-carrier is needed at the opening of the female flower, for some of the grains to fall on the stigma underneath. The chief difficulty is to obtain the pollen in sufficient quantity, if many flowers are to be fertilized, and this has led to the development of special methods of extracting the pollen.

The male flowers separate readily from the branches, and the firm cup-shaped corollas are easily removed with small forceps, or even with the fingers, leaving the cores of the flowers, with the stamens still attached to

the staminal cushion, to be placed in a watch-glass or other small container, preferably not white, to catch the pollen and render it visible. *Fig. 3.* By gently tipping and tapping the container, the flower-cores are rolled and shaken to release more pollen, which may be seen with a hand-lens as a fine white dust falling out of the anther-cells. Enough pollen should be available to be readily visible on the brush. In flowers too young for normal shedding the pollen grains may adhere in small lumps difficult to remove from the anther-cells or to apply with a brush. Also the surfaces of the flowers must be dry, in order to free the pollen, and because wet pollen cannot be handled satisfactorily on a brush.

Another method of obtaining pollen is by cutting the flowers in halves or quarters, but fewer anthers are exposed and some of the pollen is lost by the grains adhering to the moist surfaces where the fleshy core of the flower is cut through. Two or three dozen male flowers may be used to insure an adequate supply of pollen if two or three inflorescences require attention. A little delay in extracting the pollen or in applying it to the female flowers occasions no injury. Pollen extracted in the afternoon and left overnight in an open dish has been used the following morning with good results, on several occasions. Branches of the male inflorescence have remained fresh in corked test-tubes for three or four days, and the pollen proved viable, so that sending by mail may be feasible.

HARDINESS AND RECOVERY FROM INJURIES

Many tropical palms are very susceptible to cold, even where frost temperatures are not reached, but *Neanthe* thrives in moderate condi-

tions of living rooms, and showed no injury from cooling at night, even in a Maryland farm house heated only with wood fires, where the first palms were kept through two winters. The humidity of living rooms or offices is much lower in winter than in summer, and more careful watering is required, perhaps daily, as where pots are too full of soil, a frequent mistake. Dying-back of the tips of the pinnae usually is the first symptom of plants in distress from too little water or other causes, and in some cases marked evidences of recovery have appeared rather promptly, after the adverse conditions were corrected. Plants that have lost most of their leaves from excess heat or dryness may form a new leaf-crown in a few months, if they receive proper care, or they may be reconditioned during the summer, by standing the pots out-doors, in a shady place, on the north side of a house.

A slow-growing palm may remain unsightly for months or years after an accident has occurred, so that patience becomes exhausted, but *Neanthe* may recover in a relatively short time. As soon as new leaves are put forth the unsightly damaged leaves may be cut off, and the plant regains

a thriving appearance. The leaves first to be formed after a serious injury may be small or definitely deformed, and one or two leaves may have narrow pinnae, before the recover is complete. (Fig. 8.)

It should be remembered that the palm is an undergrowth plant and will thrive with little direct sunshine, as in a north window, though flowering and fruiting may be reduced by insufficient light, and shade-grown leaves may "burn" if the plants are moved to sunny places. Zealous plant-lovers often dig the surface soil to a depth of several inches around their potted plants, with the effect of destroying the root-tips, and keeping the plants in poor condition. Fertilizers have not appeared necessary on plants grown in leaf-mold or in greenhouse potting soil. Mealy-bugs may be caught from

other house plants, but are easily removed with a small brush, though red "spiders" and Thrips with soft-bodied larvae sometimes appear, so that washing, spraying or fumigating may be necessary.

DOUBLE POTTING

Double potting has been used for several years for keeping office or table palms in better condition, the



FIG. 8

Recovery of a Neanthe palm, showing cut pinnae that had died back, also a small deformed leaf, followed by normal leaves.

outer six-inch pot packed with peat moss or sphagnum to avoid drying of the inner pot, where most of the roots are formed. Besides retaining moisture much longer than single pots, and requiring water less frequently, the double pots are somewhat more attractive, possibly by giving the effect of a jardiniere. *Figs. 1 and 4.* Some of the palms in double pots have received water only once a week, others a little every day, as having less danger of a serious omission. Wetting the soil from the bottom by setting the pots for a few minutes in water and then draining in a sink may be the safest practice, though with either method waterlogging may occur if drainage is clogged.

GROUP INTRODUCTION

The extent of utilizing *Neanthe* will be determined by the interest that may be taken in pollinating the flowers and germinating the seeds, both simple operations, though seldom practiced on house plants. With only one or two palms of each sex, efforts to produce seeds may be in vain, since the functional period of each inflorescence may be only two or three days, but with several palms in the same neighborhood pollen would be available more frequently, and seedlings could be raised which the community could share, and gradu-

ally widen the circle of local interest. These considerations have suggested a method of introduction, of which a test is being made, of placing the palms in groups of a dozen or more with interested communities, garden clubs, or public institutions, as universities, experiment stations, or hospitals, or with floral establishments concerned with placing new plants in the market. Establishing a local supply of seed would be the first step in determining whether the palm would find its way into general use in any community or district.

The domestication of *Neanthe* makes it possible to extend the custom of keeping house plants to include the palm order, one of the most important and attractive of all the groups of plants. With its flowering and seeding habits added to other attractions of diminutive proportions, graceful form, rapid development, and tolerance of living-room conditions, *Neanthe* appears better qualified than any other palm as yet introduced to serve as a house-plant in the North or as a porch-plant in the Gulf States. Not only single plants of surprising beauty may be grown, but with seedlings available in sufficient numbers miniature garden effects may be obtained, groves or forests of tropical palms, flowering and fruiting in trays or window-boxes.

Thirty More Climbers for California

KATHERINE D. JONES

GARDENERS in the interior valleys of California seem greatly lacking in the number and character of the climbers they are using, partly due to winter cold and summer heat but mostly due to lack of knowledge as to what treatment is required and which ones are suitable for their special needs. Also, in the lower part of San Joaquin Valley, as in Bakersfield, the autumn weather is so mild that the plants keep on growing and blooming until late November or even December, so that they are thus full of sap and tender, and cannot withstand the severe winds that sweep through that region for a day or two. The result is disastrous, and the further planting of such material is discontinued. Other trials must be made of these same species again with top mulching of the roots and, if possible, a trial of the mats so popular in England which are hung on the walls over the plants during the few hazardous days.

Since many attractive adobe houses have been erected of late in Bakersfield and in other interior valley towns, it is now possible to grow charming half-hardy climbers in the shelter of patios, courts and about the walls of these gardens where they will be well sheltered from the boisterous, drying winds. Sheltering windbreak trees have also been planted which will greatly aid in protecting the plants, and now it remains for some local gathering such as Farm Advisers, Granges and Women's Clubs to get together for the purpose of discussing the good and bad points of the climbers already in your region, and sug-

gesting further ways in which these vines might be useful and add to the beauty of the community.

The following check list of plants for the interior valleys has been made after visits to people successful in gardening such as Mrs. Holtby, in Bakersfield, with her sheltering background of tall trees to give shade in the heat of the day, and Mrs. Cook, of Fresno, who grows her numerous tender plants under the shelter of broad spreading trees and protecting climbers.

In this check list one star (*) after a name means that that plant has been illustrated and discussed in the January, 1936, NATIONAL HORTICULTURAL MAGAZINE. Two stars (**) refers to the January, 1937, issue of the same magazine. In this present article some mention will be made in the article itself if the plant is considered hardy enough for this region.

CHECK LIST OF SUGGESTED PLANTS FOR TRIAL IN THE GREAT VALLEY

Akebia quinata, (Five-leaved Akebia)
(* p. 7)

Perfectly hardy and evergreen but may drop leaves for a short time after severe frosts. Blooms in spring but not important; sun or shade. Best fence vine for Sacramento. (Vor-triede)

Ampelopsis arborea, (Pepper Vine)
(* p. 11)

An artistic deciduous foliage climber for pergolas, houses or trees that will give a change from the ever present Boston or Japanese Ivy or the Virginia Creeper.

Antigonon leptopus, (Rose of the

Mountain) (Love Vine) (* p. 13)

Charming pink flowers in summer or fall according to season. Caution: it is deciduous and often dug up by mistake. Mark it.

Araujia sericofera, (Cruel Vine) (* p. 15)

Evergreen with milky juice; pink or white flowers. Blooms from May to heavy frosts. Keep the pods cut off as they are disfiguring and also likely to sow their seedlings where not wanted.

Asparagus plumosus, (Fern Asparagus) (* p. 19)

Seen on porches in both Sacramento and San Joaquin Valley, or under trees where they are given protection.

Campsis radicans, (Trumpet Creeper) (* p. 21)

Deciduous, vigorous growing, blooms on new wood; sun; long orange-scarlet flowers in close clusters with tube 3 inches long. Good porch screen for summer or on pergola.

Cardiospermum Halicacabum, (Annual Balloon Vine) (* p. 23)

This illustration is the perennial one, not this species. The leaves are similar and the pods of this are round, while the Evergreen Balloon Vine's are pointed below like a top. Mrs. Cook has it in Fresno.

Clytostoma callistegioides, (** p. 15)

I saw it at Mrs. Develin's near Sacramento. Needs some shelter. Loses part of its leaves in Pasadena just before it blooms. Very charming.

Cobaea scandens (Cup-and-Saucer Vine) (* p. 27)

A vigorous climber for tree, fence or houses. Blooms from May to October or until frost puts it down. Will grow in the milder valleys but probably not so well adapted to the hot interior valleys where it may be used as an annual.

Doxantha unguis-cati, (Cat's Claw Trumpet) (* p. 31)

A deciduous yellow spring bloomer that grows well in the hot interior valley. Also seen at Sacramento. Stands frost almost to zero. It is the only member of the Bignonia family that can grow in Imperial Valley.

Jasminum officinale, (Common White Jasmine) (** p. 27)

Might try it as Mrs. Holtby had it. Also saw it at Riverside. Very common about the San Francisco Bay region.

Jasminum primulinum (Primrose Jasmine) (** p. 26)

Glorious in Valleys everywhere in spring, February or March. Drops leaves if weather too cold. Sun or shade. Let it climb 15 to 20 feet. Tie it there and let it droop. Also good on fence or porch.

Pandorea pandorana (Bower Plant) (Jasmine Pandorea), (** p. 35) (Syn. *Tecoma jasminoides*)

It can be grown in the warmer valleys under shelter.

Parthenocissus Henryana, (* p. 47)

Grows in milder valleys at least.

Periploca graeca, (Silk Vine) (* 49)

Saw it at Niles and San Mateo and possibly the San Joaquin Valley.

Phaseolus coccineus, (Scarlet Runner)

Perennial, but used as an annual. Plant 10 ft. apart on side of barn or on a fence. Very ornamental and its beans make the best soup. (There is also a white variety.)

Philadelphus mexicanus, (Evergreen Mock Orange) (** p. 39)

Can be grown successfully in milder valleys at least. Mission Inn, Riverside and Burlingame.

Plumbago capensis, (Cape Plumbago) (* p. 53) (and variety *alba*)

Both the blue and the white forms grow in Sacramento and Bakersfield. Cut down to the ground there nearly every year but up again in spring and

soon in bloom. Drought tolerant and persistent.

Polygonum aubertii, (Silver Lace Vine) (China Fleece Vine) (* p. 55)

A good hardy vine that can be cut to the ground by frost and comes up again.

Stauntonia hexaphylla, (Six-leaved Stauntonia) (** p. 46)

Is hardy at Washington, D. C., and on sale at Armstrong's Nursery, in Ontario, California, but have not seen it in other mild valleys yet. Should be more seen in California, as it has been here for forty years.

Ampelopsis aconitifolia (Monkshood Vine), (Cut-leaf Ampelopsis), Leguminosae, North China.

This species and its variety *palmiloba* are very hardy, as they were grown at the Arnold Arboretum and considered by E. H. Wilson as the most attractive in foliage and fruit of all climbers. Its leaves are like those of the monkshood, hence one of the common names. Has long been in cultivation and, surprisingly, introduced into California before its introduction into England. Was sold by Wm. C. Walker, of San Francisco, in 1860-61 and has been in the state at least 75 years. It reached England in 1868, according to Johnson's Dictionary, but whether from the United States we cannot say. Although it has been so long in the state, it still seems to be rare. There ought to be many of Walker's old plants which have survived and are somewhere about the San Francisco Bay region. Even if all of those early introductions have died out, we must still take into account the various times in which the Division of Plant Introduction at Washington, D. C., has brought it into the country again and again through

its seed collectors who tried to make us realize its beauty as seen in China as a wild vine clambering over stony places. F. N. Meyer reported the Cut-leaf form as a "foliage of light green hue and bearing dull yellow berries. Very ornamental when covering a wall or trained over some lattice work. Also of value as a porch and arbor or pergola vine, especially for the drier parts of the United States." Several different forms have been introduced, the names of many of which have been lost, rendering it hard to determine them positively.

A photograph was taken in San Jose, where it was climbing the woodwork supporting a water tank. It climbed about 18 feet, hung down gracefully and gave the effect of lightness and delicacy.

The leaves are compound, cut into five segments, and were admired for themselves alone, even without their berries, as they were of pleasing shape and interesting pattern. About 3 inches or more long and nearly as wide, alternate and opposed by a tendril which bears its flowers and fruit on the very tip, thus bringing the pleasing fruit into plain sight. These are round, about the size of a pea, at first green, then turning yellow and finally nearly orange or an apricot shade.

An interview with W. B. Clarke, Jr., brought the following terse information: "*Ampelopsis aconitifolia* is fast-growing, 20 feet tall or more, stands the cold here to 14 degrees and heat in summer up to 86 degrees and even 96 degrees in warm summers. It is thoroughly hardy and requires a trellis or some other support. It will stand full sun or full shade; is indifferent as to soil. It has no faults; is disease resistant. Pests?

Has mealy bugs like all other Ampelopsis. It was cut to the ground two years ago and is now 10 to 12 years old, showing that it is only medium-fast growing."

As to its distribution, it has only been reported from nine different sections of the state during the past twenty-five years. It should be much more used, especially in the milder valleys, and in the great Interior Valley, as it is especially recommended for its hardiness and for arid conditions.

How is it that this artistic and Japanese-like vine so long escaped the attention of artists and home garden makers here in California and has become all but lost? It is still popular in the eastern United States where it was well advertised and is still being sold by Massachusetts and Pennsylvania nurserymen.

Uses. It can be used where a dense or a tall vigorous grower would be out of place, since it covers a smaller space, less height and spread and is thus more suitable for small features such as archways over gates, arbors, porches, trained over lattices or low terrace walls. It could also be used on wire or on light fences to hide the chicken yard or to separate two sections of the ornamental garden. Because it is recommended for dry places, it can also be used in rockeries or stony banks or as a light screen.

Cut-leaf Ampelopsis also seems to belong to a secluded spot on a patio wall among delicate flowers or it might be used on a fence as a background to dainty ferns and their allies, accented by a few brilliant flowers.

Since it is known to be hardy in Boston and vicinity, we should not be afraid to try it out in the hot interior valleys, not to replace the much used Boston Ivy and Virginia Creeper, but to supplement them.

Ampelopsis brevipedunculata, (Porcelain Ampelopsis), Vitaceae, Mongolia, China and Japan

According to Mr. W. J. Bean, this plant has been grown in the gardens of Great Britain for at least forty years under various botanical names. It is extremely rare here in California, but was lately introduced into the Anson Blake garden at Berkeley under the impression that it was the Basket Ampelopsis (*A. brevipedunculata elegans*), but it has nothing like the small size or the delicate grace of that variety. The Porcelain Ampelopsis has thick, almost leathery leaves, makes a dense screen, grows in the sun, is 15 to 20 feet tall, and its leaves are not in the least variegated. The Basket Ampelopsis, on the other hand, is seldom more than 8 to 10 feet tall, has leaves of artistic shape with green, white and pink in pleasing combinations. It makes a charming tub plant under the shelter of a patio where the shade prevents the hot sun from scorching the tender young leaves. It is a foliage plant, its flowers of no value, but its blue berries are highly ornamental.

Returning now to the Porcelain Ampelopsis, we find that it has a number of varieties besides that of *A. b. elegans*, and when they have to be studied and their synonyms looked up, the matter is most confusing and causes the amateur to say some hard things about botanists who are always changing names! Why did they not leave it under the name *Ampelopsis heterophylla*? Well, this whole trouble came about when the "splitters" broke up the Vitaceae into various parts, such as Ampelopsis, Parthenocissus, Cissus, leaving only the true grapes under the *Vitis*. Mr. Alfred Rehder, of the Arnold Arboretum, explains how the change came about. Thunberg had named it *Vitis heterophylla*



Armstrong Nurseries

Aristolochia elegans

but later when the name had been changed to *Ampelopsis*, the name *Ampelopsis heterophylla* could not be maintained because Blume had already named another and different species as *Ampelopsis heterophylla*. The next oldest name to be tried out was *Cissus brevipedunculata*, which practically is feasible for "though it represents a different form is undoubtedly conspecific with the *Vitis heterophylla* of Thunberg."

Ampelopsis brevipedunculata thus stands. It is deciduous with leaves that look rather evergreen with a good leathery texture, with the shape and size of many grape vines one might mention, but without their gorgeous fall colors.

The flowers are a greenish-yellow, appear in July-August, and are arranged in rather flat sprays about as long as the leaves and wide-spreading enough to display the fruit when it comes to its full beauty—a beautiful turquoise blue.

It is quite hardy, as it stood both the 1932-33 and the 1937 freeze, as we should expect a plant from far north Asia to do.

It is propagated either from seeds or cuttings, has no particular enemies nor does it need special care. Give it such pruning as will keep it within the space allotted to it.

Any faults? No, unless dropping its berries one by one before they all come to maturity is a fault. This may be due to hot days and foggy nights, but the plant may outgrow this tendency when it gets older.

Aristolochia elegans (Calico Flower),
Aristolochiaceae, Brazil.

This plant belongs to the famous Birthwort Family, was introduced into England in 1885; illustrated in Bot. Mag. t. 6909, and grown under artificial heat. It seems to be popular

there, as Mr. Phillpots in *My Shrubs* describes it as follows: "This noble aristolochia hangs out its shell-shaped flowers of white, spattered with purple, by hundreds through the summer and never fails to win applause for its somewhat sinister beauty. The plant comes freely from seed and is easy to manage; few things in any stove are more splendid."

It was introduced into California before 1895 and in his *Santa Barbara Exotic Flora* Dr. Franceschi mentioned it as follows: "A recent introduction too, is a gem among its most curious relatives and has the advantage of being practically odorless, a good point in that ill-scented family." Also Mr. Barnhardt mentioned it in *California Garden*, "An evergreen vine from Brazil which, when planted in sheltered locations, blooms profusely and the flowers are exquisitely beautiful. It is worthy of a place in any garden that is free from frost."

The flowers, borne singly in leaf axils, are nearly 3 inches long with pedicels still longer. The calyx is nearly heart-shaped, daintily etched white and brown above, while the underside is a lighter color with the veins showing through faintly; the tube is white or yellow-ish white and quite inflated until it is suddenly constricted just below the three-inch wide limb. The pedicels are long and separate the flowers enough not to make them seem crowded, just before it reaches the calyx.

The leaves are about 3 inches across, kidney-shaped at base and somewhat rounded at apex, while the petiole is rather long.

The following notes are from interviews with Mr. J. A. Gooch and Mr. John Manning and others. Is it hardy? "It grew 5 years on the lath house at Peter Riedel's Nursery in Santa Barbara, but was killed by the

1913 freeze." "Sometimes it freezes outside at Rust's Nursery and other years it does not" (Mr. Ross). "It froze at 22 degrees at Coolidge Rare Plant Nursery and is damaged by a temperature below 30 degrees." "It is not for hot interior valleys" (Manning). "It is not very hardy but it does well at Armstrong Nursery, where in containers it stood cold to 25 degrees and heat to nearly 100 degrees in the middle of summer." "It needs some shade, as the hot sun scalded the flowers. Does best in semi-shade under lath." (Gooch).

What soil best suits it? "It likes rich soil and is a better color after being fertilized." (Gooch). "It likes light soil and humus and moisture. It will not do well in heavy clays but will stand heavy loam with the addition of peat and fertilizers." (Manning).

Is it fast or slow growing? "It is a medium grower at Armstrong's Nursery, where one specimen in four years grew six feet with a twelve foot spread." (Gooch). It was fast growing at Santa Barbara. "At Coolidge Rare Plant Garden it is very rapid growing, goes up to twenty feet. We grow it like weeds. Have 100 of them now and do not know what to do with them." (Manning). It grows from seeds or cuttings but the seeds must be fresh, says Bailey. "It likes moisture and good drainage." (Gooch).

As to its uses, it can be grown over low trees in the naturalistic part of the estate, in patios on warm walls, about the garden walls or adobe houses, or it can be used as an accent plant in sheltered frostless belts or in greenhouses in regions of frost where it seems to have much longer blooming period.

Any faults? "Yes, it has too large an amount of foliage for its blooms."

(Manning). "It only blooms about a month and has a tendency to hold its dead twigs. For that reason it is best to cut the old plant back occasionally, though it does not ordinarily need much pruning." (Gooch). It has no diseases and for pests, only the snails.

In summing up this species, Mr. Peter Barnhardt has given it a good name in the California Garden as follows: "An evergreen vine from Brazil, which, when planted in sheltered locations, blooms profusely and the flowers are exquisitely beautiful. It is worthy of a place in any garden that is free from frost."

Bignonia capreolata (Cross Vine)
Bignoniaceae, North America
(Virginia and Illinois to Florida
and Louisiana, but root-hardy
further north).

Another climber native of North America that can be recommended for the hot Interior Valley, for it has proved itself hardy not only in Bakersfield (so far south and yet with cold north winds that catch the tender new growth), but in Fresno, Monrovia and Pasadena.

At Sierra Madre the most beautiful use of this vine was seen at Miss Thomasella Graham's stately home, where it was planted on the south side of a 9 foot cement wall and extended for 40 feet over the south and west walls, covering both walls from top to bottom with an abundance of flowers and leaves. The stem at the ground was large and swollen, as if it had been pot-bound when young. The young fresh vines that had come up from the roots this year bore leaves that were 4 inches long by one inch broad, but the old leaves were smaller, only half that size.

Each leaf is made up of two leaflets with petioles nearly an inch long,

fastened to a common petiole, a tendril taking the place of the third leaflet. These tendrils are in two parts, each part again dividing into two more and in this way form many threads as possible footholds by which the plant climbs. On the ends of the are quite interesting as they clung

The flowers are two inches long, one inch broad and come in clusters of from 4 to 7. The calyx is small, allowing the whole of the red and yellow tube to be seen. The interior of the tube is also yellow or at times even red and yellow. The flowers hang down gracefully in front of drooping leaves. The young leaves are quite interesting as they cling closely to the wall by their disked tendrils of every leaf and made a perfect drapery or background for the flowers. Although they are said to be summer bloomers, they have been seen to bloom in California in April, May, June, July, and Miss Sessions says it blooms in the winter in San Diego.

May be propagated by seeds, cuttings or layering; is said to be perfectly hardy in California and is root-hardy in the New England States.

Rather fast-growing, as a one-year old vine in So. Pasadena grew to a height of about twenty feet. They do not seem to require much pruning in spite of this early young growth, but in the fields of the Southern States, Bailey says, this strong evergreen vine often becomes a nuisance in the cultivated fields. Here in California, however, it is not likely to trouble us with its wild growth or to become naturalized.

It may be used on trees, fences, porches, on sides of houses and as screens or on trellises, and will stand both heat and drought. Its pods are about 5 or 6 inches long, rather flat

and contain the usual wing-shaped seeds of its family.

There is a form called *B. capreolata atrosanguinea* which climbed to a great height in the Botanical Building at the 1915 Exposition in San Diego. Its flowers were reddish-purple and it had a narrower leaf than those of the type.

Campsis chinensis (Chinese Trumpet Creeper) (Syn. *Bignonia grandiflora*) (Syn. *Tecoma grandiflora*), Bignoniaceae, China.

This climber has been in the state at least 77 years, as it is listed by William C. Walker, of San Francisco, in 1860-61 or earlier, and Mr. Vortriede reports that Mr. West, of Stockton, introduced it here in 1860. We would expect to meet it often in our trips through the state since it is hardy in most sections, though not so hardy as *C. radicans*. It is growing well at Stockton on Mrs. Clegghorn's new home where she has six specimens which she grew from cuttings from the old vine on the former house, where it never seeded. She has had it for 19 or 20 years and it has grown up to the very roof. Hers were not in bloom August 17, 1936, but W. B. Clarke's was and he had brought a specimen to the Horticultural Society meeting for display. Hers probably bloom earlier, as Mr. Baade's, of Napa, was in bloom July 13, 1937. The flower is arranged on long arms, being decussately opposite and from the ends of these arms hang the magnificent flower 3 inches long and with a spread of $3\frac{3}{4}$ inches at mouth. Some complaint was made that the color of the flowers varied, but there are different forms. At Napa Cemetery it was in bloom July 1st and will bloom for six weeks. Mr. Wigger said it was late this year (1937). We counted 18, 29, and 36

flowers on different flower stalks, each flower standing widely apart from its mate by a contrivance of nature, i.e., flowers opposite on long stems that kept them far apart and enabled them to grow freely without crowding. He planted it in 1914, but it was not very tall so I asked him when he trimmed it. He said, "I do not trim it further than to cut off 6 to 12 inches a year of the ends which have been frozen during the winter." It is on an eastern exposure and wants the sun. It drops its leaves in Southern California but is just the thing for valley towns where they want the sun in winter. It flowers on new wood.

It is medium-fast growing, long-lived, seems to have no diseases or insect pests, can be pruned like grapes but does not need much pruning, for nature prunes it with a hard freeze now and then from which it comes back. It can be pruned after flowering, as it flowers on new wood. It may be propagated by seeds, cuttings or layering. Its flowers are shorter, broader and in larger masses than in *C. radicans* and is therefore much more showy. Altogether a very satisfactory climber for summer or fall bloom. It may be used on houses, trees, fences and as a screen to porches. It likes an eastern exposure and needs the sun.

Celastrus scandens (American Bittersweet), (Climbing Bittersweet), Celastraceae, North America.

One of our North American climbers that is well distributed in Canada and various sections of the United States. It is also doing well in England where both Mr. Bean and Mr. Phillpotts report it as "a tremendous climber that needs to be kept in bounds, as it is very greedy and pushing, both underground as well as

overhead." It also grows rank in the different states to which it is native, where it likes rich soil and abundant moisture. It is very attractive in the autumn when its bright berries help to form a part of the autumn color that has made the eastern states so famous.

In California, it is growing luxuriously in Palo Alto, where we saw specimens that had grown there successfully for several years and from which the owner said she had taken 14 wagon loads in one season. In November, 1937, fruit was brought to the California Horticultural Society from Palo Alto by Mrs. Terwilliger and attracted a great deal of attention because of its rarity. A small specimen was obtained from which our accompanying photograph was taken. Mr. Albert Wilson interviewed the owners a few days later and found that "there were two specimens of bitter-sweet on the tennis court growing vigorously and producing fruit in abundance. They were about 25 years old. Other than the ordinary winter rains, they were watered but once and that in mid-summer, showing that they are quite drought tolerant, especially notable since most of their roots were covered by the gravel floor of the tennis court and it is always reported that bitter-sweet likes rich soil and much moisture."

On passing a florist's shop in Berkeley the other day we noticed some fresh bitter-sweet in the window. On inquiry we found it had been shipped out from Indiana, and they were selling here for a dollar a small bunch. I immediately thought of those loads of wonderful berries from Palo Alto and exclaimed, "Why do you not get it here in California and save that long freightage?" He was puzzled for a moment, as he had not learned that it grew in this state, but to justify

himself he quickly replied, "The berries are not as good here."

The leaves are rather thick, 3 to 4 inches long and half as wide. The older ones may be more or less rounded in outline, while the new leaves are pointed at apex. In November they are still green and hanging on stoutly.

The flowers are small, insignificant, dioecious and at the same time have perfect flowers. It may be that our California experiences have been poor in fruit because we have not realized this two-fold nature of the flowers and have relied on the perfect ones making the berry effect, which it is said they seldom do in *quantity*.

Our Palo Alto specimen of American bitter-sweet had stout woody stems with numerous short spurs 4 or 5 inches long that bore fruit in abundance. This fruit is really a capsule, one-third of an inch in diameter, the three yellow valves of which split open, turn back and disclose the fleshy crimson covering to the seeds. This display of yellow and crimson fruit is very attractive and in the East, if picked before frost, the fruits will keep all winter; in fact, in South Dakota they "keep them as winter ornaments for several years by placing the berries in steaming hot water for about 15 minutes, when they become as plump and fresh as when first picked." "The native climbing bitter-sweet is thus so slashed by the public that, like our Toyon, they are threatened with total destruction but will probably be saved to posterity by growing them in the home grounds." (Nelson)

American bitter-sweet is perfectly hardy, as it stands the cold New England winters at Arnold Arboretum on trellises placed against the houses but not on open trellises where the wind whips them to pieces.

It may be grown from seeds or

from root cuttings, suckers freely and will have to be watched to keep it within bounds. Does not seem to be bothered by insects or by plant diseases and should be tried out more largely in the Sacramento and San Joaquin valleys and up in the mountain towns.

Its uses are many, as they may be grown over trees, on houses, fences and tennis court screens.

Why do we not grow more of the bitter-sweet in California? It could be successfully grown through all of the interior valleys and up into the towns high up in the mountains. Not only can the American bitter-sweet be grown there, but a fine specimen of *Celastrus angulatus*, native of China, was sent down from Big Bear, San Bernardino Mountains, at 7,000 feet altitude, where the ice had already formed this year. The berries are larger than those of the American bitter-sweet, being one-half inch across. The leaves were still green, large and thin. The capsules a brighter yellow, with orange arils containing the seeds. It is perfectly hardy there and will be a great addition to the Christmas color decorations. Why not make it a feature for winter color in all the valleys?

Clematis Armandii (Armand's Clematis), Ranunculaceae, China.

This is still a rare plant in this region, though being tried out in various sections of the state. The photograph was taken from the Anson Blake garden in Berkeley, where it was growing lustily on the north side of the house in the full sweep of the wind. It grew up 25 feet or more to get its flowers into the sun, but is rather leafless below.

The leaves are surprising, as they look as though they were simple. Second glance, however, will show that they are really trifoliate, each leaflet



Wm. C. Matthews

Clematis Armandii

with its separate petiole and all joined to a common petiole, making the leaf 8 to 9 inches long on adult specimens. The blades of the leaves are thick and leathery, each with three prominent veins extending the length of the leaflet—a point which distinguishes this species at once, even without the flower.

Although our photograph shows the general habit of the plant, it does not show the beauty of the individual flowers with their glistening six-starred sepals, widest in the middle and tapering to both ends with many projecting stamens and pistils in the center to give it a finishing touch. A set of bracts follows each flower cluster and helps to cover the long stalks of the leaves. Some of the flower clusters stand up 4 inches, others are less tall, so that the whole combination holds every flower in sight. The flowers are white but there is a pink flowered form in the state variously called Apple Blossom or var. Farquhariana.

It is fast-growing, as plants at Mr. Orpet's, Santa Barbara, grew 10 to 15 feet in one year. They flower young, as plants at Armstrong Nurseries, Ontario, bloom under lath in 5-gallon cans. At Coolidge Rare Plant Garden, Pasadena, "it does not like to be held in tubs." (John Manning.)

This year at the March meeting of the California Horticultural Society, two handsome specimens of the white variety were brought in for display. They filled the room with such fragrance that the eager crowd began to search for the source of this odor. One specimen was from Oakland, the other from Petaluma. Then came the cry, "Where can you get them? How do you propagate them?" A few nurserymen have them but they are HARD TO PROPAGATE. They seem to be able to know how to grow them in England, where they gleefully report

that "They have come to stay." Mr. Ernest Markham, in the *Journal of Royal Society*, Vol. LXI, states, "When happily situated, it grows with great vigor and, in its season, blooms in the greatest profusion. It is a grand climber for warm walls and low outbuildings, quickly enveloping the roofs if permitted to do so, and eventually wreathing them with blossoms." However, some sprays turn brown in England the same as they do here, and they rather think it is from injury by the wind. They therefore plant them in sheltered positions. It may be that these injured branches are from the young leaves which had been whipped about while still in the bronze stage and had not yet grown leathery.

Again, it is claimed that they are "temperamental" and must be on the north side of houses away from the sun. They may be fertilized and watered like other garden plants. At any rate, we must expect to have conflicting reports, as there seem to be several forms in cultivation, some of which bloom early, others when young and others again do not flower abundantly.

It is one of several climbers that Mr. E. H. Wilson introduced into this country and hoped that it would become a leading feature in our spring gardens and would be especially adaptable to the San Francisco area.

Clematis Jackmani (Jackman's Clematis), Ranunculaceae, hybrid.

A delicate-looking vine which is cut down to the ground each fall, as the frost will cut it down anyway. It comes up each spring and the blooms are larger and more abundant every year. They have 4 sepals of good color which last from summer until late fall. It is on the north side of the house and can scarcely get any sun in summer on account of the house

next door. It is very useful where a delicate showing is wanted to enframe a picture, or to twine about a porch pillar.

What do we Californians know about clematis? We know that they were exhibited by the Bay District Horticultural Society at their first annual exhibit in August, 1871, and have been tried out here ever since. We know that always when new hybrids were made in England, our Eastern nurseries soon had them on sale. Californians could thus be able to procure the very latest. A survey of the state two years ago developed the fact that while *C. Jackmani* is generally used and much grown in the state, the success of the large-flowered hybrids was a question. The southern California nurserymen report that they buy plants from Minnesota which grow a couple of years and then die.

Our greatest trouble seems to be with the large-leaved hybrids, however, among which are the new Jackman types var. *alba*, white flowers; var. *rubra*, red; var. *superba*, a rich violet, and numerous other new hybrids that are so glorious that our imagination is fired and we once again try them out. Why are our plants not more successful here?

As a decorative feature, there can be no question as to the beauty of clematis. Indeed, Professor Essig just back from a year in England emphasizes the fact that they are the feature in English gardens as he saw them. He thinks we could add greatly to our garden beauty by having more of them on trellises, climbing over entrance archways or gateways and over low trees. In England they even use them as ground covers, pegging them down in beds much the same as the Santa Barbara people do the *Jasminum azoricum*. The English also use clem-

atis to cover tree stumps, which would be infinitely more appropriate than using such vigorous climbers as *Lonicera Hildebrandiana* or *Pandorea pandorana*, which break down the trees with their heavy weight.

Mr. E. H. Wilson attributes the success of the Canadians about Montreal in growing large-flowered hybrid clematis to the fact that they had lime in their soil. This lime soil also extends down into New York and contributes largely to the remarkable success of Mr. J. E. Spingarn of Amenia, who is growing 250 clematises. Clematis, like human beings, says Mr. Wilson, objects to draughts about their feet and ankles. They are best accommodated against walls, tree-trunks or trellises attached to buildings; also they make a glorious tangle over rocks or old tree-stumps and, aided by twiggy branches, form hummock-like masses.

Cultivation is also important. Mr. Jackman recommends "a rich soil of light loamy texture to which a good portion of rotted manure should be added. If some chalk or slaked lime is added to the mixture, all the better.

"Dig a hole at least a foot square and two feet deep and fill with the above prepared compost; plant the clematis in the hole so that, when finished off, the ball is almost two inches below the surface of the ground, the sod being trod firmly about the plant. The depth of the planting is important if these are on grafted stock, for if planted so that the union of the scion with the stock is well below the surface of the soil, they form their own roots, the roots of the stock itself being inactive.

"Clematis need moisture, good drainage and an annual manuring of well-rotted horse or cow manure. They prefer partial shade."

Clianthus puniceus (Parrot's Bill),
Leguminosae, New Zealand.

An evergreen plant from New Zealand with bright scarlet flowers that attracted the attention of the botanists of Cook's Expedition in 1769. According to Cheeseman, "This is a native of North Island, where it is exceedingly rare and local. It was formerly cultivated by the native Maoris in many localities on the shores of North Island and is now cultivated in gardens throughout New Zealand on account of the brilliancy of the flowers." Was introduced into England in 1832 and according to Phillipotts, "Even grows outside on a wall if an Archangel mat is hung over it in the coldest weather."

It has been cultivated in California over seventy-five years, as it was introduced at least as early as 1858 by Wm. C. Walker of San Francisco and again listed for sale by Stephen Nolan in 1871. It has been tried out and found more or less successful throughout the state, though still extremely rare in many interior valley sections. We are hoping that with the use of "Archangel mats" or some other mats, and the protecting walls of patios and courts of the now popular adobe houses, they can be successfully grown in the interior cities. Mr. Vortriede reports it as blooming in Sacramento; it is "very rare" in Stockton and at Mayfield near Stanford, Mr. Wight grows it but "cuts it to the ground every year, as the new wood bears the flowers." It grows luxuriantly along the coast and is especially adapted to the San Francisco region, where in St. Francis Wood it grows like a weed in sandy soil. This plant, together with a hundred or more varieties of Fuchsias, could be made a feature in that region for the 1939 Exhibition if a determined effort is made to get rid of the snails, for they love the Parrot's

Bill and soon strip its leaves.

The foliage is soft and abundant and makes a good foil for the flowers. The compound leaves are 3 to 6 inches long with about 23 leaflets; the branches bend gracefully from the weight of the flowers and pods.

It has a cluster of 6 to 8 flowers in the axils of the leaves, all in plain sight and of the typical pea-shape type of its family. At first they are protected by the calyx until they are ready to leave its shelter, when they quickly grow five times as long as the bright green calyx. There is also a white flowered form called *C. puniceus albus*, the White Parrot's Bill.

It varies as to its blooming period with the locality and seasonal changes, but on the campus of the University of California at Berkeley, it was seen in bloom from January or February until June, when it rested in July and August, preparing to again bloom in October and November. It grows especially well against a warm wall or in other places if well protected from the cold. It was seen in bloom in Berkeley on a sunny embankment in February on Washington's birthday, but it will also grow well in shade, even in dense shade, as it grew for years at the Men's Faculty Club at Berkeley, where it covered a portion of the steps most charmingly. When it is grown in shade or partial shade the leaves are less coarse than when grown in the sun. It seems to require a certain amount of heat to bloom luxuriantly, as we should expect, seeing that it is growing in almost subtropical air in its native home. Here in Berkeley it blooms better in a mild summer season than in a cool one. Still Mr. Gooch tells me that it objects to the heat in the Ontario region. Also its color is poor, as it turns a magenta color in the sun. They seldom use it as a climber but nearly always grow it



Victor Duran

Clianthus puniceus

as a shrub. It is pruned after it is through blooming to induce it to grow new wood for the next season's flowers.

It may be used in various ways. As a climber it must be supported and is thus good on walls or trellis. It does not seem to be very well adapted for pergola use, as it was too broad for the pillars and too straggly above. At Belvedere it was colorful on a tree trunk, where its cool compound leaves were attractive even when not in bloom. When well grown as a shrub, it is a splendid plant and should be more used in frostless belts of the state. It fills out ugly corners between the steps and the house.

In shrubberies it would mostly be used as an accent plant, since most of our common shrubs in parks are of the simple leaf type. Still it would be possible to find several plants of the same type of leaf, such as *Sophora tetraptera*, *Sophora viciifolia*, *Osteomeles*, and various evergreen trees, but one would have to combine those of more or less the same cultural requirements.

Dicentra scandens (Climbing Bleeding Heart), Fumariaceae, Himalayan Region.

This low climber is a native to the temperate regions to 5,000-6,000 feet, and has been introduced several times into the United States by the Bureau of Plant Industry, since the collectors were impressed by its delicacy and grace. As you can see by the photograph, the leaves are rather complicated, decomposed in sets of threes and so delicate that when you try to make a leaf print of them you have a problem on your hands. By the time you coax one leaflet to stay down, another one flies up and also the green leaf stains the paper. Then the tendrils are very sensitive. In trying to

collect your specimen, the tendrils persistently cling to anything within reach and by the time you have disengaged one leaf, another tendril has quickly caught a leaf or a stem. Finally, in desperation, you wrap tissue paper around each separate leaf and take it triumphantly to the photographer, only to find out on opening your package that the tendrils have wrapped about their own leaves!

The flowers have the typical shape of the herbaceous bleeding hearts, variously described by botanists as having 4 petals, the two outer ones with spurs or inflated, the two inner ones crested and meeting together over the stigmas. The yellow flowers are 7 to 12 together in racemes, held out on peduncles about 2 inches long.

The fruit is a 2-valved capsule rather lanceolate in shape with crested seed.

Climbing Bleeding Heart blooms in fall, this one in bud in June, while the photograph was not taken until October, 1933. It therefore blooms for several months.

It is tender, medium fast-growing, likes the shade and needs plenty of water, with good soil and fertilizers.

It is not a climber that would become generally popular since it has not the wearing qualities one would find in such thick leathery-textured plants as the English Ivy or *Lardizabela biter-nata*, nor does it belong to the long-blooming vines like Bougainvilleas and *Lantana camara*. On the contrary, it blooms but a few weeks in summer or fall and belongs with those of light and airy grace that can be used on pergola posts, for partial screens that do not hide, or for temporary effect as a tub plant that can be brought in for display when in bloom and for special occasions, where the tub can be set in a niche for the time being and removed later.



Matthews

Dicentra scandens

We would then class this among the seasonal climbers as delicate, tender, not noted for its long bloom but for its graceful and delicate beauty. It is deciduous.

There is another yellow-flowered Climbing Bleeding Heart which is so similar to this one that it seems to be distinguished only by the fruit. The difference seems to be that *D. scandens* has lanceolate capsules while *D. thalictrifolia* has thick, fleshy, ovate, cordate capsules.

Gelsemium sempervirens (Carolina Yellow Jassamine), Loganiaceae, North America (Va. to Fla., Texas) and Guatemala, Centr. Am.

This evergreen climber, while a native of southeastern U. S., is also doing well in most parts of California, but since it is also hardy in the great interior valleys, it is particularly suited to their conditions and ought to be more popular. It is evergreen, blooms in winter and spring, has attractive yellow flowers for a long period, from 3 to 5 months, depending on conditions and exposures and other factors which are still to be determined for each section or locality.

It was seen in full bloom at Bakersfield on December 10th, growing over the pergola of the swimming pool at Central Park. The effect was so unexpected and so beautiful that we longed to show it to every Committee on Park Improvements in the county and beg them to do likewise. It was trained up for several feet and then allowed to trail downward with its branches covered with golden yellow flowers with orange throats that are each one inch long and over an inch wide. These develop in sprays in the axils of the leaves but as the leaves are a little over an inch apart there is

only room for one flower to bloom at a time.

The leaves are opposite, simple, long pointed and with short petioles. The flowers are in cymes in the axil of each leaf but do not develop at the same time. There is generally one full blown flower and several buds but there is no room for them all to develop normally, as the nodes are short, a little over an inch apart. This crowding holds back the buds and makes a longer blooming period, for the buds can only come to full bloom one at a time as the parent blooms and drops off. The length of time your plant will bloom thus depends upon its culture and care. We have reports of plants that bloom for three months and others that bloom for 5 or more months. "One year it bloomed from December 15th to May 15th, and it often blooms up to June here." (Manning.) Mr. Drucker reports that one year it bloomed from November to April and was associated with *Trachelospermum jasminoides*, which bloomed from April to November, thus making a succession of bloom the whole year through. It also looks well with *Harndenbergia comptoniana*.

It is rather fast-growing but never a very heavy vine. However, it is likely to have dead twigs but to prevent this it should be pruned often and rather severely unless you wish to keep it to shrub size. For a gateway arch or on a trellis, it is pruned rather severely to keep it within a desired space.

It will grow either in semi-shade or in full sun. Not particular as to soil, as it will grow in sand as well as in heavy soil, though it blooms best in a soil that is not too rich. It does well in the interior valleys, as well as in the coast valleys, and stands cold down to ten degrees. No diseases, but Mr. Vortriede says in Sacramento it is a

host to whitefly. "If fertilized too much it goes to a heavy growth of foliage." (J. A. Gooch.) Mr. P. Riedel means the same when he pithily remarks, "To have flowers you have to starve it."

It will grow in all exposures at Huntington Library. "Will bloom young—at 6 inches in height in a 2-inch pot." (Miss Cox.)

Best used as a ground cover, over an arch or gateway, up trees, and makes a graceful screen if kept severely pruned.

Propagate by cuttings. Reported to be good in hot sections.

Gloriosa Rothschildiana (Climbing Lily), Liliaceae, Tropical Africa.

An African plant that grows from tuberous roots with very little attention. It may be grown in two ways; first, in pot plants to be brought into the living room while in bloom, and second, in the open ground and left there from year to year, where it grows and multiplies rapidly.

The leaves are lanceolate and gradually taper to an end in a tendril-like projection so sensitive that it curls and grasps any support within reach, even your hair. The grasp of these tendrils is so tenacious that you have to cut off the leaf to release its hold.

The flowers, 3 to 4 inches long, are solitary in the axils of the leaves on peduncles several inches long, which brings them in full sight; the segments are strongly reflexed, more or less undulate on the margins, a whitish-yellow at base and crimson above. The var. *G. Rothschildiana citrinus* is said to be citron-yellow with claret-purple dots.

The stems are weak and need a support of some kind.

For a discussion of the Climbing Lily as a pot plant, we gleaned the following cultural notes from Mrs.

Anson Blake, who grows it successfully. "The Climbing Lily has tubers 2 to 4 inches long, like those of *Alstroemeria*, and blooms every year. When your lily dies down to the ground each fall, take the pot into the greenhouse, turn it on its side and leave it there for the winter to give it a complete rest. Repot the tubers in the spring when danger of frost is over, using equal parts of peat and moss. See that the tubers are planted *deep* as they must have absolute dormancy during the winter. In the spring, bring the pot into the sunlight. I do not water until the shoots begin to show at the surface. Then I water and never let them dry out. Give them weak manure once in a while. Treat it as you would begonias."

The flowers come out dull in color at first but become more vivid with age, though the yellow edge fades out eventually and the color becomes more purple. It blooms for ten days or so. It was in the greenhouse during the "freeze" and the pots were under the bench, but the tubers were not hurt. It lives out of doors with protection, as it is dormant in cold weather. In bloom August 10, 1933.

For culture of Climbing Lily out of doors, we will take the method described by Mr. Peter Barnhardt in the Pacific Garden, August, 1913, for *Gloriosa superba*, another species.

This is one of the choicest and rarest of lily-like flowers to be found in the United States. It is a plant with tubers the shape of an inverted V. While it comes from the tropics, it is at home in California because the tops die down in fall and the frost does not hurt the tubers remaining in the ground until spring, when new growth begins. The blossoms are very numerous, as many as 10 to 30 flowers arising from a single

plant. The flowers are six inches in diameter and the petals are chrome yellow bordered with scarlet. A row or bank of these magnificent flowers is both startling and superbly beautiful. We grow them in rows along an 18 inch chicken wire for them to climb on, and with a cloth half a yard wide shading the base of the plants so they will grow taller, as if growing among bushes. Sandy loam is the soil that best suits it, and partial shades is better than full sun. In 1912 we visited the nursery of Newton B. Pierce who grows it by the thousand. The soil is a sandy loam made light with sand and rich with peat and well-rotted manure."

These Climbing Lilies may be used for cut flowers, for tub plants to set in front of say Clematis that is out of bloom and cut to the ground, or other of the leafless climbers already mentioned in the January numbers of NATIONAL HORTICULTURAL MAGAZINES.

Kennedia rubicunda, Leguminosae, Australia.

Not a climber that will ever become immensely popular on account of its somber hue, even its scarlet flowers not being able to brighten it up to compete with so many brilliant vines from the tropics. But it has its peculiar uses, for we need dark leathery leaves as a contrast to white houses and white walls and among the best subjects for these may be mentioned English Ivy, *Lardizabala biternata* and *Lonicera Hildebrandiana*. *Kennedia* may be classed among these, for while perhaps not the best of them, it is decidedly handsome and should be placed among that group. Its flowers are scarlet, nearly two inches long, in bunches of 7 to 11, in the axils of the leaves.

The leaves are dark and leathery,

those in the photograph showing up about life size, though as yet not more than half grown. They were in full sun with a western exposure but a fine specimen grown in the shade at Hugh Evan's, Los Angeles, had leaves 6 to 7 inches long, the three leaflets themselves being 3 inches wide and 4 inches long. It had been well fertilized and the foliage was so dark a green that it fairly shone in its beauty. The salesman noted our admiration for it and exclaimed ruefully, "but of what use is it?" "Why," was the reply, "its dark glossy leaves could be used as a contrast against a white wall; it makes a splendid vine to train about pillars in classical style, and also to fill narrow spaces about dwellings." "A most valuable climber in its right setting."

At the Huntington Library a specimen was twined about a large pillar of the residence and was very beautiful as it lightly drooped downward. It was perfect for its setting and was in partial shade due to the shadows of a tree near at hand. Its pods were large but rather inconspicuous, as they were still green. The second use at this Library was a narrow strip about 2 feet wide that ran up the side of a small building for 18 feet and a wayward branch spread over the ground for a distance of 20 feet.

At Armstrong Nursery we learned that it likes shade but will grow outside. If the roots are inside the lath. Has a short blooming period—February to July—blooms early, almost in winter, likes good drainage and fairly good soil. The hot sun fades the flowers and burns some of the leaves but if they become dull they will soon brighten up with a little fertilizer. Grows fast, has few faults. Grasshoppers and caterpillars eat the new leaves but not the old ones. It



Duran

Kennedyya rubicunda

is sold right along. In distribution it is more or less limited to the coast and the interior valleys. (J. A. Gooch.) In Berkeley it bloomed from March to September and at the same time bore a continuous crop of seeds. Although it was on a hot west wall, with the roots in the sun all day, the cooling trade winds tempered the heat during the afternoon. It was "injured in the 1937 January freeze."

Lonicera Hildebrandiana (Hildebrand's Honeysuckle) (Giant Honeysuckle), Caprifoliaceae, East Indies, Burma.

This seems to be the outstanding climber for white cement houses, as its dark leathery leaves form a pleasing contrast and its vigorous growth assures us of its ability to cover large spaces. It has flowers 6 inches in length,—the largest of all honeysuckles. These are "in clusters of a dozen or more in terminal heads." They are at first white and then a dark yellow and finally orange. Its seasonal length of bloom seems to vary somewhat with the locality where they are growing, since we have records of blooms for three months, from May to November," and you would be able to get a good bloom *somewhere* in California every month in the year excepting February,—a month which my notes do not record it in bloom. However, whether in bloom or not, it does not matter as its shining dark leaves are handsome enough for any location and an ornament in themselves.

Since it is a native of Burma, we should expect it to be tender; in fact, it does freeze, even in Southern California, but comes up again from the roots and blooms again the same year. It is therefore popular in the San Francisco Bay region, as well as in Southern California. Hugh Evans

speaks of its fragrance and its beauty as a cut flower. At Santa Barbara it was on a fence in the sun, where it was amazingly effective as it was on the level with the eye, could be easily pruned and kept in good condition and within its allotted space. It will also flower well on the north side of a house and even bears fruit that is edible. It may be used on fences, trellises, pergolas, tall walls, on a support; otherwise it twists about itself and becomes deformed. Will even climb 35 feet tall up the side of a house where the foliage hangs vertically, and on the roof. If used to climb a tree, select a good stout one or it will be brought down by the weight of a Giant Honeysuckle.

The following items were gleaned from an interview with Mr. J. A. Gooch for the Ontario region and more inland: "The Giant Honeysuckle likes the cooler situations, some sun but not too much heat; does not like too extreme a climate. Propagation? Much of our seed is infertile because the bumblebees split the tubes of the flowers and other bees get in and the flowers are not fertilized. It is also hard to grow from cuttings, as only one out of twenty-five or thirty will root. So it is grafted on Hall's honeysuckle. It grows quite rapidly, blooms the first year after graftage. It will bloom on new wood, all summer and fall, from May to November."

How tender is it? "It will not stand more than 24 degrees of frost, was even frosted in our usually frostless Hill Ranch, but is not killed even there, though it was badly frozen in the January, 1937, freeze and came up again."

If a specimen is old and ragged, can it be renewed by cutting it down to the ground? "Yes, the parent plant here was frozen to the ground a



Matthews

Lonicera Hildebrandiana
(Each space is one-sixteenth inch)

number of times and came up again, so I see no reason why deliberately cutting it down would prevent it from recovering in the same way." "It grows in fairly heavy soil, strong fertilizers and likes good drainage, since it has the Hall's honeysuckle roots."

Insect pests? "The nematode problem is a tremendous one, as they are now infesting nearly all Southern California soil. Armstrongs are now sterilizing all their plant propagation soil for nematodes at a great expense, as are many of the other nurseries."

A member of the California Horticultural Society stated that he had been growing it for 15 years and now grows it from layering; gets two plants out of 8 to 10 layers. Also has viable seed which germinates within 6 to 8 days after being sown and the plant is large enough for sale the next year.

Giant Honeysuckle was introduced into England in 1893 but was not grown in California for some time afterward. One Californian mentions growing it in 1922 and by this time it has rather wide distribution in the state. It is doing well along the coast counties from San Diego to San Francisco region, and inland as far as Whittier, Ontario and Montebello. It has always been very vigorous and even Dr. Doremus found it hard to repress. When first planted out, it needs the support of a wire or a trellis but afterwards is strong enough to support itself on stems an inch in diameter as it scrambles upward.

From the dark green color of the leaves and their texture, one wonders if it could not be used as patterns on the wall as the Spanish love to grow their vines.

LONICERA. Of Honeysuckles, there is a goodly number in the state, most of them hardy, fragrant, more or less evergreen, long-lived and very

desirable. Many of them are hard to determine, especially the hybrid ones and need much more study. The few that are included here are selected especially for the hot interior valleys, excepting *L. Hildebrandiana*, and have been grown there for some time. Other very desirable ones are also seen there but are still nameless and will not be discussed at this time.

Lonicera japonica chinensis (Chinese Honeysuckle), (Also called Gold and Silver Flower by the Chinese, says Mr. E. H. Wilson).

This has reddish-brown veins on the back of the leaves, while the upper surface is dark in color and gives a rather somber effect compared with the yellow-green of Hall's Honeysuckle. The flowers are white with a purplish tinge on the outside. They have a more elusive fragrance than those of Hall's Honeysuckle.

Lonicera japonica Halliana (Hall's Honeysuckle).

Has light-green leaves, almost yellow-green at times, which gives an air of brightness and cheer. Its flowers are white turning yellow with age. Much used as a cut-flower for the house, one specimen in Berkeley over a low fence bloomed until Christmas when cut and thus kept the young wood growing. Both this species and the Chinese Honeysuckle may be used for the same uses, namely: on tennis courts, fences, pergolas, screens for porches, embankment plants and many other things, but they should be pruned at least once a year to cut out the dead wood and allow fresh branches to grow. This can be done in late winter and the fresh branches will be out in early spring. The Santa Barbara people used these plants on projecting trellises over doors, windows and garages, where they gave shade

from the hot sun and were a clever ornament, especially desirable over the doors of the garages which are usually so baldly apparent.

Lonicera japonica aureo-reticulata
(Yellow-net Honeysuckle).

Less vigorous, more slender in growth, less abundant flowers than the other two varieties. Mr. John McLaren uses it in Golden Gate Park at the Music Stand to separate the driveway from the pedestrian's walk. Here it is clipped down to shrub size, is always bright and nearly always in bloom. It is not an offensive variegation.

Lonicera periclymenum (Woodbine).

Often seen in the interior valleys growing successfully. It is illustrated in Bailey's Standard Cyclopedia. You will notice that it has its flowers in bunches at the end of the branch and *none* of the leaves are connate. The flowers are yellowish-white and rather purplish outside. It has a variety *belgica* that is often seen in the parks of the valley towns, kept as a shrub and highly desirable.

Lonicera sempervirens (Trumpet Honeysuckle), North America.

Illustrated in Bailey's Standard Cyclopedia, where you will note the numerous clusters of flowers at the ends of the branches, the upper leaves connate. The flowers are a little different from any of the others so far described, as they are tubular, with the limbs or corolla almost equal in length, scarlet and handsome.

This vine is perfectly hardy, as it is growing "from Connecticut to Florida, West to Nebraska and Texas, and cultivated in South Dakota where the leaves are deciduous," says N. E. Hansen.

Maurandia erubescens (Blushing Maurandia), (Plume-seed Maurandia), Scrophulariaceae, Mexico.

Mexico has given to the world at least six species of Maurandia, two of which are known to be cultivated outside in California, viz., *M. Barclaiana*, described and illustrated in January, 1936, NATIONAL HORTICULTURAL MAGAZINE, and the Blushing Maurandia of this issue.

Maurandia erubescens is a delightful low-growing climber that was introduced into Great Britain as early as 1830, where its bright pink color and handsome leaves at once brought it into favor. It was long in being introduced into California and even today is not at all common, though greatly admired.

A record photograph was taken from a young plant in the propagating house at Golden Gate Park. As shown there, it is about half its regular size and does not show its full maturity. The leaves are 3 to 4 inches long, triangular in outline, with unevenly dentate teeth, each tooth ending in a gland. Hairs are seen on every part of the leaves, but longer on the margins and when seen through a lens, have a reddish tinge, hence *erubescens*, becoming red, the name suggested to the author who described this plant. The hairiness on the leaves is very plainly seen on the young specimens and probably protect the plant from extremes of heat and cold. In fact, it is said to be quite drought-tolerant and can be placed at the foot of trees far from the hose to climb their slender trunks.

The flowers are an attractive pink, about 3 inches long, the spreading five lobes about 2 inches across with dotted lines running down the throat, both inside and out. The calyx is about an inch long and reminds one somewhat of that of the Cup-and-

Saucer Vine by the way they join their calices and thrust the edges outward. The plant climbs both by its leaf-stalks and by the petioles of the flowers.

It is easy to grow from seeds or from cuttings. It has tuberous roots "like a dahlia," which, in regions of frost, may be taken up and stored for the winter. The fact that it has tuberous roots, combined with its hairlines on every part of the plant, may account for the fact that it is drought-tolerant,—one of its added attractions.

As the flowers are soft and easily bruised, it should be set in a protected place away from harsh winds; a patio or court would be ideal, where its small size and charming color would give gayety when trained against the wall, or it can be trailed over tub plants or used as a hanging basket or trained over low stumps. It blooms in summer—July, August and September, or even longer.

It will stand the conditions of the San Joaquin Valley, for it grew to 9 or 10 feet at Miss Beecher's, in Stockton. It likes a rich, sandy loam and looks well on a trellis or a low wall.

It is generally sold as *Maurandia scandens* by nurserymen, but that species has almost purple flowers and the leaves are much the shape of those of *Maurandia Barclaiana*, more or less hastate.

Mandevillea suaveolens (Chilean Jasmine), Apocynaceae, Argentine.

This attractive climber has been in California for at least sixty-five years, as it is known to have been sold here in 1871 by the Stephen Nolan Nursery and became popular throughout the state from Sacramento to Fresno in the Great Valley, and from San Francisco to San Diego along the

coast, even doing well in the cold winds of Coronado. In all the breadth of this vast area, only three localities have mentioned it as having been a failure. At Bakersfield it was said to winter-kill; at San Jose it froze and at Pasadena it was not what you might call a good buy. It is possible, with our further knowledge of mulching tender plants for the winter, the Chilean Jasmine can also be successfully grown in the three above mentioned places, for in many localities it is cut to the ground every year as a part of the garden clean-up, and starts anew.

The leaves are deciduous, opposite, 2 to 3 inches long by 1½ inches wide, resemble those of the Portugal Laurel in size and shape but are heart-shaped at the base and end in an acuminate point. The stems twist about a support and are covered with curious warts which are rough to the touch and should be a distinguishing mark for this species even while leafless.

The flowers are white, deliciously fragrant and have a tube two inches long with five lobes, the flower varying in width from one to nearly three inches (at Pacific Beach). They are borne in racemes of 6 to 8 or more flowers. The pods are narrow, about a foot long, borne in pairs and joined together at the tips.

The time and length of bloom seems to vary somewhat in different localities. In San Diego "they bloom all summer" (Kate O. Sessions). "At Fresno they bloom from the last of May until winter" (Mrs. Cook). "In Pasadena they bloom in July through September" (John Manning). According to my field notes the Chilean Jasmine could have been gathered somewhere in the state from April to September, inclusive.

As to culture, there is also some

divergence of opinion; San Francisco—"Do not plant it in a cool exposed situation" (John McLaren); St. Helena, (Mrs. Langfield's), it is growing on a south exposure on the house but will also grow on all exposures; Ontario—"Wants west exposure; not particular as to soil. Likes sun or semi-shade," (Frank Smythe). San Diego—"It must have a well-protected, shady place, as it is subject to frost," (Austin); Santa Barbara—"Must not let the branches intertwine as they cannot then be separated without injuring them. They are so fast-growing I have to watch them for this twining from day to day. Several of them are on an 18-foot wall near the *Jasminum beesianum* but they never seem to burn in the sun as does the Jasmine. It blooms on the young wood." (Gardener).

Pruning. They may be cut to near the ground every year and will come up the next spring even with some frost, if given a mulch just before cold weather comes on to protect its roots. If you do not wish to cut it down each year, you can "cut off the numerous seed pods and trim out the weak branches and plant it with some evergreen vine. A Bignonia would be good." (C. Hoak). For other remarks, we will quote Dr. Franceschi as follows: "The Chilean Jasmine grows splendidly here and bears much larger flowers than in Europe and blooms earlier,—its only drawback being that its season of blooming is not very long and that it is deciduous. This (and the same may be said of other deciduous climbers) is easy to overcome, by planting them together with evergreen kinds, harmonizing in color, or blooming at different seasons of the year."

Combinations recommended by others who have also had this same point in mind, for it is generally con-

ceded that the Chilean Jasmine is always leafless below as well as deciduous in winter:

At Beverly Hills Nursery they hide its legginess below by planting it with Creeping Fig or with Bougainvilleas. Miss Sessions would combine it with Evergreen Trumpet Vine (*Phaedranthus buccinatorius*) though she says that when dormant and trimmed, you do not notice the bare stems. At Duncan McDuffies' it is planted with *Jasmine azoricum*, which is also white-flowered and holds its leaves all the year.

At the Dahlia Gardens near Oakland, it was planted over a lath house with Cruel Vine (*Araujia sericofera*) as a quick cover to prevent the sun from injuring the potted plants below. It was admirably suited for that particular purpose, but the Cruel vine grew twice as fast with stems twice as large as the Chilean Jasmine, which was not good for this deciduous climber which should not be overpowered by its neighbor if they were to live together.

"It may be propagated from seeds or cuttings, but commercially by seeds" (Verhelle).

Any pests? "Yes," says Mr. Cody, of San Jose, "Mealy bugs trouble it whenever they are on other plants near at hand."

Chilean Jasmine may be used for flower work, as its stems are sometimes ten inches long. It was also seen at the Capitol Grounds in Sacramento, climbing up a palm trunk. At El Cajon, near San Diego, it made a dainty screen to a porch. In Berkeley it was used about a pergola post, with its lower nakedness hidden by *Asparagus scandens deflexus*, a dainty evergreen asparagus that was a good foil. It was also used on an elderberry bush in company with bougainvillea, which was everblooming.

But best of all it was used as a cut flower at Pacific Beach, where a neighbor brought Miss Kate Sessions a spray with flowers fully three inches across and with a texture of a Gardenia and a fragrance that filled the room. It grew outside in the wind and soft air and was a revelation as to what location and good care can do. We would like to see that strain widely cultivated throughout California. Do not fail to grow more of it in the interior valleys.

Pandorea ricasoliana (Ricasol Pandorea) (Syn. *Bignonia Mackenii*) (Syn. *Tecoma ricasoliana*), Bignoniaceae, South Africa.

A deciduous vine that may be half evergreen or even evergreen in the warmer sections of the state. It was formerly quite popular in the San Francisco Bay region and to a greater extent in Southern California, where it is now mostly replaced by newer introductions though still persisting about old places where it sends out its pleasing colorful flowers in abundant masses.

It is very rapid growing, having grown 20 by 20 feet in a very few years. Miss K. O. Sessions says it will grow to any height—to the tops of the tallest trees; while Mr. Lyon in his "Gardening in California," calls attention to this old and well-known species chiefly because a single vine will cover a trellis 100 feet long. "Morning Glory and the Cup-and-Saucer Vine alone surpassing it in rapidity of growth."

Its leaves are compound, with 7 to 11 short pointed leaflets, differing in this respect from the Queen of Sheba, whose leaflets are drawn out into long slender points. See N. H. M., January, 1937, p. 31).

The flower sprays, borne on five-foot branchlets, may be from 7, 8 or

more inches long, with as many as 27 flowers on one spray. It has handsome pink flowers with a pinker throat and a number of lines of a deeper color running down to the honey. The calyx is not green but the same pink color as the corolla, a fact that greatly heightens the color scheme. As cut flowers, they will last four days and even longer if unopened buds are used.

The pods are the typical long narrow ones of the Bignonia family, from five to twelve inches long and over a quarter of an inch wide, with the calyx lobes still attached to them.

It is said to vary in its blooming period but is called a summer bloomer and has repeatedly been seen in bloom in Southern California in May, June, July and August.

It is propagated easily from cuttings, also from root cuttings and layering. At the City Nursery in Santa Barbara, they make their cuttings in winter,—December and January—as they have no bottom heat. It is very fast growing.

Pruning? "It blooms about three months on new wood in San Diego. You can trim it into a shrub and in mild winters it will be everblooming. It is evergreen here but often bare as the result of improper pruning. Some fall pruning will correct this defect to a large degree. Severe pruning should be done in March and April. Give it a light fall pruning and a severe spring pruning. Light summer pruning often increases the bloom on new growth." (K. O. Sessions).

It does not seem to be particular as to soil, as it has been seen growing in sand, adobe and a good garden loam, but it likes a well-drained sandy loam. Mr. Lyon states that in San Diego, free-flowering could only be had in a hot sun. Mr. Gooch, however, cautions us that while it may



Matthews

Pandorea ricasoliana

stand the cold of the valleys, it will *not* stand the heat of the desert valleys such as Imperial Valley.

Any faults? "It has no bad habits excepting that it mats and dies beneath the mass. It also rots shingles." (J. A. Gooch). "It is shabby in winter, loses its leaves as it is cold here in Pasadena. It ruined my roof by dropping leaves on it; leaf mould rotting the shingles and it cost me five dollars to have the vine removed. I recommend it for the valleys." (C. Hoak).

"No insect pests; no plant diseases." (C. Hoak). "No vermine or scales." (Miss K. O. Sessions).

It is frequently used on pergolas, where it covers well above but is likely to be leafless on the pergola posts and would, in that case, have to be supplemented by some other plant about the pillars. It has been thus combined with English Ivy, which gives the good green color so much needed in the hot interior valley towns in winter, while in summer its pink flowers brought gaiety and charm at a time when the annual and perennial flowers were resting.

At the San Diego Exposition, it was used both as a climber and as a ground cover to hide stones, and as an embankment plant, in which latter use it must be pegged down to the ground by wires or long staples and trained so that it will cover the ground evenly and prevent its becoming humpy, as it loves to do, climbing high in the air to display its attractive flowers in the sun.

Neglect in pruning soon gives a tangled mass of dead sticks and old leaves, where there should be riotous color. It is often seen on the sides of houses, porches and fences. At the Capitol Grounds, Sacramento, it climbed a palm trunk to give greater breadth to that slender height. At

Riverside, an old estate had a Ricasol Pandorea with a trunk fully a foot through, showing that it was an old vine that had stood that trying climate for some time and is therefore perfectly hardy for the Great Central Valley of California, even doing well at Stockton, where there is a great deal of hard pan.

It is sometimes used on tennis courts but is not very satisfactory for this purpose as it is difficult to get at the old wood to prune it. It thus gets full of dead and dying stems, which catch the balls and hold them, causing some annoyance. Nor can we recommend this climber on Redwood and other evergreen trees, as it is difficult to prune and it becomes one tangled mass so thick that you cannot even crawl through to the trunk. Such a one was seen in Santa Barbara that had not been pruned for twenty years.

If you expect a hard winter just after you have planted the Ricasol Pandorea, it may be saved by planting over it some slender, fast-growing annual vine or a temporary perennial climber which protects it through its young stages until it has had time to grow its protecting bark. Also, if you have a prized old specimen that is getting too tall or too ragged-looking, it may be cut to the ground to renew it and the chances are good that it will come up from the root fresh and bright in an astonishingly short time.

Passiflora caerulea (Bluecrown Passion Vine), Passifloraceae, Brazil.

This is a very satisfactory vine where a quick-growing one is desired, since it covers completely without becoming too rampant as do many of the other passion vines. It is also pleasing both in foliage and flower, and can be grown successfully in most sections of California and they

say in the eastern states as far north as Washington, D. C. It was introduced into England in 1699 and we first hear of it in California in the 1860-61 catalogue of Wm. C. Walker, of San Francisco, though it may have been here earlier as it is a type that is peculiarly fitted to the Spanish-Californian needs.

The leaves have the blade cut into five lobes nearly to the petiole and have rather prominent stipules which encircle the stem. The leaves vary in size, being slender and about three inches long in young leaves, while the old mature leaves may be six or seven inches long with lobes one and one-quarter inches wide. This may confuse you, but it is the growing young leaves that are most in evidence, as the old ones may be cut off in the pruning and they are not so much seen in any case.

The flowers are most attractive, so we must pause a moment to study their intricate patterns. They are about three inches across, ten greenish-white parts, the calyx being distinguished by having quarter-inch tails on their tips. The corona is made up of three circles of different colors, a plum, a white and a light blue. Above the corona spring three plum-colored styles on a stalk with five yellow stamens below them. We do not wonder that the early Spanish made so much use of it as a symbol.

It has a long blooming season, for it has been seen in bloom from May to frost, which may come in November or December. Grown from seed or cuttings set out in the open ground in Berkeley, will begin to bloom when about a year old.

Not particular as to soil, even growing in adobe and alkaline soil, though it likes good soil and will make a better appearance in it. It may be used in a naturalistic set-

ting, clambering over fences and old trees, or it may be used in a more formal way as a screen over porches or on a tennis court. It will stand much water or will do with very little. Although it is evergreen, it may be partially deciduous in seasons of severe frosts but should be pruned lightly after it is through blooming or at least before the new growth comes on in the spring, to prevent its becoming too crowded. Then every few years, (Mr. Vortriede says three for Sacramento), it should be cut to ground and allowed to come up fresh from the roots.

It does not seem to have any faults, unless you call its occasional resowing itself, but according to Mr. Pease, of Berkeley, that is no bother at all as he pulls them up and gives them to any one who begs for a specimen. As to pruning, that depends upon its use; if against a tennis court it must be trimmed before the foliage becomes dense enough to hide the balls; if a screen to a porch, a little trimming here and there or a spray guided enough to hide the outside shelter will be enough.

Another thing, it is one of the passion vines that is not bothered by caterpillars and not much by other insect pests, as its semi-annual pruning in itself keeps it fairly clean. It should be much more used than it is, especially in the interior valleys, for the Bluecrown Passion Flower and its variety (*Passiflora caerulea alba*), Constance Elliott, seem to be the only members of the Passion Vines that are hardy enough for the valleys.

Passiflora manicata (Scarlet Passion Vine), Passifloraceae, Colombia, Ecuador, Peru.

What has become of the Scarlet Passion Vines which formerly clambered the oaks and pines of Santa

Barbara or even spread over the brown hills with their brilliant color? They may be seen now only in occasional specimens and we pause to wonder what has become of those men who advocated bright color for regions of the tropical sun because reflected light could not show shadows on architecture? Whatever the reason, caterpillars or fashion, we miss those flashes of crimson in the tall trees and wonder what can be done about it. One of the glorious ones still existing is at Santa Maria Inn, where it climbs an immense pepper tree to the very top and then to the tip ends of the branches, where the flowers hang cheerfully in the air and full sunlight. These two make a good all-year combination, since the flowers of the pepper are greenish, light and airy and a foil to the more dense Scarlet Passion Vine during the summer months, and its berries are of a shade of red that combines well with the flowers of the climber. They are in a conspicuous spot in the garden and invariably cause surprise and delight. I have seen flowers from this tree in August, February and April, and wonder how much longer it does bloom.

It used to climb over the back yards of the professors' homes in Berkeley, forming screens to their porches, pergolas, and covering their back fences. For years one of the specimens climbed an acacia tree on the University Campus and bloomed there gayly for months at a time when other flowers were absent.

At Arthur Lett's, in Hollywood, it was climbing the post of the pergola and rank enough growing to well cover the top. Not far away was a scarlet geranium of exactly the same shade which carried out the color note into the garden.

The leaves are serrate, three-lobed

to the middle, about four inches long, leathery and shining about but hairy below, the hairs being also quite distinct on the stems.

The leaves are about four inches long, serrate, 3-lobed to the middle, leathery and shining above and a lighter green below of a different texture due to innumerable hairs on the veins and cross veins. The hairs are also quite noticeable on the stems.

The flowers are single in the axils of the leaves, about four inches across and with a long peduncle. The ten segments of the corolla are surrounded by a circle of short crown of blue filaments. Above it are the three styles, the five stamens with filaments united to form a tube. In the center of the picture is a large bud showing its typical shape, the perianth tube or cup inflated at the base and handsomely ribbed. The tendrils opposite a leaf are curled in opposite directions, the best type for vines in windy places.

Said to bloom the entire summer. My notes show January, then May to September, thus a summer and fall bloomer. "Requires a sunny position and will not stand much frost." (H. Smith). It loves the sun, is very fast-growing, of which Dr. Franceschi makes the remark: "It is seen everywhere and a ranker grower is not to be found."

It is quite tender and will stand very little frost.

Any pests? "Yes, the worst harbor for snails that we have and also bothered by caterpillars." (C. Hoak).

It needs a great deal of pruning, as the stems die underneath or become messy and not a spear of green then grows under it.

Any faults? It drops its buds in Pasadena.

Morris and Snow claim three forms of this: wine, pink and scarlet. Armstrong Nursery have found it unre-



Matthews

Passiflora manicata

liable in color and probably had received a hybrid, as *Passifloras* all hybridize freely.

It may be used to adorn a lath house, the side of a house, a pergola, porches, as a screen and is especially beautiful on trees.

Passiflora racemosa (P. princeps of nurserymen), Passifloraceae, Brazil.

This is thought to be the handsomest of all *passifloras* since it holds its flowers in racemes which are one and one-half to two feet long, with as many as eighteen to thirty-five flowers hanging down in full sight. Other flowers may be as beautiful or even more beautiful in color but none of them can compare with *Passiflora racemosa* in beauty of form. There is something alluring and satisfactory in the perfect cut of the individual flowers and the manner in which they combine to form a beautiful whole.

The buds are even more handsome than the full blown flower, the perianth united at base to form a reddish-brown cup, while above the old rose calices expand into five winged keels, perfect in outline and color. In the open flower above may be seen the round-headed styles and just below them, five stamens with their filaments united into a tube to surround and support the stalk of the ovary, while the short purple fringed corona may be faintly seen at the base of the corolla. Dr. Franceschi mentions the fact that in Santa Barbara they had two forms of this passion vine; one with a white corona, the other with a blue one. Mrs. Shepherd, of Ventura, also used to carry a form which she described as having a violet blue corona.

The leaves are also attractive with their three deeply cut lobes not unlike those of a maple, its stipules over

an inch long and its slender tendrils, at first straight and four inches long until they become attached to some object to which they cling for support. These leaves are not too coarse-looking for the dainty flowers and might be trained into a pattern on the wall or could even make interesting shadow lines.

It has a long blooming period, Mr. Orpet says, blooming almost continuously in Santa Barbara. Miss Sessions says it blooms in San Diego from March to December. My field trip records show it in bloom in June, July, August, September and October in Southern California and once again in Los Gatos. It keeps surprisingly well as a cut flower, as the accompanying illustration was made from a flower grown in Santa Barbara, carried all day in a 300-mile daylight train, without water, and not photographed for two days. Even so, it was still of splendid color three days after it was gathered.

On the fourth day the flowers fell off at the joints but kept their color and freshness to a marked degree, even on the fifth and sixth day.

Culture? Howard and Smith state that "It is a very difficult plant to propagate, and offers no seeds, as most varieties do. It requires a warm sheltered location, and will not stand much frost." Miss Kate O. Sessions says, "In San Diego it must have shade, or be placed on the north side of the house under the eaves or in a tall tree." "When festooned under a tall tree, it is very handsome." Mr. de Forest stated that "It was hard to start and hard to maintain until I planted it among other vines to give it shelter while young, and now it is hardy enough without any protection.

It seems to be of medium growth. A specimen at Miss Session's home



Wm. C. Matthews

Passiflora racemosa
(*P. princeps* of trade)

in Pacific Beach was one and one-half years old, twelve feet tall and had thirty-five flowers on one spray. At Miss Schwieder's home in San Diego a specimen five years old had been cut to the ground twice in that length of time and by April it was again five feet tall and still growing. Her experience proves that it is one of the vines that can be cut to the ground to renew it.

It seems to have no plant diseases and no insect pests as "even the caterpillars do not bother it as the leaves are hard." (K. O. Sessions). "Enjoys the cool coast climate where there is little frost." It was seen at Pasadena but "is too tender for inland." (Mr. Ross).

It was doing well at Santa Barbara, Santa Monica, Montebello, San Diego and Ventura, but there must be other places that I did not see.

It may be used in various ways, the best probably being over a pergola, where the flowers hang down and show below in long racemes. Such a one was at Miss Sessions' Pacific Beach home, where it was most thoroughly enjoyed with its dozens of sprays all in full sight. At the Model Farm in San Diego, it was used over the gateway in the 1916 Exposition Grounds, where on June 7, 1917, it hung in clusters two feet long. It twisted and flung out its flowers but was not fast enough growing to hide too much of the superstructure as other *Passiflora* would have done.

At Santa Barbara it was seen on a wall with a *Fuchsia triphylla* hybrid near it to carry on the color scheme, and at its feet were various feathery ferns and a Yerba Buena used as a ground cover to give a little fragrance as visitors crowded nearer to study the passion vine and trod on a bit of the exquisite native trailer. There

should be more of this "precious" flower planted throughout the state and used in our art schools in designs and also as cut flowers for "shut-ins" and for hospitals.

Phaseolus caracalla (Snail Flower; Snail Vine) (Climbing Snail Flower) (Corkscrew Flower), Leguminosae, Tropics.

According to Miss Hoak, Snail Flower used to be grown on all of our old Spanish houses. Her father grew it in Mendocino County forty or fifty years ago. He used to get many of his seeds from France and Holland. She also stated that in that region it was short-lived, bloomed in summer and fall for eight weeks in full sun. Also that in early days it sometimes escaped and ran over trees and hedges. However, it could not have been naturalized to any extent as it is not mentioned in Jepson's "Manual of Flowering Plants of California."

It is a perennial with tuberous roots but is generally used as an annual in regions of severe frost in California, where it may die to the ground in the fall and come up again in the spring. It should be properly mulched for the winter to prevent the tuber from freezing. This is very little trouble to take once a year compared with the work that has to be done in New England to keep their plants alive in the garden. It was sold by our early nurserymen as far back as 1860 and has therefore been cultivated in the state for over seventy-five years. At present it is seldom seen in our gardens and we are wondering why?

It may still be purchased from some leading nurserymen and is another climber to be added to the list of vines suited to the interior valleys that should occasionally be seen there.

Our photograph was taken from a



Matthews

Phaseolus caracalla

plant gathered at Modesto, where it was being grown by Mrs. George Ashman from seed sent her by a friend in the Azores Islands. It had been planted on the east side of a stucco house where it received only the morning sun. Was cut down by frost the year before we saw it but had come up again and was now about twenty feet tall.

The flowers are very fragrant, at first white with a lavender tint, and finally a golden yellow. They were so abundant that you could hardly see that they had compound leaves of three leaflets and much resembled those of the Scarlet Runner Bean, the middle leaflet being the larger. It had but one pod, about four inches long, three-fourths of an inch wide and resembled those of ordinary beans, but a little enlarged at the apex.

It was used as a foundation planting amidst orange trees whose orange fruits combined well with the yellow blossoms of the Snail Flower. It will cover a pergola for twenty-five to thirty feet and if the tubers are planted under the pergola with a mulch over it during the coldest weather, it may need no other protection. It gives ample shade over the pergola and the flowers show through from below.

Pasadena: "A cold blast from Old Baldy may make it go dormant every winter, but it blooms well and grows moderately well here." (Manning). Mr. Ross, of Rust's Nursery, says, "They die to the roots, but if sheltered, they do not die back unless the eyes are killed, in which case they do not start again."

Monrovia: Mrs. McKay had a plant that became deciduous whenever it was cold enough to cause it to drop its leaves. Hers was three years old, getting better each year, and blooms from the middle of July to September. Of rapid growth but does not cover

densely. It may be propagated from seed in the spring and will bloom the same season. She germinates hers in the greenhouse. It may also be germinated from cuttings, as seeds are hard to obtain, for it seems to be a shy seeder in many areas in California.

Beverly Hills: "It climbs by twisting. Blooms in May, June and July in full sun, tender to 29 degrees, fast-growing, medium-hardy, stands pruning, but should prune after it has flowered. Not particular as to soil; flowers heavily in a can." (T. H. Spargo).

"It does well along our coast section but is often a poor color." (J. A. Gooch).

It makes a good screen to a porch or on the back fence and is especially good for busy men who love gardening but have little time for it.

Senecio mikanioides (German Ivy; Ivy Senecio), Compositae, South Africa.

A South African plant that has become naturalized in California along streams has been seen from Berkeley to San Luis Obispo on the coast and from Chico and Sacramento to Fresno in the Great Valley. It is in bloom about Christmas for about a month or six weeks, its bright yellow flowers quite startling on a cold winter day. It may freeze to the ground in severe winters, though it comes up again by March and grows very rapidly. It is evergreen in many parts of the state, resembles the English Ivy in leaf, but is more succulent looking and much lighter green in color. It may be too weedy-looking for refined developments but very useful to cover low sheds, rough fences and best of all, on wire to make a quick screen for division between the chicken yard

and the house, or to shut off the service yard or the clothes lines or on a tennis court. Cut off the new shoots if they do not train properly and keep the vine close to the wire. It is also used as an embankment plant along Strawberry Creek on the Campus of the University of California, its good green ivy-like leaves always attractive.

It may grow fifteen to twenty feet high and was seen at Belvedere on a tree where it was a livid green and was kinder to the trunk of the tree than is the ivy. At Grass Valley and Nevada City they were using it as a window box plant. It is also sometimes used as a rock plant, especially to hide waste places. It is used as a hanging basket in the eastern states. It is also drought tolerant to some degree and can grow without a great deal of water and gives a touch of green without much trouble.

Solandra longiflora (Gabriel's Trumpet), (Copa de Letche or Cup of Milk), Solanaceae, West Indies.

This plant was introduced into England in 1847 and figured in the Botanic Magazine under the name of *Solandra laevis*, t.4345, as the Smooth-leaved *Solandra*. It has often been sold in California nurseries erroneously as *Solandra grandiflora*, as they are both white-flowered and very similar. *S. longiflora*, however, has the longest flower, which is *contracted at the throat*, while that of *S. grandiflora* is rot, but is *widest at the throat*. Again, consider the *calyx*, which is *S. longiflora covers but one-third of the longest portion of the tube* and exposes to view the cup part and fully as long a portion of the tube. In *S. grandiflora*, on the contrary, the *whole of the narrow part of the tube is concealed by the calyx-*

lobes, leaving *exposed only the cup* of the corolla and the limb. Compare this photograph with the illustration of *Solandra grandiflora* in Bailey's *Standard Cyclopaedia*, which should clear up this point and leave no doubt which plant you are inspecting.

Leaves four and one-half to five inches long, two inches or more wide, oblong in shape end ending in a short point. Dark green above, lighter below, in bunches at the nodes that are one and one-half inches apart but ample enough for the flowers which stand out boldly from the cluster of leaves. When the plant is young, however, and growing rapidly, there is only one leaf to a node and looks thin and overgrown. It then seems better to combine with some other climber to partially hide its youthful ungainliness.

The flowers are about ten inches long, trumpet-shaped, which easily gave it its common name of Gabriel's Trumpet. They are at first a white color but turn yellowish with age and finally a deeper color as they drop their flowers when they are spent. These flowers are not entirely white, as there are five lavender lines running down the throat with five other fainter double lavender lines between these that spread out in enlarged patterns. They are deliciously fragrant at night but give out little odor in the day time. Last well as cut flowers, even three to four days, always giving out its fragrance at night. The calyx is about three inches long, deeply cut into four or five lobes; partially concealed in the photograph but plainly seen in the middle and right hand flowers.

It seems to bloom in the fall and into the spring, for it was observed in bloom in September, October, November and in bloom on Christmas

Day in 1936 at Huntington Library, near Pasadena.

While not grown out of doors very extensively, it was observed in Santa Barbara, San Diego, near Bel Air and Rust's Nursery, Pasadena, as well as at Huntington Library, mentioned above, and Los Angeles. Always the name of Mr. Vavra was mentioned as being the authority on Solandras, so to Mr. Stephen Vavra we went. He is growing four or five varieties of Solandras from which we secured the following notes: "Mine are planted on the south exposure of an embankment in a frostless region in West Los Angeles; have been secured after years of persistent effort. *S. guttata* and *Greggi* are very strong growers, the latter with the largest leaves and the longest bloomer. *S. guttata* (Cup of Gold) is also a good bloomer, but requires a warmer position than *S. Greggi*.

Culture? Solandra will grow in the sun in any good soil in frostless localities, with ordinary watering in the garden. They stand a good deal of drought. *S. grandiflora alba* was brought from Guatemala by Mr. Ed. Howard. I am using it to hybridize with the red *Datura* to try to get another color in Solandras.

For Solandras, use ordinary soil. They do not need any fertilizers, for if they get water, they are so strong they run all over the garden. I raise some from seed and others from cuttings.

No pests; no plant diseases. Will stand 26 degrees of frost and any amount of heat.

As to *S. longiflora*, it climbs faster than the rest of them. I do not fertilize it as it grows too fast. In fact, I use very little fertilizers on any of them as they then grow so fast that it takes too much time to prune

them. They should be pruned yearly. *S. longiflora* has the longest flower of all, white with a long tube. It is the white one at Golden Park Conservatory from which our photograph was taken October 25, 1932.

Lockwood de Forest, editor of *Santa Barbara Gardener*, had a Gabriel's Trumpet on his office terrace for years. It got the sun at least part of the day during the afternoon and climbed up on iron pipe for support. Its leaves are in tufts when the plant is older, but at first the leaves were single and strung along scantily on the new shoots, which looked rather barren and hard to manage. When it was in bloom, however, and sent out its delicious fragrance, all was forgotten in the delight of the amazing flowers and their indifference to hard conditions. But the January, 1937, freeze was too much for it and it died. However, another specimen growing in the court at home had protection enough to live and on September 6th a couple of the flowers were cut off and taken on the daylight train to San Francisco, where they attracted a great deal of attention. At night and for three nights thereafter, they were very fragrant but gave no scent during the day time. On the fourth day they began to wilt and turn a yellowish tint and finally dropped their faded flowers. They could therefore be used as cut flowers for several days and should be quite as attractive as orchids when thus used.

Solanum jasminoides (Potato Vine),
Solanaceae, Brazil, S. A.

One wonders if we have not been neglecting this climber for other things less charming, for when well grown and in an appropriate setting, it is particularly beautiful. In such surroundings it may be seen on the walk



Matthews

Solandra longiflora

back of the Shakespeare garden in Golden Gate Park, where a white-flowered one is climbing a *Pittosporum undulatum* tree. It looks very attractive as it holds its flowers aloft in the breeze and together with its background of green leaves, forms a delightful picture. The buds have a faint bluish tinge which soon turns white. It seems to flower on the new wood with long sprays that fall down from the weight of the flowers—twenty or more in each cluster. These are kept rather distant from the leaves, not only by the peduncle of each separate flower, but also by a still longer common peduncle. The shallow flowers are wheel-shaped, with the five petals connected at the base so that the flowers fall to the ground whole and leave the vine clean.

Solanum jasminoides climbs by twisting the petiole of a leaf about a support and one wonders how so slender a thread can possibly carry such a heavy weight as those tall stems. This is done by enlarging the petiole to three or four times its original size, and also by the growth of woody fibers which become so tough that it takes a decided effort to tear them away from their support. This is the more intriguing when it is observed that a quarter of an inch of the petiole did not become enlarged and is nothing but a slender herbaceous affair, the size of a stout thread.

The Potato Vine seems to have been here in California many years, as it has a wide distribution. It was seen from the San Diego region along the coast up to Del Norte County, and also down through the great Interior Valley, where it is still evergreen. Its leaves turn reddish in severe winters for a short time only, as it early starts new growth with flowers soon forming. It is nearly always in bloom up as far

as Nevada City, but even there it seems to stand quite a heavy frost. There seem to be more than one form, as Johnson's *Garden Dictionary* speaks of its having been introduced into Britain in 1838, with a *S. jasminoides floribundum* as having been introduced in 1885. Dr. Franceschi, in his 1895 article on Santa Barbara Exotic Flora, mentions "*S. jasminoides* from South America also with a form with variegated leaves and another with larger, pure white flowers, being a more profuse bloomer than the ordinary type." Bailey's *Hortus* gives *S. jasminoides* var. *grandiflorum*, with the common name Great Jasmine Nightshade, having now accepted the *S. jasminoides* var. *grandiflorum* Hort. of the *Cyclopaedia*.

What has become of this large-flowered form? Santa Barbara nurserymen have long accepted a white type as being the only one that has much sale in that region and claim that the bluish Potato Vine is not a favorite, since the people want a plain white variety which has better foliage.

The Potato Vine is very fast-growing, though it seems to vary to some degree in this, being twice as fast in San Diego as in Berkeley, with a record of thirty feet in two years down there while here it grew fifteen feet in a year and a half.

It does not seem to be particular as to soil, though it does do better in St. Francis Wood in sandy soil than in Berkeley in adobe. In fact it grew so well that a landscape architect for the Tract was ashamed to plan any more of it, he had used it so often. Miss Kate O. Sessions refuses to sell it any more because when it is old in San Diego, it gets scaly. So do other plants!

Its uses are many from a good cover to a high fence, to a glorious tree specimen. In fact its uses seem

limitless. It looks equally well in a formal setting as in a naturalistic one, and is particularly appropriate on trees in parks, on school grounds or in private homes. It was beautiful about the balustrade of some stone steps in Hillsborough. At Santa Maria Inn, Mr. McCoy trained it over an old tree that had been covered with English Ivy to brighten it up and it made a very good combination. Such a one could be used in the hot interior valleys and according to Mr. Vortriede, it blooms all the year there unless the winter is severe. At Stockton he pruned it every year to keep it within bounds. He cut it from the top and sides. He used it on the tennis court fence in Sacramento, where it suffers from black scale and aphids. It will grow all through the Napa Valley region, where it blooms freely most of the time. Cut it back once in a while or the branchlets will die and become disfiguring. Even grows on the seashore in fierce winds.

Easily propagated by cuttings and roots freely in water.

Faults? Not very serious ones, for it grows even when abused and allowed to crowd its own branches. It then gets leafless below, the same as any other vine similarly treated, but it grows so fast that it is usually planted to hide ugly surroundings that do not bring out its good points. It is generally used in the chicken yard or over an old, unsightly barn, so that you have learned to associate it with ugliness.

Get a cutting of the large-flowered, white type, set it in water until it roots but do not allow the water to become stale. Presto! Before you know it, it will be ready to set out in the open ground. Do plant more of it in the valley towns, but treat it well. Do not expect any fragrance.

Sollya heterophylla (Australian Blue Bell) (Australian Blue Bell Creeper), Pittosporaceae, Australia.

This is a most dainty plant for the whole of California, where the temperature does not go down below 18 degrees. It may even be grown in sheltered parts of the Sacramento and San Joaquin Valleys, but Mr. Vortriede reports that it is hard to tell about it in Sacramento. Sometimes it is hardy and other times it is not. It was also reported as killed outright in Bakersfield at the end of two years. Could its death have been due to nematodes and not to the cold?

Since it does not outgrow its position, it is especially useful for small home grounds where it grows in sun or shade, is drought tolerant, needs little pruning and can be used in a formal way or in an informal setting, where it looks well. As an example of a formal planting, it was seen at Montecito about a long rectangular pool, alternating with the Blue African Lily (*Agapanthus*) of South Africa, with an occasional Mexican Orange (*Choisya ternata*) to supply fragrance. This combination is almost everblooming in California in favorable years, but would not have been so in San Diego, where, Miss Sessions claims, the African Lily blooms but a short time. It is a good twiner, for the Arlington Hotel, Santa Barbara, it grew on a tennis court where, without human aid, it climbed in and out of a 5-inch mesh chicken wire for 12 feet and formed a perfect screen. Also at Montecito it made a welcome covering to pergola posts, as it was the right height and spread, and its light-green foliage was evergreen. It was associated with a pink and lemon-colored hybrid lantana that made a pleasing contrast.

The flowers are a deep blue, the falling bells three-quarters of an inch long and one inch broad. Its color makes it quite valuable, as few shrubs have blue flowers. The leaves are of various shapes, as the name heterophylla implies, but the color is sometimes a yellowish-green that is hard to combine with other plants unless it has been properly fed. Bear this in mind when grouping others with it.

Miss Hoak recommends it for your home grounds, "since it will grow in any location and is one of the few vines that will stand considerable shade."

Mr. Gooch says, "It is good at Arrow Head Hot Springs, San Bernardino County, where it has done well wherever it has been tried. However, nematodes will kill it. Wherever there are vegetables being grown, such as tomatoes or potatoes, the nematodes are apt to be on it and will find the sollya. Nematodes were probably the cause of the death of Mrs. Holtby's specimen, since she was able to grow it successfully for two years before it died. Sollya will not stand the heat of Imperial Valley, but it does stand it at Redlands and San Bernardino. In fact, it stands a great deal of heat at the latter place as a lawn cover, and blooms most of the year around. If the temperature is over 100 degrees, then the flowers stop blooming. On decomposed granate soil it will stand below 20 degrees of cold. We had trouble with it at Ontario before we had the soil fertilized; a whole block of Sollya would die from nematodes."

"Propagate from cuttings and seed. A great favorite in a small way. Valuable for covering banks, walls, rock-work or low fences. Will make a good border plant if kept sheared as an edging. Fine for window boxes or to put in jars or tubes on balustrade or terrace" (R. T. Stevens).

Tecomaria capensis (Cape Honey-suckle), Bignoniaceae, South Africa.

While this plant is now mostly used as a shrub in southern California, it was formerly grown more as a vine, especially in Santa Barbara, where it was seen climbing trees or mingled with other vines about the walls of homes. It may yet be seen about old-fashioned estates, as it climbs thirty or forty feet and flings its scarlet flowers aloft to brighten the less gay vines near it. Not only did it climb high, but it was grown on fences, one vine covering as much as one hundred feet in its travels. It was an interesting study to be near enough to see these brilliant flowers and watch them unfold their buds. These flowers very much resembled those of the watsonia in shape, with long exserted stamens, a crooked tube one and one-quarter inches long that flared out into four-parted limbs about two inches across. These stand out in racemes of seven to nine flowers on the ends of the branchlets and seem to bloom one after the other as long as the new wood can be formed.

The compound leaves are opposite, about seven inches long, with seven to eleven handsome leaflets, dark green in color, with prominent ribs which are dented above and raised beneath. The leaves are numerous enough to form a good leafy screen to a porch or the plant may be cut down to shrub size, which can either be trimmed to a dormal shape like a hedge, or allowed to grow naturally. When pruned too heavily, the branches are held stiffly erect and it loses the grace that it assumes when allowed to climb high in its own way. Although it is still bright and gay, one misses those gracefully bending branches that we love in such shrubs as the Beauty Bush, as the arch



Mattheus

Tecomaria capensis

has been pruned out of them. Look critically at a much-pruned Cape Honeysuckle and see if the pruning has not induced many erect branches with flowers held stiffly erect. They have spoiled billowy grace and sturdy strength. We like to see it climbing high on the trunks of tall palms, adorning some old tree in the interesting fashion of the English, or on a warm wall where it luxuriates. It may be grown as a ground cover, where it takes root and spreads over the earth as seen in Montecito.

Its distribution over the state is very wide. Due to its bright color, no doubt, it is not in every garden or noticeably abundant in any community, as is the magenta bougainvillea which has become objectionable. It can be grown in the fog of San Francisco, in Coronado near San Diego, or the coastal valleys. In the mild, almost frostless areas further inland, such as in Pasadena and Riverside, it is occasionally frozen to the ground but recovers and then blooms either in the fall or in the following spring. It may be seen in frostless belts occasionally in the great interior valleys if given shelter or a warm wall, if the season is favorable, but even if cut to the ground, it nearly always recovers by the next season.

Last of all, it grows well in the des-

ert region, where at Palm Springs Mr. Gooch reports that it is almost a perfect plant for that region, since it blooms during the season when people are in town from October to April. All in all, it is a very useful shrub.

What are its faults? A little tender. It is vigorous growing and sometimes goes under shingles and cornices. It has such insect pests as mealy bugs and scale. It has to have a support to climb. Its use as a hedge is prohibitive, as it grows so fast that the cost of pruning to keep it tidy would be too great. Its habit is better as a climber than as a shrub.

Good points. Almost everblooming. It will run on the ground and take root, so makes a ground cover. It did not freeze in Rust's Nursery in Pasadena for 12 years and then it came up from the roots. Drought tolerant, says C. Hoak. Easily grown from cuttings. Can be grown in protected places in the warmer valleys, up along sheltered walls amongst other vines, or as a shrub on a warm wall, its scarlet flowers always in evidence in frostless regions. "It will grow in the desert if put in among other shrubs, if it is not in reflected heat. It blooms in February and March and then again in the fall. Best of all, it blooms from October to April in the winter months when the inhabitants are home from their summer vacations" (Gooch).

Winter "Gardinage"¹

LOUISE B. FISHER

IN studying the fruit and flowers of the eighteenth century, it is interesting to note the varied use of the everlastings and other dried flowers. Not only were they used in the natural colors but artificial means were employed to give more variety in color effects. Sand was used to hold them in place, sometimes in glass vases. P. Miller in his "Figures of Plants" says of Xeranthemum, "This Plant grows naturally in Austria, Bohemia, and in some Parts of Italy; but in its natural State the Flowers are single: the double Flowers have been obtained by Culture. There are Two Varieties of this Species; one with white, and the other with purple Flowers; and of both with single and double Flowers. . . . These were formerly much more cultivated in the Gardens near London than at present; and were brought to the Markets in great Plenty during the Winter Season, to adorn Rooms. The Gardeners had a Method of staining them of a deep red and blue Colour, by dipping them into different Liquids. So they brought them to the Markets in Bunches of four different Colours; white, purple, blue, and red: And when their Stalks were put into Glasses with Sand, the Flowers would continue in Beauty till the Spring."²

From the same authority we learn that the Globe Amaranth or Amaranthoides "if gathered before they decay on the Plant, and kept in a dry Place, will remain in Beauty for some Years, especially if they are not too much ex-

pos'd to the Air: And they are therefore very proper Ornaments for Ladies to wear in their Hair, and are far preferable to any artificial Flowers whatsoever: The Purple and White of these Flowers, together with some of the Varieties of the Elichrysums and Xeranthemums, will make a curious Variety of dry Flowers for Basons to adorn Rooms in the Winter Season, when few other Kinds are to be had.

"The Portuguese and Spaniards are very fond of these Flowers, and cultivate great Quantities of them in their Gardens, for adorning their Places of Worship in the Winter Time. . . . But what Flowers you intend to preserve, should be gathered soon after they arrive at their proper Bigness; for if they are suffer'd to remain very long after, the under Part of their Heads will change brown, and decay."³

John Hill in "Eden" is even more enthusiastic, "This Care is worth employing, because of the Duration of their Flowers. They will not only be full of Beauty in the Ground, all this (Oct.) and Part of the succeeding Month, so long as Frosts are gentle, but being gather'd in their Prime, they will retain their Beauty a vast while, and serve in the Places of artificial Flowers, in Ornaments, Deserts, and all the Uses of those Things, exceeding every Thing, that has come from the Hand of Art, in Beauty."⁴

Always it is urged that great care be taken to keep these flowers from dampness and air while drying them.

¹Samuel Pepys, *Diary and Correspondence* (New York: Davos Press, n.d.), II, 320.

²Philip Miller, *Figures of Plants* (London: Rivington, 1771), II, 186.

³Philip Miller, *Gardeners Dictionary* (London: Rivington, 1737), I.

⁴John Hill, *Eden* (London: T. Osborn [1757]), p. 63.

Of the *Elichrysums* P. Miller says— "This Plant producing Flowers which are of a fine soft red Colour, are a very great Ornament in Winter, when intermix'd with the several Varieties of Eternal Flowers, in Glasses or Basons fill'd with dry Sand, which being preserv'd from wet, will afford a great deal of Pleasure, when other Flowers are not to be procur'd . . . at a Season when the Ground is so lock'd up, that none of the flowery Tribe abroad appears above ground."⁵

Among other flowers used were *Lunaria*, *Statice* and *Amaranthus*. The definition of *Amaranthus* in the Gardener's Dictionary is "so-called, because the Flower of this Plant being Cropp'd, does not soon wither; but being dried, keeps the Beauty of its Colour a great while."⁶

The same authority describes *Lunaria*, "The Seed-vessels of this Plant, when they are full ripe, become very transparent, and of the Appearance of White Satten, at which Time the Branches are cut off and dry'd; after which they are preserv'd to place in the Chimneys of Halls and Large Rooms, where they appear very agreeable."⁷

Lunaria and *Statice* were used as Mantel decorations. Turberville in Johnson's England gives the following in a description of Dr. Dove's house, "Over the Chimney-piece were two Peacock feathers, some of the dry silky pods of the honesty flower, and one of those large "sinuous shells," so finely described by Landor."⁸

Lady Jean Skipwith of Prestwold, Virginia, states in her "Garden Notes": "Purple cuped *Statice* or

Thrift, dried it retains its colour which renders it ornamental for a Mantel-piece in Winter."⁹

With the help of the Hot-house or Stove¹⁰ some late blooming flowers were obtainable for use during this season. Hill in "Eden" says of the Snapdragon: "In Autumn they will flower: those in the Bed of Compost will be fairest and fullest of Bloom. Those in the Pots are intended to be Hous'd late in Autumn with the Exotics, for the Sake of continuing the longer in flower. I have thus kept them blowing all the fore part of the Winter.

"Those who think this Care more than the Snap-Dragon deserves, have not seen it fairly. When rais'd by this Care, it exceeds many of the most pompous Flowers."¹¹

A method of forcing Roses is described by Miller whereby "I have seen fair Roses of this Kind bloom in February, and they may be brought much sooner, where People are curious this way."¹² Potted plants served also to brighten the winter season and among these a favorite seemed to be the *Lantana*. Hill in "Eden" says "and when by this Means they (*Lantana*) have got into a good way of flowering, they will keep it throughout the greatest Part of Winter in the Stove, and appear second to very few Things there in Beauty."¹³ Lady Skipwith of Prestwold, Virginia, lists "*Lantana* (house plant) very Brilliant, seldom without Flowers." She also had *Cyclamen* as a house plant of which she says "it Blows in Decr. and

⁹Lady Jean Skipwith, "Garden Notes," *Garden Gossip*, X (1935), No. 4, p. 3.

¹⁰Stoves are Contrivances for the preserving such tender Exotick Plants, which will not live in these Northern Countries without Artificial Warmth in Winter." Miller, *Gard. Dict.*, I.

¹¹Hill, *Eden*, p. 125.

¹²Miller, *Gard. Dict.*, I.

¹³Hill, *Eden*, p. 91.

⁵Miller, *Gard. Dict.*, I

⁶*Ibid.*

⁷*Ibid.*

⁸Robert Southey, *The Doctor* (1833-4), as quoted in A. S. Turberville, *Johnson's England* (Oxford: Clarendon Press, 1933), II, 140.

continues in beauty till late in Spring."¹⁴

Not only were flowers forced but fruits and vegetables as well. John Randolph in Williamsburg gives us the following facts about the use of vegetables in winter:

"Carrots are of two sorts, the orange and the white. In November, take up your roots and put them in dry sand, and you may use them as occasion requires."¹⁵

"Towards the latter end of January, if you require Cucumbers in April, you are to" (and there follows a description of the method used).¹⁶ Again "In August you should sow your last crop (lettuce) about the beginning of the month, and in October transplant them into a rich border, sheltered from the weather by a box with a lid, which should be opened every morning and closed in the evening, and in the month of February you will have fine loaf lettuce."¹⁷

John Hill tells us that "Asparagus at Christmas is reckoned a great Delicacy: but it is very much inferior to that which comes at a more natural Season." He also tells us that with the aid of the Hot-bed, Strawberries, Apricots and Cherries were enjoyed in April. "A Plate of these (Strawberries), ornamented with Leaves from the natural Strawberry Beds, and crown'd with if but one of the large Chili Kind, will give an Air of Summer and it will improve their Flavour greatly if a very small Quantity of treble refin'd Sugar, beat to a fine Powder, be sprinkled over them just as they are sent in. This will not be perceiv'd by the Eye, nor particularly

distinguish'd by Taste, but it will give the raw Juice, in these artificially ripen'd Strawberries, the Richness and Mellowness it otherwise must want. . . . With these Strawberries from the Hot-Bed, he may send in, from the forcing Frames, Apricots and Cherries. This little Desert will please, because of the early Season, beyond the Pomp of Summer."¹⁸

Fruits, of course, were used as deserts, being placed on a sideboard or table and then brought to the table. Apples, grapes and pears were enjoyed most of the winter, as well as nuts and the pineapple which was grown in the Stove. Beginning in October we learn "We have hitherto been able to direct the Gardener to furnish his Deserts from his Trees; but the Season is approaching when they will yield nothing more. This Part of an Entertainment may, however, be then supply'd from the Store-room."¹⁹ Pears were gathered carefully, placed in a heap and covered with a blanket. After they had ceased sweating, they were prepared in the following manner:

"Let a Dozen of large earthen Jars be wiped perfectly dry and clean on the Inside, and a Parcel of large light Moss be gathered in the Middle of a bright Day, and perfectly dried; let some common Sand be also spread before a Fire, dried, sifted and left to cool. All this being ready, the Pears are to be thus laid into the Jars.

"First cover the Bottom of a Jar with some dry Moss: then lay upon this as many of the Pears as will lie singly, not one upon another: on these lay another bed of Moss, and upon that more Pears. Thus proceed till the Jar is full; and in the same Manner fill up all the others. When they are

¹⁴*Garden Gossip*, X (1935), No. 4, p. 3.

¹⁵John Randolph, *A Treatise on Gardening*, ed. M. F. Warner (Richmond: Reprint by Appeals Press, 1924), p. 12.

¹⁶*Ibid.*, p. 16.

¹⁷*Ibid.*, p. 27.

¹⁸Hill, *Eden*, p. 72.

¹⁹Hill, *Eden*, p. 94.

all full, stop them up with Plugs, and pour over them melted Rosin.

"Then set them upon a Bed of dry Sand four inches thick and pour on more of it till they are filled up between, and covered a Foot thick.

"Thus let them stand till the Pears preserved in the common Way are gone; and then being opened one by one as they are wanted, the Fruit will be found in them in perfect condition . . . and the Jars are a sure Supply to the End (of winter)."²⁰

Apples were treated in the same manner after being carefully separated, some for desert, the rest for the service of the kitchen. "The late Grapes are the proper Kinds for preserving. As soon as the Frosts come on . . . the following preparation must be made for them.

"Get two or three wooden Boxes of a Foot deep, and about the same Breadth. Let the Length be according to the Quantity of Grapes intended to be preserved in them. Sift very fine a good Quantity of Wood-Ashes that have been well burnt; those from a Baker's I have always found answer best. . . .

"Let both the Boxes and the Ashes be perfectly dry, but not hot; and then spread over the Bottom of each Box some of the Ashes, to cover it four inches deep.

"This being done, go out, and in the Middle of a dry Day gather some of the best of the Bunches of Grapes . . . then lay the Bunches Side by Side upon the Bed of Ashes in the Box. . . .

"In this Manner let the several Boxes be filled; and I have thus eaten Grapes very good in the Month of February."²¹

In order to have late Currants, Hill recommends that, where the plants are next to a wall, they be covered with a Mat, allowing air from beneath, thus preserving the fruit for some weeks. "These with the several Species we have directed to be laid up for earliest Use, and with the Assistance of the Nut Kind, and some very late Plums, will yet set a Desert at a tolerable Manner, or serve to fill out the Board about a Pineapple."²²

Miller's description of the Avocado Pear is interesting. It was grown in some "curious Gardens" for the "Beauty of its shining Leaves, which continue thro' the Winter, tho' there is little Hope of its producing Fruit." It "is not only esteemed by the Inhabitants as a Fruit to be eaten by Way of Desert, but is very necessary for the Support of Life. The Fruit is of itself very insipid, for which Reason they generally eat it with the Juice of Lemons and Sugar to give it a Piquancy. . . . Some People eat this Fruit with Vinegar and Pepper."²³

The Pineapple was a great favorite, being matured in the Stove, of course, and its season of ripened fruit being from the first of July to the end of September. Robert Bradley gives the following instructions as to how it should be eaten.

"To prepare it for eating, hold the fruit in one hand, while with the other you twist off the Crown of leaves at the top, which should be presently returned to the gardener, to be cleared of the pulp which adheres to it, and planted for increase.

"When the crown of leaves is off, begin at the top to pare off the rind of the fruit; which must be so done, that none of the outside husks remain,

²⁰*Ibid.*, p. 95.

²¹*Ibid.*, p. 119.

²²*Ibid.*, p. 130.

²³Miller, *Gord. Dict.*, II.

which would be very troublesome in eating.

"When this is done, cut in slices cross-ways, to be laid singly upon a plate; for if they are laid one upon another, it is hard to separate them, the fruit being of a gummy nature, sticking like honey; thus it is ready for eating without any addition of sugar, wine, etc., to help its flavor."²⁴

Miller adds "(It) is justly termed the King of Fruits."²⁵

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²⁴Richard Bradley, *A General Treatise of Agriculture* (London: Johnston, 1757), p. 439.

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Rhododendron Notes

Rhododendrons of Golden Gate Park

On several former occasions* these pages have featured illustrations of rhododendrons growing in Golden Gate Park, San Francisco. Further review of some of the more outstanding items among the Park's rhododendrons may be sure of more than merely local interest, even if the experiences of the Park management in rhododendron culture can not be applied to gardens located elsewhere in these United States without considerable qualification.

In order that our further observations may prove most useful, a few remarks on conditions obtaining in Golden Gate Park may be in order. The climate of San Francisco is characterized by a rainless summer lasting from May to November, during which time precipitation is practically nil. Maximum temperatures rarely rise above 75 degrees Fahrenheit, being kept to a mean of approximately 65 degrees by the local, cool, fog-laden ocean breezes. This same fog also tends to increase atmospheric humidity, so desirable for rhododendrons, as well as to moderate the intensity of California's sunshine, so that injunctions about shady positions for Rhododendrons are much less imperative here. Our winters, too, are usually quite mild, the temperatures only rarely dropping below the freezing point and then only for a single night or so. The Park's own water supply is practically free from any serious amount of alkali, such as lime, which only too often makes quite impossible any attempt at rhododendron culture in many parts of California. Golden

Gate Park is largely built upon a former area of dunes composed of beach sand consisting to a great extent of pure quartz or silica so that drainage is rather too sharp if anything. Under these circumstances the essentials for successful growing of rhododendrons may be summed up as follows: provision of an adequate supply of water for irrigation and syringing, provision of an abundant supply of humus, both in the soil near the roots and on the surface as a mulch, and a reasonable degree of shelter from excessively cutting winds.

Aside from demonstrating that rhododendrons may be quite successfully grown under local conditions, the rhododendron-collections of Golden Gate Park may further serve to show which species, hybrids, etc., are most apt to thrive under similar soil and climatic conditions.

In recent years the Park Management has been fortunate in receiving important accessions to its Rhododendron-collections from several sources, to which credit should be given. A large part of the extensive plantings of hybrids, such as our masses of "Pink Pearl, Cynthia, etc.," are a heritage of San Francisco's 1915 Exposition; to which foundation numerous recent importations have added further variety. An important addition to the Park rhododendrons was the gift of the Bowles' collection of fragrant, Himalayan rhododendrons, donated by Mrs. Bowles as a memorial to her late husband. A large variety of seedlings have been grown, of seed received from various sources such as the Division of Plant Exploration and Introduction, United States Department of Agriculture, from Mr. Lionel

*October, 1933, page 369; April, 1934, page 197; April, 1937, page 142.

de Rothschild, the National Geographic Society, from Dr. Joseph Rock, etc.

In the following pages a few of the more interesting items shall be treated in greater detail; for convenience's sake we shall arrange our subject matter systematically, according to the Series into which the various species naturally fall.

These various series of rhododendron species are assemblages of related forms; of the many series represented in the collections of Golden Gate Park, none is more successful here, and none arouses more interest and admiration on the part of rhododendron-minded visitors than the various species and hybrids of the Series *Maddenii*, with which we shall start off our present survey.

SERIES MADDENII

Of the numerous departures from the type of rhododendron familiar to all, as represented by *Rhododendron catawbiense* and its many descendents, none is more striking and radical than that seen in this Series. Instead of a dense truss of many flowers, we find the terminal inflorescence reduced to a few, usually 2 to 3 flowers, often fairly and sometimes very large, nearly always white, or faintly tinged pink or cream, and generally decidedly fragrant. In most cases the species are much too tender for growing in the open anywhere in the United States except in California, so that their cultivation elsewhere must always be a matter of greenhouse culture. Even in San Francisco, some of them suffer damage from frost in an occasional, extra cold, winter. Most of the species and hybrids are capable of being grown from cuttings, so their popularity will not be hindered by excessive cost due to difficult propagation. Another advantage possessed by mem-

bers of the Series is their ability to stand severe pruning; and cutting of flowers does no harm of consequence.

1. *Rhododendron Maddenii* Hook. f.

It seems best to start our brief survey of the Series with the species giving it its name. This was originally introduced to European gardens by Sir Joseph Hooker, who brought seeds from Sikkim in the early fifties of the last century. He probably was also responsible for bringing this species to Golden Gate Park, which he visited in the eighties; and our largest plants date back to that time. Some of these oldest specimens are now become veterans, their gnarled branches covered with smooth, annually shed, cherry-like bark, twisting far from their point of origin. The leathery leaves offer no peculiarity aside from the scales on the lower surface, so characteristic of the Subsection, but when the flowers appear in late June, the species never fails to attract attention. Not only are these flowers remarkable by reason of their shape, resembling as they do so greatly in form *Lilium longiflorum*, and reaching a length of 3 to 5 inches, but they are also highly scented with a strong, pleasingly spicy fragrance quite unlike that of any other flower of our gardens.

Considerable variation is noticeable among the various individual seedlings growing in the Park, but this remains strictly within the limits of the species; and all the plants agree in their narrowly - funnel - shaped corolla of white, pinkish or faintly yellowish color and delightful aroma.

One naturally asks whether it might not be possible to transmit some of this fragrance to our garden hybrids of rhododendron, but so far it seems quite impossible to cross members of this Subsection with any species de-



Rhododendron Maddeni
(Approximately one-third natural size)

void of the peculiar scales. *R. maddenii* has been crossed with *R. cinnabarinum*, some of which hybrids have now reached the Park, but have yet to bloom for the first time.

2. *Rhododendron formosum* Wall.

Rather distinct in habit, foliage and flowers is *R. formosum*, our next item. Its branches are much more slender, its leaves smaller and margined by fine hairs when young, while its flowers differ from those of *R. maddenii* in their smaller size, more openly-campanulate form and less powerful scent. The flowers are nearly white with a pinkish flush along the 5 ribs of the corolla, which last is about 2-2½ inches in diameter. However, the extremely

abundant flowers literally smother a well grown specimen, during its season in May, simulating a cloud of white butterflies hovering over it. Through its quite distinct character this species becomes a most useful foil for other more stiffly habited kinds.

R. formosum hails from the Khasia hills in Assam, was first cultivated in Europe in 1848 or thereabouts, having been sent home by Gibson, collector for the Duke of Devonshire, but on its date of arrival in Golden Gate Park no records are extant. The species is said to have participated in the origin of several of our hybrids of this persuasion, such as Countess of Sefton, etc., some of which are superior in habit or flower color.



Rhododendron formosum
(Approximately one-half natural size)

Its straggling and often weak habit of growth hint that *R. formosum* might do best when grown as a wall-shrub or trained upon a trellis. It is easily grown from summer-cuttings, will flower when quite small and is possessed of sufficient merit to permit of its recommendation to wider culture.

3. *Rhododendron Nuttallii* Booth.

In the 1937 issue of the Rhododendron Association's Yearbook, President Lionel de Rothschild speaks of *Rhododendron Nuttallii* as "the most glorious of Rhododendrons,—undoubtedly the finest of the *Maddenii* Series." In Mr. E. J. P. Magor's report on the 1936 Show of the Rhododendron Association, in his account of the

competition in Class 28 (*Megacalyx* Subseries), he describes this as "the most remarkable exhibit in the hall." The specimen in question was exhibited by Mr. Lionel de Rothschild, from whom Golden Gate Park apparently received the seeds whence its plants were derived.

So far none of this species has actually flowered in the Park, so that for our present purpose we present a photograph of a specimen supplied us through the courtesy of Dr. Koenig, in whose garden the species seems to thrive especially well. His plants are growing in the shelter of a lath-house, the species evidently appreciating the partial shade and shelter so provided.

Any pictorial representation of this



Rhododendron Nuttallii
(Approximately one-third natural size)

will fail to give a true idea of its astonishing beauty, if only from lack of any comparative scale. Individual flowers measure over 4 inches across, of which a single truss will bear 4 to 6, all of unusual substance and texture. A rich cream in coloration, deepest in the throat, their delicious and unique fragrance must be experienced since it baffles description. It is further noteworthy in its large, prominently veined and strikingly scaly leaves, of an unusual bronze color in their young state.

We can scarcely question the epithet bestowed upon this by that high priest of the cult of *Rhododendron*, Sir J. Hooker, who termed it "the Prince of all *Rhododendrons*."

Local experience has demonstrated this species to be notably less frost-resistant than most members of its Series.

4. *Rhododendron Veitchianum* Hooker.

Of all its many members none add more glory to the Series *Maddenii* than does the subject of the present picture and note. To a superior charm of individual flower it adds a more independent habit of growth, being noticeably less weak and sprawling than *R. formosum*, for instance. Its individual flowers may reach a diameter of nearly 4 inches, but their chief charm resides in the perfect, permanent wave of corolla margin. In color they are nearly a pure white, with



Rhododendron Veitchianum
(Approximately two-thirds natural size)

just enough of a hint of green to prevent this from becoming dull.

Its unusual fragrance, though, must always remain its principal claim to our notice. This is perhaps the most intriguing and pervasive of any member of this Series, and by its spice-aroma conjures up visions of the Road to Mandalay with its Moulmain Pagoda, from whose locale the species indeed hails. It is a native of Burma

and Siam, with Moulmain actually the type-locality of the species.

The unusual qualities of this fine species have been successfully transmitted to a hybrid with *R. ciliatum*, i.e. *Rhododendron* × *Exoniense Horticultural*, to be treated here at some future time.

R. Veitchianum is distinctly less frost resistant than *R. Maddenii*, for instance, and suffered some damage

this past winter, being the only one of the Series to be so affected here.

ERIC WALTHER, *Park Botanist*
San Francisco, Calif.

Rhododendron serrulatum.

"My sister has a thicket near a bayou with clumps, one 8 or 9 feet high, growing on and around an old stump and "cypress knees," with part time water all around. High tides and spring floods. It grows around Mobile but difficult to locate. I brought some in summer, 1936, to the nursery, but on trip had an accident which caused balls to break and the plants haven't recovered very well. I bought them from a man who owns sand hills filled with palmettos, *Osmanthus americanus*, *Rhododendron austrinum* also.

HUBERT F. FISHER

Southern Azaleas.

My information about *R. austrinum* is not so full as about *R. serrulatum*. When in Washington I used Wilson & Rehder's Monograph on Azaleas and Rhododendrons from the Congressional Library frequently — was unable to locate one to buy for my own. In it reference was made to *R. serrulatum* as native in Jackson Co., Miss. On next trip to Moss Point I walked through the neighboring woods and

found many, much to the surprise of owner, who had lived near there for twenty-five and more years. Later in the eastern part of Jackson Co. I saw the *R. austrinum* along creek or river banks or on nearby sand hills, growing with companions like *Ilex glabra*, *Ilex opaca*, *Ilex vomitoria*, *Osmanthus americanus* (Devil's wood), *Magnolia glauca*, when close to the stream, in full on the sand hills, sometimes flooded in springtime, palmettos, bayberry, great quantities, Carolina jessamine, callicarpas. Noticed the variations as to color, ranging in yellows like *R. calendulaceum*. It is easier to grow in this section than *R. calendulaceum* and a more satisfactory garden subject. It blooms at same time with the majority of azaleas, while *R. calendulaceum* blooms later.

On one visit to Moss Point, my sister directed us to a place known as Wilson Springs, 8 miles north of Moss Point, where there were plants of *R. nudiflorum* and *R. serrulatum*. In the thicket was a considerable sized tree of *Osmanthus americanus*, and one nearby had fallen, evidently storm damaged, and all limbs were well rooted in the sandy soil, many of which later grew well in my nursery.

HUBERT F. FISHER

Germantown, Tenn.

DR. CLEMENT G. BOWERS,

Chairman.

A Book or Two

The Gardener's Companion. By Miles Hadfield, E. A. Bunyard, Jason Hill, R. N. Giffard Woolley and Eric Fitch Daglish. Edited and Illustrated by Miles Hadfield. Dent, London, 1936, and E. P. Dutton, New York. 624 pages including index and 13 illustrations. \$2.00.

The subtitle of this very entertaining and instructive volume completely describes the book: *The Week-end Book of Garden History, Literature, Botany, Humours, Tasks and Enjoyments.* And not the least of these "enjoyments" are the many clever line drawings which are scattered through the text.

The book opens with *Gardens Past and Present*, a delightfully sparkling review of the changing fashions in gardening by Jason Hill, whose whimsical and beautifully written book *The Curious Gardener* completely charmed this reviewer several years ago. *Gardening for Epicures*, by E. A. Bunyard, takes us through the vegetable and fruit garden and tempts us with their offering. His witty sentences bear more repeating than the space allows. Speaking of strawberries, he comments. "The best-flavored varieties have, sad to say, gone into a decline. 'Virus,' says the physiologist; 'Phytophthora,' retorts the entomologist; 'Humus,' says the gardener. Petrol has ousted the horse and the strawberry has suffered."

The Gardener's Botany, a chapter contributed by E. F. Daglish, is plainly written and easily read; yet it gives a very comprehensive sketch of the many interesting botanical facts which a gardener should know. *Plant Parts*

are a series of very pleasing drawings which were done by the editor and is followed with a very complete glossary of botanical terms.

How Plants are Named, another contribution by the editor, is very pleasant reading and is followed by a short dictionary of specific names. This is followed by *The Gardener's Anthology*, some 103 pages of charming and clever extracts from literature which could easily provide a gardener with bedbook reading for several weeks and is one of the most pleasant sections of the book.

The Week-end Calendar by Giffard Woolley takes us through the year with sound advance and excellent instructions. Mr. Daglish's other contributions follow and tell about garden animals and birds and the good ones and the bad and how to encourage the good ones to make our garden a home or at least a stopping place for as long as possible.

In *Plants and Periods* the editor gives an instructive survey of the probable dates of introduction into European gardens of most of our commonly known garden plants and their countries of origin. He follows this with a very thorough Bibliography which will make all collectors of gardening literature begin to save their money.

Here the book ends, for the few pages list English Garden Societies which are beyond our interest. But with this exception here is a book to be read happily and cherished lovingly if one has a garden or is interested in gardening.

A. B.

Gardening. A Complete Guide to Garden Making. By Montague Free. Harcourt, Brace & Co., New York. 550 pages including index; 73 half-tone plates and 125 line drawings. \$3.50.

It is no exaggeration to report this as the best garden book ever published for American gardens. Its author, who is a Kew graduate with long enough experience in the Brooklyn Botanic Garden to be thoroughly familiar with American conditions, brings to us all the high traditions and plant knowledge of English gardening seasoned with and adapted to our climate and our needs. And because of his English tradition his book is and will be an incentive to finer gardening and a spur to our quest for newer plant material for many years to come.

It should be the first book added to or starting any garden library and might easily—together with Salisbury's *The Living Garden*—be all the reading material necessary for a thinking gardener until he arrives at the stage when he begins to specialize. For it comprises all branches of horticulture and fully lives up to its sub-title: *A Complete Guide to Garden Making*, as a glance down the list of the chapter headings will clearly show. Starting with *Selecting and Planning the Property*; *Grading*; *Walks*; *Soil Improvement*; *Manures and Fertilizers*; it continues the various departments of the garden: *The Lawn*; *Trees and Shrubs*; *Foundation Planting*; *Vines and their Supporting Structures*; *Hedges*; *Flower Beds and Borders*. It then deals with the different classes of plant material and takes up such special features as: *The Rose Garden*; *Rock and Wall Gardens*; *Gardens*; *Water Gardens*; *The City Garden*; *Roof Gardens*; *Window and*

Porch Boxes; *The Herb Garden*; *Vegetable Garden*; *Fruit Garden and Plants in the House*. Such accessories are treated as *Cold Frames and Hot Beds*; *Greenhouses*; *Plant Propagation*; *Pruning*; *Winter Protection*; *Garden Enemies*; *Tools and Labels* and ends with chapters on *Odds and Ends* and *The Gardener's Year—A Few Reminders*. Not the least of its good qualities is that although so thick a volume it is not a heavy book to hold.

Especially praiseworthy is the system of cross references used throughout the book when a subject is touched upon under a general heading and specially dealt with later on in a detailed manner. This saves the reader much time and makes the general instruction much clearer. The two "landscaped" plans on pages 14 and 15 should not have been included, for they both are wasteful of garden space and have too many features included in a small area. They defeat the clarity of the author's simple principles of garden design and are only too likely to be copied by mentally lazy gardeners.

Much excellent advice which will save the gardener time and money is given in the opening chapters; especially as to the saving of top soil when excavating for building operations, planting of banks, levelling areas, drainage and irrigation pipes and the actions of various manures and commercial fertilizers. The chapter dealing with these last two items is clearer and more concise than anything I have ever read on the subject. It is worth repeated rereading. This also applies to the chapter on lawns. In the chapter on trees and shrubs the advice given for their planting and transplanting is especially good as these operations are too often inadequately performed by the gardener who works in a hurry.

The lists of trees and shrubs, which are arranged in three groups according to foliage, are arranged in handy form; each genus being clearly but briefly described before listing the species and both the use and cultural requirement given. And lists are also given suggesting uses and adaptability to various situations.

The chapter on vines is broadened to include wall shrubs which are all too seldom used in American gardens. Also beside the cultural advice, suggestions and detailed instructions are given as to the construction of supports, arches, fences and pergolas; and various means of protecting the wood of the structures from decay are discussed.

A wealth of hedge material is suggested for American gardens in place of the ever present and always monotonous privet. The same careful handling as characterizes the chapter on shrubs is again given to suitable hedging plants; and in the following chapters to annuals, perennials and bulbs. In fact, as one reads on through the book one becomes more and more pleased by the excellent handling of plant material and the saneness of the suggestions given.

At the risk of making too long and tedious a review attention must be called to the excellent chapters upon Plant Propagation and upon Pruning. The line drawings are delightfully clear. The half-tone plates are splendid but to me are spoiled by being printed in the modern manner with no border of white to bring them into relief.

A. B.

The Present-day Rock Garden. By Sampson Clay. T. C. & E. C. Jack, Ltd., London. 681 pages and 56 plates mostly two pictures to the plate. 31½ shillings.

Being "A Complimentary Volume to Farrer's 'English Rock Garden'" it will be needed by every gardener who owns the two volumes of the earlier book for it treats of all the introductions which have been made since the former was written and corrects errors and wrong conclusions which occur in Farrer's volumes. Being uniform with Farrer in format one is not surprised to find quite a similarity in style; for Dr. Clay has, consciously or unconsciously, struck the key of Farrer's vividness and charm without giving one a sense of imitation. One criticism is that the author too frequently omits to state the color of the flower, a very serious omission in the description of an unknown species. The plates which are from photographs taken in the native homes of the plants are even more perfect than those in the two earlier volumes.

In the introduction a strong plea is made against the casual altering of plant names to suit the botanists' whims; a change which is too often so light and needless that it stands for only a few years but long enough to create confusion in catalogues and among gardeners. One can not endorse too heartily his suggestion that the botanists deal more gently with this shifting about of names for, "remember that a species is not an act of God, but a very human and fallible and impossibly simple answer to a very complicated set of questions; something that from its very nature can *never* be framed in an entirely satisfactory way."

His observations as to plants adaptability to environment are sound common sense. And the discussion regarding climate and soil, especially lime, is instructive and should be carefully thought over by every rock gardener.

Being a pedant, this reviewer cannot help but complain against the misspelling of *Crocus Tomasinianus*; the incorrect use of two *ms* is bad enough in catalogues but wholly inexcusable in a garden book. Nor can I agree with him regarding some of his valuations of plants and raise an indignant protest when he says, "*Narcissus moschatatus* is not as attractive as it should be; the perianth does not spread well, and the creamy white flower has a limp and hang-dog look. Pedantically this is now *N. aalpestris*." The correction of names by an expert through long and patient work is not the same type of name juggling against which he complains in the introduction and should not be called pedantry. If it is an attempt to be witty it certainly falls flat. As thousands of gardeners have loved the beauty of this flower without discovering it had a "hang-dog look" nor that it was "not as attractive as it should be"—whatever that may mean—and have forgiven its perianth for not spreading well because it twisted so charmingly, we must either conclude that we have had a false standard of flower-beauty or that he has. And if we decide in his favor we are besieged with the fear that all his descriptions are also biased.

However, we may be grateful for this volume which brings the dictionary of rock plants up to date presents to us so large a number newly introduced genera with complete descriptions.

A. B.

The Garden in Color. By Louise Beebe Wilder. The Macmillan Company, New York, 1937. 327 pages. Illustrated. \$7.50.

This is a difficult book to review since it is built about pictures. These

have been arranged in the familiar four divisions of the seasons and the text follows the same divisions with a short piece first to bow in the season and then notes for each color plate.

A book like this must be most difficult to write. The author is confronted with the same difficulties that a lecturer must face, the broken interest, changing with each subject, sometimes quick, sometimes flagging, with the flickering undercurrent of critical opinion. The lecturer's speech perishes in the air—the author's text remains.

Mrs. Wilder acquits herself with distinction as one expects. Her prose is always smooth and gently-tempered. Her dicta are quite humanly sound; her opinions, diverting; her questions, apt.

The illustrations are all taken from *Gartenschönheit*, the excellent German monthly which Camillo Schneider, Frank Foerster and their distinguished associates have filled with their genius. Some are exquisite, some merely pictorial, a few blatant, some quite inaccurate. For the most part they are as well printed as the German originals. The text is beautifully printed and the whole book beautifully put together. It was printed by the William Byrd Press, Inc., Richmond, Virginia. As far as has been discovered, there are no bows for the German horticulturists, photographers or engravers, which seems just a little sad.

Herbs and Herb Gardening. By Eleanour Sinclair Rhode. The Macmillan Company, New York, 1937. 206 pages. Illustrated. \$3.00.

The preface of this book begins—"Twenty years ago I wrote *A Garden of Herbs* and I have naturally no wish

to supplant a book that is still selling merrily. That book consists largely of recipes. In this book I have treated my subject chiefly with a view to the making of a herb garden and the use of herbs for decorative effect in the flower garden." This the author carries out.

Rosemary, lavender, sage, bergamot, thyme fill chapters with themselves; the balance are *pot-pourris*.

As always the text is charmingly written; the subject matter diversified with literary overtones and historical allusions. In this case it is adorned by pleasant drawings by Hilda Coley and even more exquisite ones by Gwendy Caroe.

House and Garden's Portfolio of Flower Prints. Twenty-five prints with introductory text by Richardson Wright. The Condé Nast Publications, Inc., New York, 1937. \$5.00.

These prints are diverse in subject matter and in technique. One enjoys them not for botany or horticulture, though these are recorded, so much as for the record of the several artists, their engravers and their printers. Mr. Wright's texts amplify these historical and personal aspects so that the reviewer, for one, would rather bind his portfolio than disperse it as framed pictures from another day and age.

The Gardener's Pocketbook

Winter Flowers

Everyone forces Forsythis, this is not said for the alliterative phrase, it is quite the truth, and some bold spirits have tried almost everything if their houses are large enough, and if they have large cold rooms at their disposal—for at best it is a very messy proceeding, this bringing of twigs of this and branches of that into the house in winter weather and then into flower. Sometimes a dark cool cellar is necessary and this is hard to find in the new and bright oil-heated homes of the present day. Though not at all difficult to get in our old-fashioned country in Chester County, Pa.

Of all the leafless branches that so wonderfully turn "bare winter into spring" the most pleasing is *Cornus Mas*, that very early tiny yellow flowered dogwood that looks quite unlike the white dogwood of May. One of the attractions in forcing *Cornus Mas* is its swiftness. One does not have to put it in dark cellar or cool room. Just bring it in, place the gracefully formed twigs in a Chinese vase of that strange greenish yellow, or in some silvery bronze jar, or in anything you like and in three days at most the little brownish balls of buds will burst into a small tassel of yellow. On examination this will be found to be a cluster of tiny flowers complete with pistil and stamens. Soon, too soon the pollen will drop, but the branches will remain attractive for a week at least and this is as much as forsythis will do.

Cornus Mas is usually seen as a small shrub, with many branches, but it can be trimmed to tree form. We

have a very old tree of it, planted by my grandfather on the northwest side of the old two-storied Spring House. For years it was never noticed much by me as we were never here in the early part of the season. By some chance a small shrub was planted at the south side of a cottage we built for our old German gardener. One year this bore to our surprise a number of small scarlet plum-like fruits, and Rudolph and his family made jams of them. After that I began to notice the little shrub by then it was a smallish tree and in spring we found it bore the same tiny bright yellow flowers that the big tree by the Spring House had. Some one said it was Leatherwood *Dirca palustris*, but finally, it was identified as *Cornus Mas*.

Its delightful trait of swift blooming indoors, was not discovered until years later. It then became much in demand for winter Flower Shows as it lends itself to decoration so beautifully.

The older tree by the Spring House has never borne fruits, it is evidently in too exposed a position, as the other to the south of the Cottage continues to bear each year.

F. E. McILVAINE.

Glen Isle Farm,
Downingtown, Pa.

Phymosia (Sphaeralcea) remota

As an addition to your plantings of *Liatriis*, *Tradescantias*, and *Artemesias*, sun-loving habitants of the prairies of mid-western North America, let me recommend *Phymosia remota*. Its good foliage in the maple-leaf pattern of the Malvaceae family, will be welcome in that group. Growing

to a height of six feet, it will have its place as a background. Its blooming season is late July and August. The flowers are apple blossom pink fading to white at the centre, not as large or as good substance as *Lavatera thuringiaca*, for instance, but numerous enough on the long spikes to make a good show.

Since its discovery in 1872, *Phymosia remota* was until 1927 known only from gravelly island in the Kankakee River in Illinois. The plants have since disappeared from this island station; but excellent conservation work has been done and plantings of *Phymosia* were well established in Wisconsin gardens and elsewhere, previous to the announcement recently of the discovery of a new station. In 1927 a West Virginia University botanical expedition found a colony of about fifty plants on Peters Mountain in West Virginia. In the new station it grows on sandstone in soil filled pockets where the water drains readily from the loose soil, and the moisture supply is moderate. As a result of a study engendered by this latter discovery it was found necessary to change the generic name from *Sphaeralcea*, as in Gray's Manual, to *Phymosia*.

It may be that *Phymosia remota* is not properly a prairie plant, but its garden culture should be the same as for that group. An exposed, sunny position will suit it best. Despite its extremely limited appearance as a wild plant, it has been a rampant grower in some gardens, spreading by underground stems; but in a heavy soil its spread is moderate. Seed germination is somewhat erratic; the outer coat of the seed is corky and resistant to water, even steam, as is true of other Malvaceae.

BERNARD HARKNESS.

Baraboo, Wis.



Page Studios

Caladium argyrites

Caladium argyrites

This is a dwarf species of fancy leaved caladium which was a popular greenhouse and florists plant many years ago but which has become rather scarce in the American plant world. It is very well worth growing and is obtainable in Holland in quantity abroad, besides occasionally from the specialty dealers in this country.

The tubers are rather more delicate than those of the larger hybrid varieties of fancy leaved caladiums. They require more careful storing in the winter to keep them over during the (more or less) dormancy period.

The plant in the picture is a small one, but shows the character of the foliage, which is a silvery white blotching on green background. On older plants there is a great profusion of the leaves and a mature plant may completely hide the top of the pot.



Ruth Tenny Colby

[See page 76]

Cornus Mas



Ruth Tenny Colby

Cornus Mas—fully opened

The specimen illustrated is in a four-inch pot, and the leaves are up to four inches long, on petioles of about the same length. The plant's general appearance is so attractive that it never fails to draw attention of visitors in a collection of the better things.

Good drainage is essential for the tubers. They should be potted up early in spring, and a light, but rich and friable compost is suitable. Water should be given sparingly until the plants are well established. The writer grows them in the open ground in Florida, as well as in pots, on rich lake-side soil, in nearly full sun. They multiply rapidly under good culture. However, the tubers remain quite small, never getting much larger than one inch diameter and usually about one-half inch across.

Their delicate constitution probably accounts for their decline in favor or in trade popularity at least, in this country. Still, if handled with the care they deserve, they will amply reward the home garden lover. They are not recommended for outdoors in the north.

WYNDHAM HAYWARD.

Winter Park, Florida, U.S.A.

Achimenes "Purity"

The achimenes form one of the most attractive summer-flowering pot plant subjects, performing for the ordinary gardener with ease in most cases and rewarding their faithful devotee with a number of blossoms quite amazing for the small size of the plants.

The variety illustrated is probably the most beautiful, "Purity," being snow white and of crystalline charm and wonderful decorative value. Most of the common varieties of achimenes are purple or of varying purplish



Leon A. Page

Achimenes "Purity"

shades, although in Europe there are many other different hues offered, including pink and rose.

The plants may be grown from seed, which is quite a task, like raising gloxinias or tuberous-rooted begonias from seed. They are best grown from little tubercles, which may be obtained in the late winter and spring from the better dealers. These should be potted up in a sandy leaf mold compost, with precautions for adequate drainage. A little well-rotted manure in the potting mixture gives good results.

In Florida the writer grows the plants in the open air under trees, but in pots, although in parts of the lower South the purple achimenes have become almost naturalized in old gardens and front yards. The neighbors trade the "little potatoes" among themselves and in a few years a community is



[See page 82]

Fatshedera Lizei

full of achimenes once they are established.

They may be planted in April or May, and will bloom in six to eight weeks. The flowering season is at its best for two or three weeks in mid-summer, but the plants will remain decorative in some cases even until October, in the writer's experience. Late in October it is the practice to remove the pots to a shed or garage and dry them off. The tubercles remain in the pots undisturbed until spring, with good results, when the cycle is repeated. The little tubercles are produced freely on the roots in good seasons.

WYNDHAM HAYWARD.

Winter Park, Florida, U.S.A.

Fatshedera

The delightful little ivylike plant *fatshedera* (pronounced fats-hed'er-a), shown on the opposite page, furnishes a rather striking example of dwarfing by cultural treatment. It had been growing in this three and one-half inch glazed pot (with drainage) on a window sill shaded nearly all day, for about two years, and only two or three of the lower leaves were shed in that time. Four or five new leaves were added during this period and the increase in height was between two and three inches.

Fatshedera is an immigrant from France, having been originally introduced in 1926 by the Division of Plant Exploration and Introduction, Bureau of Plant Industry. It bears the scientific name *Fatshedera Lizei*. The plant is supposed to be an intergeneric hybrid, between *Fatsia japonica* var. *Moseri*, a Japanese shrub (pistillate parent), and *Hedera helix hibernica*, a large-leaved Irish variety of the English ivy. In any event, it is reported (under the name *Aralia* (?)

Lizei)¹ to have resulted from the sowing of seeds which followed an attempt (in 1910) at artificial crossing as just indicated.

The generic name *Fatshedera*, it will be observed, is also of hybrid origin, being formed from the first syllable of the name *Fatsia* and the entire name *Hedera*. The plant was formally described and named in 1923 by the French botanist M. A. Guillaumin.² He gave the specific name *Lizei* in honor of the Lize' brothers, horticulturists of Nantes, who first exhibited the new hybrid in 1912 at the Horticultural Exposition of Nantes, at which it was awarded a Grand Silver-gilt medal.

Fatshedera, like its female parent, *Fatsia*, is erect in habit but with a slender stem, so that when it grows tall it needs support. On the other hand, as M. Guillaumin observed, the general appearance and the arrangement of the leaves are much the same as in *Hedera*, the pollen parent. That author and other investigators also found in their examination of the plant, including the flowers, that in other characters—both of form and of tissue structure—there were marked similarities between it and one or the other of the supposed parents, as well as characters distinctly intermediate between the two. The flowering of *fatshedera* has recently been reported from Southern California, and the observations of the grower confirm those on the much earlier flowering in France,—that the flowers are imperfect, the stamens being entirely without anthers and reduced to staminodes. M. Guillaumin found that the pistil was fully developed, in part resembling *Fatsia* and in part *Hedera*. The facts that have been briefly recounted

¹Revue Horticole, nouv. ser. 12: 567-569, 1912.

²Journ. Soc. Nat. d'Hort. de France, 4th ser. 24: 522-525, Dec., 1923.

here are construed to furnish fairly conclusive evidence that *F. Lizei* is a true generic hybrid. Seed can not develop, of course, except possibly as a result of pollination by a plant of some related species.

One of the anatomical feature of the fatshedera stem has an important bearing on the mode of propagation by cuttings. M. Guillaumin noted that the cells of the central part of the stem are pith cells as in the ivy, instead of wood cells as in *Fatsia*. In experimenting to discover a successful method of rooting fatshedera cuttings, Mr. A. W. Close, of the Division of Plant Exploration and Introduction, found that they almost always decayed before rooting until he began to make the basal cut through a node, where there was woody tissue clear through. The top cut of the cutting is best made a half inch or more above the next node above the base, and of course, the leaf at that node left attached. Mr. Close also found that autumn is the proper season in which to root the cuttings. A closed propagating case is used, with the air temperature at about 60 degrees Fahrenheit and a little bottom heat—not more than 8 or 10 degrees higher. The cuttings should strike root rather quickly, or they are likely to decay downward from the tip. When the growth which follows rooting is well under way, the stub above the upper node of the cutting is cut back to the node.

Since *Fatshedera* is neither a true shrub nor a vine, its exact place in outdoor culture is yet to be determined. It appears to be one of those subjects that will require somewhat frequent pruning or special training to give it desirable form. Its special usefulness may prove to be as a dwarf house plant, in which role it is illustrated here. On a few occa-

sions this pot-grown plant has suffered accidental "drought" to a point at which the foliage drooped forlornly but, upon watering, the leaves all quickly recovered their accustomed healthy, happy appearance. Grown in the open, *fatshedera* is fairly hardy, though its minimum temperature endurance is still in doubt. When protected by snow it has survived air temperatures down to zero or a little lower.

ROBERT A. YOUNG.

Washington, D. C.

Two Tropical Crinums

Crinum giganteum Andrews.—Such large, graceful flowers of pure satiny-white as those produced by *Crinum giganteum* are sure to attract attention no matter where or when they are shown. And, as if beauty of form alone were not enough, it includes among its charms an abundant vanilla-like fragrance. Although not as well known in America, perhaps, as some other *Crinums*, it has been known to botanists and horticulturists for a long time, having been introduced into cultivation in England about 1780. Its native home is tropical Africa, but it has been reported as an escape in the West Indies, and is grown out of doors in northern South America. An excellent illustration occurred in Curtis' *Botanical Magazine* t. 5205 (1860).

In the past it has gone by several names. Dean Herbert, taking exception to the specific name *giganteum* because, among *crinums*, it is not gigantic, called it *Crinum petiolatum* variety *spectabile*. Welwitsch, on account of its fragrance, called it *C. vanillodorum*. According to J. G. Baker in the "Handbook of the Amaryllideae," this species has also been called *Amaryllis gigantea* Ait., *A. latifolia* Lam., *A. ornata* Gawl.,



Lilian A. Guernsey

Crinum giganteum



Lilian A. Guernsey

Crinum podophyllum

and *A. candida* Traut. Strangely enough, it is classed in the subgenus *Codonocrinum* which includes those species with funnel-shaped perianths and declinate stamens.

The illustration, about three-fourths natural size, shows the flower characters quite well, and little else about them needs to be added. Before opening, the buds resemble white Chinese lanterns with yellowish-green ribs formed by the midveins of the segments. In the open flower, all parts are pure white except the anthers which are yellowish drab, and the tips of the segments, which may be green to brownish black. As the flower gets older, the segments become outlined in brownish black, making the white of the flowers appear even purer by contrast. The slender perianth tube, over six inches long and greenish yellow in color, curves gracefully near the apex so that the open limb of the flower is vertical.

The umbels of from five to eight or, rarely, up to twelve flowers, are on somewhat compressed peduncles from 18 to 24 inches high. Normally, the flowers come in the late summer; ordinarily not more than two or three flowers are open at one time.

The bulb is short necked, and eventually five to six inches in diameter. It is clothed in dry, papery, brown remnants of the old leaf bases. From 12 to 20 thin, strap-shaped, petiolate, acute leaves are always present. They are up to 30 inches long, and about three inches wide at the middle, tapering to both ends. They are ascending in habit, with conspicuously undulating margins, deep green in color, with a suggestion of blue. In its foliage, it excels most of its genus, presenting an attractive appearance throughout the year. As mentioned above, it is not gigantic in any sense, although, as a crinum, the

flowers are large.

The cultural requirements of this plant are simple. In all but the warmest parts of the country, it must be kept indoors during the winter in a medium temperature. As it is evergreen, it has no true resting period, but during the winter it may be kept a little towards the dry side. It is said that it produces six to eight umbels a year if it is planted out of doors in the summer. In pot culture, the bulbs are only half submerged in a good potting soil containing plenty of humus.

In frost-free sections, or in gardens protected from frost, it forms large handsome clumps with many flowers in a season. In those areas, it prefers a rather moist soil.

New plants may be had from offsets, which are freely produced in the open, and sparingly in pots, or from seeds. Several years are required for the latter to attain flowering size.

Unfortunately, as a pot subject, it must be charged with two faults, which, however, are common to all crinums. The flowers are rare, seldom more than one umbel a year to the bulb. Even more grievous, the flowers last but two to four days. But, to the flower lover, those few days are pleasant days indeed.

Crinum podophyllum Baker.—When the flowers of this beautiful crinum first opened on November 1, its affinity to *Crinum giganteum*, already suspected was confirmed. The species was described in Curtis' *Botanical Magazine*, t. 6483, in 180, from the first flowers of a bulb sent to Kew Gardens by Rev. Hugh Goldie from its native home in old Calabar, Upper Guinea. It has been suggested that it is only a form of the older species, *C. giganteum*, described above, but it seems to deserve specific rank.

Essentially, *Crinum podophyllum* is a small replica of *C. giganteum*. To supplement the illustration, it is only necessary to describe how it differs from the latter. The flowers, which come in late fall, have narrower perianth segments, and are, if anything, more graceful. The peduncle is much shorter and seldom bears more than four flowers. The leaves are somewhat shorter and droop slightly from a horizontal position, giving the plant a characteristic flat-topped appearance. In all other respects, they are like those of *C. giganteum*. The bulbs of the two species are very similar in character, though those of the present species have, perhaps, lighter-colored leaf-base fragments.

In cultural requirements, there is no difference between the species. It is said, however, that *C. podophyllum* does not flower as freely out of doors as does *C. giganteum*.

CLAUDE HOPE,

Division of Plant Exploration and Introduction, U. S. D. A.
Washington, D. C.

White Forms of Native Flowers

I am much interested in communicating with members who may have found white forms of native plants. Many are already represented in the collection here, Garden in the Woods, South Sudbury, but one never knows when others may appear.

WILL C. CURTIS.

South Sudbury, Mass.

Conference on Flowering Trees and Shrubs

The Secretary of the Royal Horticultural Society invites members of The American Horticultural Society to attend this conference which will be held in London, April 26, 27 and 28. The program includes:

Introductory Address, Lord Aberconway.

Arrangement of Flowering Trees and Shrubs, including their Use on Wall, Rock Gardens, etc., Mr. R. W. Wallace, Dr. F. Stoker.

Cherries, Crabs and Their Allies, Mr. Collingwood Ingram.

Brooms and the Cistus Family, Mr. J. Comber.

Cotoneaster, Viburnums and Berberis, Mr. Lionel de Rothschild.

Lilacs, Philadelphus, Deutzias, Weigelias, Hibiscus and Escalantias, Mr. Harold Hillier.

Flowering Trees and Shrubs for Various Climates, Major F. C. Stern.

Propagation, Mr. F. P. Knight.

Pruning, Mr. W. Dallimore.

Other Families of Flowering Trees and Shrubs, Mr. J. W. Besant.

Magnolias and Camellias, Lord Aberconway.

There are additional papers that will be published but not read at the Conference.

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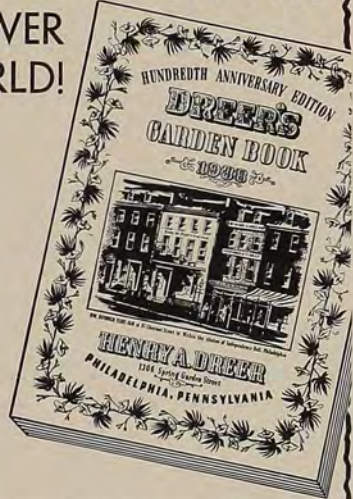
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Through an endowment given as a memorial to the late Bertrand H. Farr the American Iris Society is able to offer free to all Garden Clubs or Horticultural Societies the use of our traveling library. This library contains all books ever published on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

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