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THE AMERICAN HORTICULTURAL SOCIETY

The National Horticultural Magazine

B. Y. MORRISON, *Editor*

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Contributing Editors

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It is one of the debatable customs of the New Year to announce more or less publicly one's intended resolves for the season, a custom that extends far beyond the confines of personal boasting! In bringing you the first issue of the year, it is safe to predict that there will be even better material for your delectation than you found in the year just passed. You will discover also, the first efforts to develop more fully the idea of a long treatment of the plants of a single genus which was foreshadowed in the *calochortus* series of last year. The acacia article of this issue is the first example. In bringing you these longer articles, it is realized that it will be impossible to offer many other topics in the same issue but this does not mean that the issue of general interest will be neglected and if it is possible to expand the number of issues, from four to six in this season, it may be possible to devote the two extra issues, to special subjects and keep the quarterly as it is. Your opinions in this will be of interest, and in all the undertakings of the Society, your constant interest and cooperation is invited.

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Acacias in California

BY KATHERINE D. JONES

Acacias are plants of the open spaces, desert lands and rocky hills or understories to huge eucalyptus trees in the forests.

Although acacias are found in about forty different countries of the globe we associate them mostly with Australia on account of their numerous and beautiful varieties which were early introduced into Europe and figured in colors in the horticultural magazines over a century ago and also from the interest and persistence of the early botanists, who risked their lives in gathering herbarium specimens in the trackless wilds of that country.

They are fast growing, drought tolerant, hardy, short-lived, indifferent to the kind of soil and adaptable to changes of climate. They can live where the rainfall is less than ten inches a year or even where it is two hundred inches, but it has taken thousands of years with many failures and hard struggles to attain to this degree of adaptability. Some of them have attained—not all, but like that wonderful race of men from Palestine they have grown in many directions from their trials and sufferings until now they are able to live in all parts of Australia, in heat or cold, wet or dry, or in any kind of soil. Not all have had the same experience and not all can adapt themselves to the same trying conditions in which man forces them to live, but some of them can and for that reason such are particularly useful for small home grounds that must be neglected, or for large estates where they give a glorious color for months at a time in spots far removed from the hose and where they get absolutely no care.

Another case of their adaptability is mentioned in the Gardener's Chronicle of England regarding *Acacia decurrens dealbata*. This species blooms in June in Australia but when introduced into the Nilgiris, India, it bloomed in October for ten years then one month earlier every ten years until finally it bloomed in June as they originally did in their native home. This is all very interesting but such has not been the experience on the campus of the University of California, Berkeley. Here for the last thirty years they have varied only a week or two from year to year in their blooming period but that variation may be backward in date as well as forward.

Acacias are supposed to have originated on the oldest land on the continent, which is in Western Australia, and to have spread from there into every state in Australia. This early land had been a plateau 1,500 feet high with an amazing number of kinds of soils and was often subject to severe droughts. At first the acacias were all of the feathery type, with compound leaves made up of a petiole, pinnae and various leaflets, but as the country gradually became dryer and dryer this style of a leaf was not suited to the new climate and they had to develop phyllodia, an entirely new type of leaf, in order to live at all. This development was the gradual elimination of the blade of the leaf and the expansion of the petiole into a flat leaf-like structure that took on the form and function of a true leaf and hung down vertically like the eucalyptus leaf in order not to receive the full force of the sun. This reduction of leaflets and the widening of

the petiole may be readily followed in the illustration of *Acacia melanoxylon* (page 27).

Acacias are called Wattles by Australians not only because of their willow-like habit but also because in early days acacia branches were used as hurdles to bind together or strengthen the supports of the huts, which were plastered with mud.

How many acacias are there in the world, is often asked. Several hundred at least. E. H. Wilson claimed that there were six hundred known to grow wild in America, Africa, South Asia, Polynesia and Australia. As yet it is really impossible to tell since many of those old acacia names must now be classed as synonyms as their determination had been made on insufficient material, most frequently without pods. To name a new species of acacia one must have foliage, flowers, pods and seeds with the funicle, or seed stalk, in place.

Australia alone has about three hundred species, twenty-five or thirty of which belong to the bipinnate or feathery type and about two hundred and seventy to the phyllodine type, which is the one that has changed its leafblades and greatly enlarged its petiole.

Marvels have been done in the development of acacia flowers in size, time of bloom and length of bloom. Here again cultivation has largely changed their habits in this regard. They have flowers that are a burst of sunshine for only a short time during the year; they have those that make a second and even a third season of bloom in one year and finally there are those that are ever-blooming.

Then the plants have developed an amazing number of forms of both flowers and leaves. The individual flowers are very small but in nu-

merous clusters, which Mr. Wollaston in his "Our Wattles" calls "softly appealing and smilingly responsive." Travelers who visit the "scrub" of Australia, or a mixed plantation in cultivation elsewhere, are astonished at the varying shapes, sizes and colors of the leaves and their disposition on the branches. When many are in bloom, say in March or April, a great interest is created by observing the manner in which the flowers are cunningly interwoven among the different leaves. The flowers are mostly orange or yellow and belong to two general types, those collected in spikes and those that are clustered into heads.

Do you know why we should be especially interested in acacias? Not so much for their floral beauty, their shape and color and adaptability, as for the assistance they have given mankind to climb to a higher plane in his development. Take the Bushman of Australia for instance; he would not have been able to live at all had it not been for acacias; he built his shelter from acacia boughs; his canoe was hollowed out of a shallow acacia log from which he fished, or he caught his fish by throwing the boughs of *Acacia penninervis* into the water to stupefy them. He ate the gum of various acacias and the seed of *Acacia longifolia sophorae* after he had roasted them. He used them as medicine. He made acacia gum his only diet in summer. In time of war, or, neighborly quarrels, our little black brother had to face the constant threat of having his acacia trees destroyed by fire, which would mean slow death by starvation. Thus the native black lived from hand to mouth, for there was always the danger of having his food supply cut off by insect pests or by unfavorable weather conditions, even if his human enemies could be pacified.



All photographs by William C. Matthews

[See pages 6 and 40]

Acacia alata (left)
Acacia stenoptera (right)

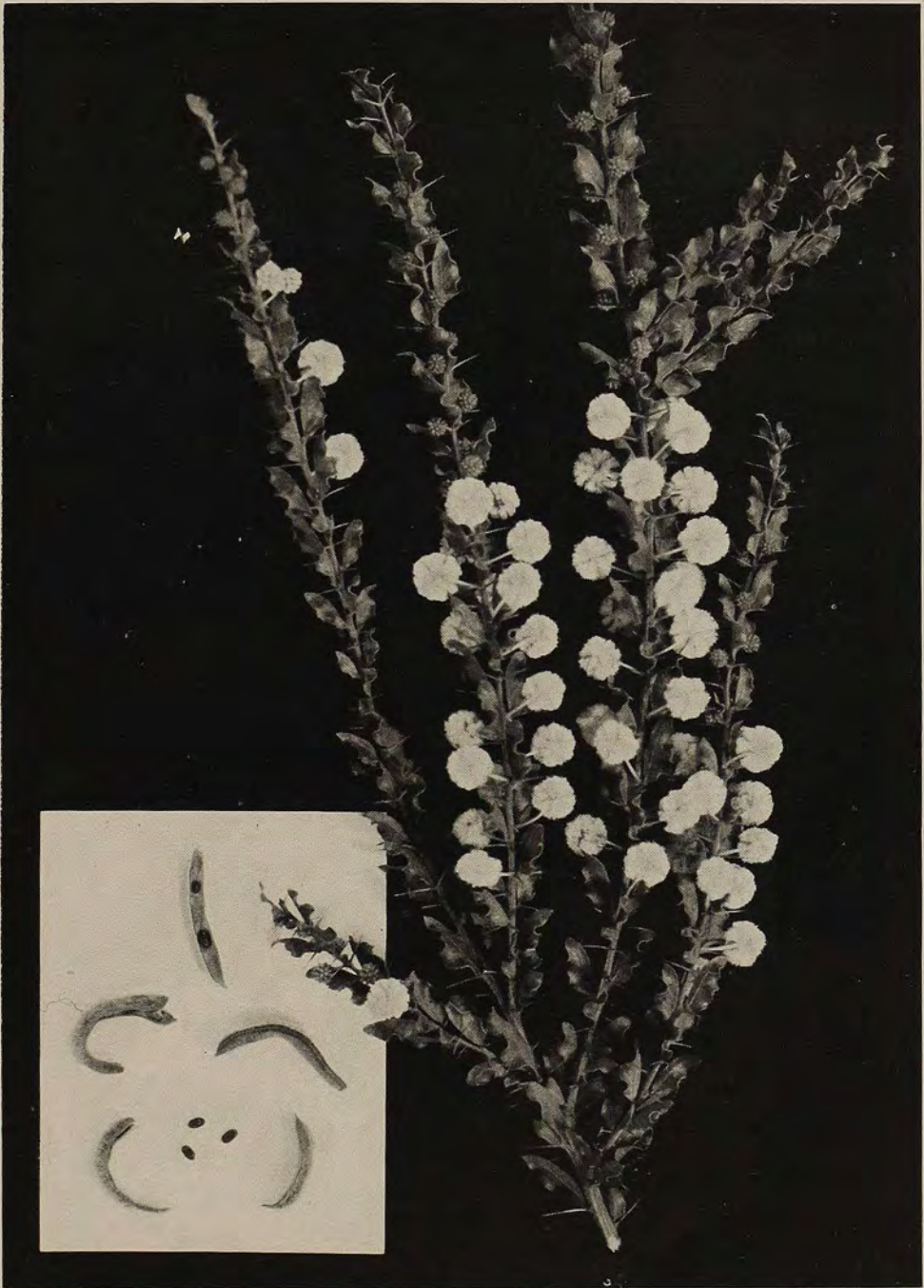
Believe it or not, but much that is best in the civilization of modern man is due to acacias. We find this group of plants highly important to our early ancestors of the grass lands after he had turned his attention to domestic animals—his sheep and goats. In times of drought he was able to keep his animals alive by means of *Acacia seyal*, a tree common in Egypt and western Asia. Even today travelers have come across little shepherd boys who run to these acacia trees, quickly followed by their sheep that stand there patiently while he grasps a long crooked stick and shakes the tree vigorously. When no more leaves fall he knocks them off with his shepherd's crook and the sheep greedily eat them. No chance to go to school have these little lads and yet some of our most beautiful psalms were composed by men who had been shepherds herding their sheep and with ample time to reflect and to feel the power of nature about them. David had had this training before he began to compose his masterpieces. So had Abraham, Isaac and Jacob before him. Can you deny that the makers of the Psalms and the Song of Songs and Job have not profoundly influenced the moral tone of the modern world; and do you not see that it was the acacia leaves that kept their little flocks and the sweet singers alive?

HOW ACACIAS AID AUSTRALIANS AND MODERN MAN

We must now return to Australia where we had left the Bushman struggling with the hard conditions of life. Then entered the white man, who with centuries of struggle with the elements and later with the Mongolian hordes had developed a keener mind and a far higher civilization than that evolved by the acacia-feeding

people. They gazed upon the strange plants and animals with astonishment, utterly unable to know what use they might be to him. These white men boldly wandered into the desert region where the watchful Wait-a-bit (*Acacia colletioides*) or the Dead Finish (*Acacia tetragonophylla*) seized upon them and held them captive and struggle as they might they were completely exhausted before they managed to break through—if they ever did. Sometimes in their desperation they tried to walk boldly over the tops of the intertwined branches of acacias only to fall through into a worse predicament. But they gradually learned from their experience and soon saw that the best wheat land was to be had where the Raspberry Jam Tree (*Acacia acuminata*) was to be found. They learned to use *Acacia longifolia sophorae* as sand stays to keep the sand from drifting over their land. In drought years they fed acacia leaves to their sheep and cattle to keep them from starving. Many varieties were used for timber, cabinet work, furniture, fence posts, fibre, fuel, oil, gum arabic, dyes, medicine, perfume, scented wood, soap or hair wash and many ornamental uses, as street trees, shrubbery masses, tub plants, shelter belts specimens and many other uses.

Acacias are of all sizes from a shrublet a few feet tall up to trees nearly a hundred feet. You can therefore always find one of them that exactly fits your garden need. You can have all shades of green or gray or purple in their leaves. You can have some acacias in bloom any month in the year and that is promising more than you can get from your own native California plants. In spite of all this, I do not see that the acacias are as beloved in California as they are in Australia for this Golden State



Matthews

Acacia armata

[See page 6]

has ample yellow plants of its own, such as the fremontias, the bush poppy and the California poppy to vie with the acacias in color to say nothing of their white and yellow Matilija poppies, their blue ceanothus and the charming bells of their manzanitas and madrones. Still, in spite of all of these competing treasures I must say that in early spring acacias are an unfailing source of interest on account of their light and airy grace, their amazing patterns and combinations of flowers and foliage and their sudden response to the change from winter to spring. They fare well in California in spite of having come from another hemisphere.

Acacia alata.

This and *Acacia stenoptera* are photographed on the same plate for purposes of comparison as they greatly resemble each other. Both have slender stems with flat wings on either side with free parts, or phyllodia, which in *A. stenoptera* (at right) are almost scythe-shaped and end in a sharp point, while in *alata* (at left) appear to be cut off squarely as if clipped by scissors. The stem side of this square cut bears a gland and the other side ends in a minute point. When in full bloom with myriads of flat branches from every node and golden balls from every phyllodium, they are objects of great interest not only for their oddity but also for their color effect.

A. alata begins flowering when only one foot high and blooms many months, preferably from fall into the winter. Its flowers are large, golden yellow and bloom on the new wood. Since new branches may grow at every node it becomes more and more dense as it grows older until it is unusually compact in habit. It is said to grow 5 or 6 feet in height in Australia,

where a friend saw it growing near Perth in bone-dry soil. That sounds as though it is absolutely drought tolerant, but in several instances I have seen it here in California with parts of the plant brown as though touched either by frost or by a too hot sun. It seems to do well either in a sandy or an adobe soil.

It used as a pot plant in England where it is said that none surpass it in rich golden color or in profusion of bloom. It blooms several times a year. This might be a suggestion for Californians to try it out as a pot plant for winter bloom.

Acacia armata, Kangaroo Thorn.

This was early introduced into English gardens as a cultivated ornamental and has since then had time to change into various forms, the despair of the landscape gardeners as well as of the nurserymen. Indeed it varied in Australia in their different soils before it reached us. In New South Wales it is in the interior as well as on the Blue Mountains; in Victoria it grows on barren ridges and near rivers; in South Australia it is near the gulf; in Western Australia it is in the well-watered southwestern part with its varying soils. Maiden says "It grows around swamps, creeks and along the seashore and seldom occurs further than a mile from shore, usually in dense almost impenetrable masses." In fact it is a pest in Victoria and farmers are obliged to dig it up and destroy roots and all, and this before it flowers. It will probably never be a menace here in California for though it sometimes resows itself, the seedlings can seldom live through our rainless summers.

As to landscape use, it grows tall rather slowly but eventually reaches 25 feet unless clipped, as is frequently done to keep it within bounds for small



Matthews

Acacia calamifolia

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home grounds or to make a formal hedge, especially in parks where they desire to keep the public from cutting across, as at Balboa Terraces in San Francisco where it stands the full sweep of the wind and forms a good screen between the railway station and the rest of the tract. So far it is a perfect barrier and is neat and satisfactory. It is said to be used as a pot plant in the eastern United States, and recommended there as a house plant.

We have at least four types in California but some of them appear to be due to the amount of water and care that is given them. We have the medium sized leaves and flowers, then one with greater vigor, larger in all its parts; another smaller in all its parts and "*paradoxa*" (var. *angustifolia* of Bentham).

Acacia calamifolia, Broom Wattle.

This is a shrub for the small home grounds and when allowed to stand out boldly between two other shrubs that flank it on either side it is like a golden sheet of sunshine for many weeks. It is an early blooming species and continues to bloom for a surprisingly long time. Its foliage is dainty, about as wide as two pins placed side by side and, in our specimen, not very much longer. When the shrub is in bloom these leaves are scarcely noticed, nor do they dull the glory of the golden flowers that stand in the axils of the leaves. The flower-heads were formerly in pairs but now, as the bush is getting old and neglected, it bears only one flower-head to each leaf axil. It fruits quite heavily,—narrow pods three to four inches long, that are rather interesting after the flowers have gone.

Although considered so attractive this species seems rare in California gardens where it ought to be a general

favorite on account of its early and long blooming period. If it eventually becomes rather tall it can be replaced by seedlings, easily grown, which are ready to be set out in a year or two.

The one specimen remaining on the University of California grounds is now thirty-one years old and has bloomed faithfully all these years in spite of neglect, as it is growing on an embankment among a mixed lot of shrubbery that is never irrigated. Said to grow on table lands and to the interior of New South Wales.

Acacia cultriformis, Knife Acacia.

This is a general favorite in California as it is fast growing, carries a mass of bloom early in the season (February and March), has conspicuous gray foliage, yellow stems, and deep orange balls. In its proper setting it makes an accent plant. Superficially it resembles *Acacia pravissima* but it is a shrub for small home grounds while the latter is a tree especially suited for parks and large estates. It is said to live only four or five years and then deteriorates rapidly, but on the poor soil of Balboa Park in San Diego it will live to ten years. In New South Wales, Australia, where it is a native, it grows on rocky ridges and bushy forest ground. We may not be giving the right care or it might be induced to live longer with us. J. H. Maiden of Australia said "Exotics are grown in our gardens that have not one-tenth the beauty of this species." Perhaps he is right for the golden masses of color against a pleasing background is most effective.

Acacia cyclops, Cyclops Acacia.

The most striking things about this species are the seed pods with the red arils twice encircling each black seed. This acacia is quick growing and for the first few years is trim and formal looking. It blooms several



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Acacia cultriformis

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times a year but its flowers are few and far apart either on single stalks or in a *seeming* short raceme of two or three heads in the same axis. These flowers, however, are of no real ornamental value as they never make any particular color or appeal. Its best use seems to be as cut flower greenery for the fresh young pods with the black eye and red aril encircling it seems to appeal to house decorators. As a whole, however, it is a disappointing acacia as it is only good for temporary effects. In South Africa they use it for fixing drifting coast sand but at Golden Gate Park it was found less effective than *A. longifolia* which is deeper rooted and will grow under more adverse conditions.

Cyclops Acacia is short-lived in California for its original home is from the southwestern corner of Western Australia where they have abundant rain from the return trade winds and the roots have not been accustomed to dig deep into the ground as our native California ones do, but spread along the surface of the ground and become quite shallow-rooted. Thus in winter when the rains soften the grounds at their feet they fall of their own weight, always falling toward the sun, which they have sought.

Acacia decurrens dealbata. Silver Wattle.

Like an eastern spring where there is a sudden burst of green leaves and color, California has its counterpart in this tree which in February or March is transformed almost overnight into a burst of golden bloom from top to bottom—a glorious sight.

The Silver Wattle has been planted quite generally throughout the state and is a favorite tree of some size. It is unreliable as to color of leaves, some being quite green while others are of a deep gray. Besides that there

should be an intermediate color. This has led to some confusion between this species and the Black Wattle (*A. d. mollis*) but the Silver Wattle has orange flowers and blooms early, from January or February to March, while the Black Wattle has cream-yellow flowers that bloom normally in June.

Silver Wattles are largely cultivated in France and sent to England as cut flowers. They cut the flowering branches while still in bud, place them in jars of water in a dark room and expose them to a temperature of 84 to 86° F. We seldom use them as cut flowers in California, possibly because they only last one day and again the heavy perfume is objectionable to many people. Even if they do last but a day in their fresh charm they dry out fairly well in the house and the flowers are so abundant that they give a strong color note for four or five days afterwards.

This is the species that when planted in India was observed to flower in October and then every ten years it bloomed one month earlier until finally it bloomed in June as it does in its native country in Eastern Australia. Such has not been the experience in California where the blooming period varies between January and February, depending upon the season. This has been observed here at the State University for thirty years.

While this species appears to be drought tolerant it is really water demanding and its roots will creep for 50 feet in search of drain pipes which it effectively fills with its roots that absorb every drop of water. For this reason it is not a favorite street tree. We should realize that it must have water as in Victoria and New South Wales it is found mostly on river banks and also grows in hilly country.



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Acacia cyclops

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Acacia decurrens dealbata

[See page 10]



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Acacia decurrens mollis

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Acacia decurrens mollis, Black Wattle.

This is still sold by some nurserymen as *Acacia mollissima* which was the name given to it by the German Karl Ludwig Willdenow, 1765-1812. But this name was regarded by Bentham as a synonym of *A. decurrens mollis*. There is still a great deal of confusion between the different forms of *Acacia decurrens* as grown in California, doubtless due to hybridization, but there should be no confusion between the Black Wattle and the Silver Wattle. The Black Wattle has dark green feathery leaves with very short leaflets (about 1/12 of an inch) close set and shining above. Then there are glands not only between the pinnae themselves, where pairs meet together but also frequently on the rhachis between the sets of pinnae. However, the easiest test is the color of the flowers and their time of bloom. *A. decurrens mollis* has light lemon-yellow flowers whose normal blooming time is June, though young specimens are also apt to bloom at other seasons of the year. *A. decurrens dealbata* blooms from January or February to March with orange flowers so numerous that they hide the leaves. There is no danger of missing those flowers or the abundant pods that soon follow them.

Mueller in *Select Extra-Tropical Plants* reports the Black Wattle as follows: "It is content with the poorest and driest of sandy soils, although in more fertile ground its growth is more rapid." It is also said to be the largest acacia tree in Tasmania where it reaches its best development in the regions of greatest rainfall. Here in California it is said to grow 30 feet in three years and in Modesto it forms magnificent street trees of great height—too high for the overhead wires.

Its foliage is far handsomer than

that of the Silver Wattle but the fact that it blooms later in the year when it has to compete with roses and other gorgeous plants does not give it an exclusive stage whereon to show its beauty as does the earlier blooming Silver Wattle. However, the flowers are not so gay and are more in harmony with the June plants than would be the strong orange color of the Silver Wattle.

Acacia dodonaeifolia (Syn. *A. viscosa*).

Shining Acacia.

Superficially this resembles the *retinodes* group though more picturesque in habit and flowers of a brighter color. It is a wide-spread impressive-looking tall shrub whose branches toss about picturesquely in the breeze and show every golden ball in delicate motion. It is characterized by the odor of its phyllodia, penetrating but not unpleasant, due to a coating of a shining resinous substance. This alone, once you get a full breath, should enable you to identify it again, and the powder-like residue often remaining on the phyllodia is also a good hint. It is about 20 feet tall and fully as wide with many fast growing branchlets 6 to 8 feet long, that droop gracefully from the weight of the flowers as they burst into a swaying golden mass. The phyllodia are longer than the flower sprays but are rather far apart which allows a full display of rich color. It blooms in early spring, February or March, and after the flowering period is over this shrub again sinks into the commonplace and might easily be taken for *Acacia retinodes* by an ordinary observer.

This species is from the coast and islands of southern Australia and is said to have been "long cultivated in their gardens but later was more or less displaced in popularity by *Acacia stricta*, which does not grow so tall."



Matthews

Acacia dodonaeifolia

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By August this specimen has again formed small buds, even before the pods have dropped, getting ready for its spring bloom.

Acacia elata, Cedar Wattle.

You would not realize from this illustration that the leaves are 16 inches long by 14 inches wide, the leaflets over an inch and a half, the flower sprays over a foot long and a foot wide nor that those pods are nearly 6 inches long, but this is a stately tree of large proportions in all its parts. To quote from J. H. Maiden "It is one of the largest trees in New South Wales where it grows mostly in gulches and along water courses on the Blue Mountains and its spurs. It likes a fair amount of winter cold, moisture, a fairly good soil and moderate shelter for a full development. It is a rapid grower, making surprising growth in a year." These requirements as thus set forth seem to be perfectly met in Pasadena, where at the Huntington Estate their specimen is about 20 years old 75 feet tall and has a spread of 40 feet. Not far from the mother tree was a self-sown seedling 25 feet tall and not more than 2 or 3 years old.

About 1901 the Cedar Wattle was planted on the campus of the University of California and bloomed for the first time in November, 1905, when it was only 4 or 5 years old. It is in adobe soil and on a dry bank and after all these thirty years it is only 28 to 30 feet tall. It is erratic in its time of bloom, never seeming to bloom at the same time on consecutive years. It has bloomed any time from March to November here, but in sandy soil in Golden Gate Park it seems to bloom in fall while in San Diego Mr. Morley dates it for mid-summer.

Hence in California, to grow into a

tall handsome tree, it must have light shade, moisture, some winter cold and fairly good soil. Plant it in groups along streams for stately clumps of dark green foliage.

Acacia hastulata.

This is a stiff, perky little shrublet not more than 2 or 3 feet tall. It begins to bloom when very small and blooms over a long period, usually more than once a year on the new wood. The leaves are small and strung along the stem so closely as to resemble the teeth of a common saw. It is an innocent looking little shrublet with its compact flowers, like a French bouquet, and though it is nothing but a midget, its tiny little phyllodia can give a surprisingly grown-up sting. It is not a shrub that one could love, as Mr. Wollaston does his softly gracious, friendly ones, but one could admire it for its sturdy independence and you would never fail to recognize it the second time you came across it. Its size fits it for small gardens or for tub plants. It is growing thriftily in Golden Gate Park in sandy soil mixed with loam.

It grows in Western Australia in sandy and rocky places but it is in the southwestern part where there is abundant rain so it probably likes more water than those species from the desert region further inland.

At first its branches are rather distant with the flowers in full bloom but by the time these have faded the buds on the eight little branchlets will be ready to take their places and we have a second period of bloom. Such recurring periods of flowers on plants grown on poor sandy or rocky soil are a source of wonder to all acacia lovers.

Acacia koa, Koa.

This is a timber tree from the Hawaiian Islands which grows to 100



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Acacia elata

[See page 16]

feet at an elevation of 4,000 to 5,000 feet and has a diameter of 4 to 6 feet. It takes on a fine polish and is valuable for interior finish and cabinet work. It should do well in California but so far we have failed to recognize its value and the ease with which it may be grown. There seem to be two varieties in the Bay Region, one with very broad leaves and orange flowers, the other far less robust in appearance and with flowers in racemes and of a lemon-yellow color. There is also a difference in the time of bloom, the more robust one blooming earlier than the other and with larger, though less abundant flowers. The pods are identical and are noted for their large size, more than an inch wide and several inches long. The narrow-leaved one is on the campus of the University of California and generally blooms in March and April, though it may also go over to May. It also casts little shadow, while the first mentioned specimen casts a dense shade. Both have juvenile leaves resembling those of *Acacia melanoxyton*, but the campus specimens were far more dainty.

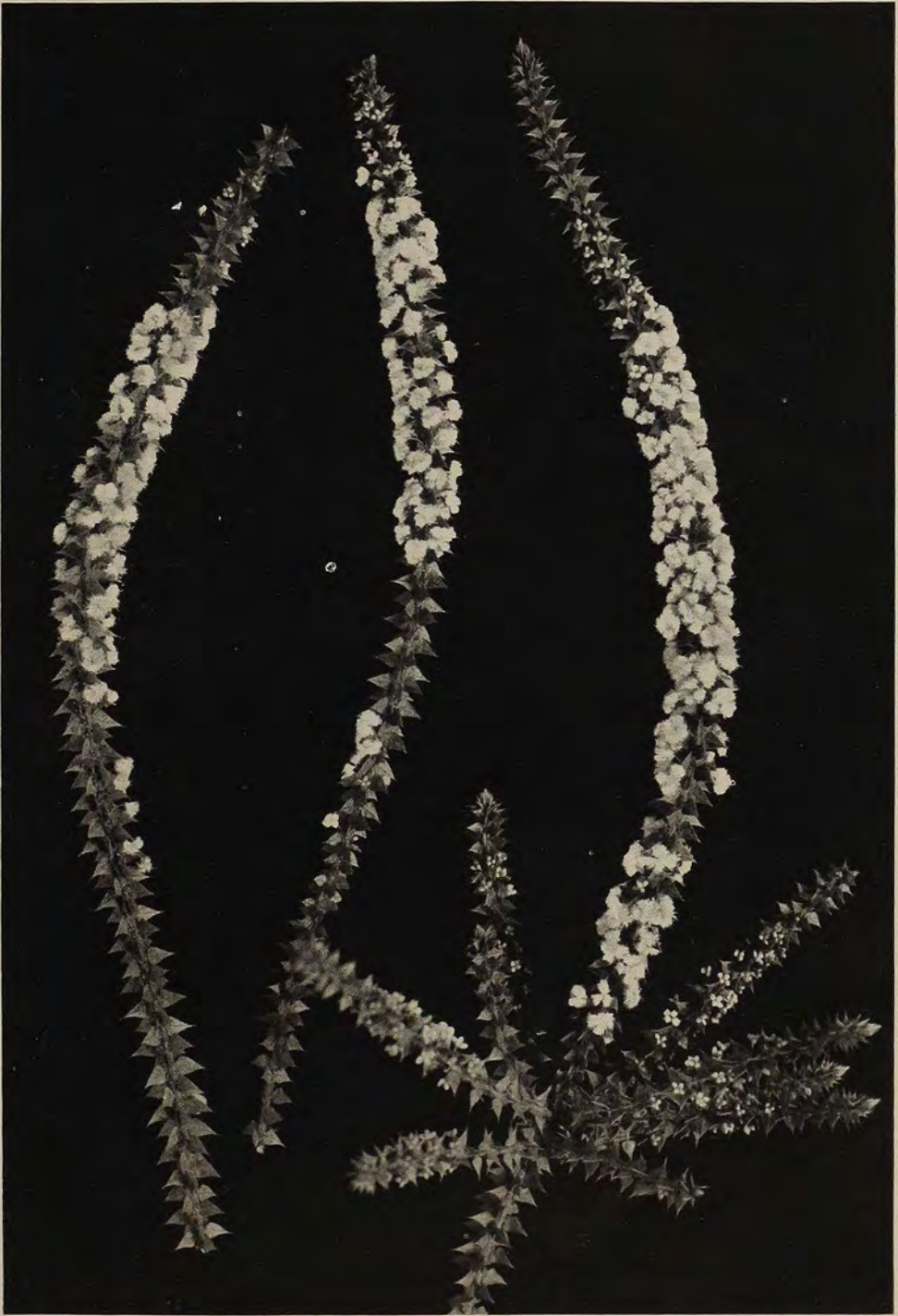
There are far more ornamental trees than the Koa but as a timber tree it should be valuable, though even as an ornamental proposition it should be included in all large estates that make a feature of acacias. In the illustration note the transverse direction of the seeds in the pod and the twist of the seed stalk, or funicle as it is called.

Acacia leptoclada, Slender-branched
Acacia.

This species has created great interest since it has added another pattern to the seemingly endless combinations that nature has spread out to our astonished gaze. This photograph was

taken from a dried specimen sent up from Pacific Beach near San Diego. The interesting part of this pattern is the zigzag taken by the rhachis of the racemes and the precise way in which a flower ball is attached to each of these zigzag angles. Now this specimen may not be true to type but if true why has not such an interesting matter been mentioned by the one who described the species? Be that as it may, we have here the promise of another recent introduction that will prove popular. Not only are the deep orange flowers thrust out three or four times as long as the leaves but the latter are so short ("about the size of your thumb nail,") that they fill in all the spaces between the flowers and form a background or contrast that enhances the beauty of the whole ensemble. After the flowers have finished blooming come the silvery pods, covered with long silky hairs. These pods are a decided pink in color when very young and then turn gray and glisten and sparkle quite as attractively as the flowers themselves, although in a different manner. Later these pods turn brown but they still retain their hairs, which probably get dusty and ragged in the hot windy air the same as those of *A. armata* do. Such pods, if held long on the tree, are not an attraction later in the season.

A. leptoclada is fast growing as this specimen is only 4 or 5 years old and is 12 feet tall. It bloomed a few sprays last year but this year every branch was laden with flowers from top to bottom. It is a native of Queensland where there is ample rain and taken to San Diego, finds a dry climate. Under such cases the plants often assume unusual appearances.



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Acacia hastulata

[See page 16]

Acacia longifolia, Sydney Golden
Wattle.

A general favorite throughout the state on account of its compact habit and generous spikes of yellow flowers. In early spring (February and March) these spikes burst into bloom and our inconspicuous plant has become a mass of gold. It may grow to tree size but it is generally kept down to a shrub and makes a fast compact growth. It is not really suitable for a street tree as it is then straggly, apt to break easily in the wind and hard to keep in proper shape, but it is useful and dependable in general. It may be used for shelter, as a screen, or for parks where the public does not molest it, even when in bloom, on account of the disagreeable odor of the flowers. It is largely used as a background and lends itself well for that purpose as it is drought tolerant. It can also grow successfully when planted directly in water, but it is hard to combine with many plants on account of the stiffly erect habit of its branches and leaves. It is often used as a low shrub since it will stand clipping well, and sometimes is cut into a round or pyramidal form. During the Pacific Panama International Exposition in San Francisco Mr. McLaren needed some pyramidal low shrubs for planting rather narrow spaces. He knew the Bay Laurel (*Laurus nobilis*) was generally used for such purposes and he therefore asked European nurserymen for prices. They wanted \$100,000 for his order. This was prohibitive so he put his wits to work and decided to try *Acacia longifolia*. These were clipped into shape and proved a great success and within the price allowed for this feature. It is cheap enough and fast growing enough to make a quick effect and is very satisfactory for temporary plantings and

for tubs. It loves a sandy soil though it does equally well on adobe.

Acacia longifolia floribunda, Gossamer
Wattle.

This is tree-like with drooping phyllodia. It is daintier in all its parts than the type. It has narrower phyllodia and casts but little shade. Maiden stated that this tree was from 20 to 50 feet tall and generally found in alluvial soil in Victoria and New South Wales. It is ordinarily in bloom in March, a little later than the type and probably does not bloom so long. It makes a handsomer street tree though its flowers are a lemon-yellow rather than a rich gold. Moreover it never seems to have that overabundance of pods so disfiguring to the type. It is also more graceful as its leaves droop and are not held up obliquely to the stem. It will stand some shade and makes a very attractive avenue tree for large estates.

Acacia melanoxylon, Blackwood
Acacia.

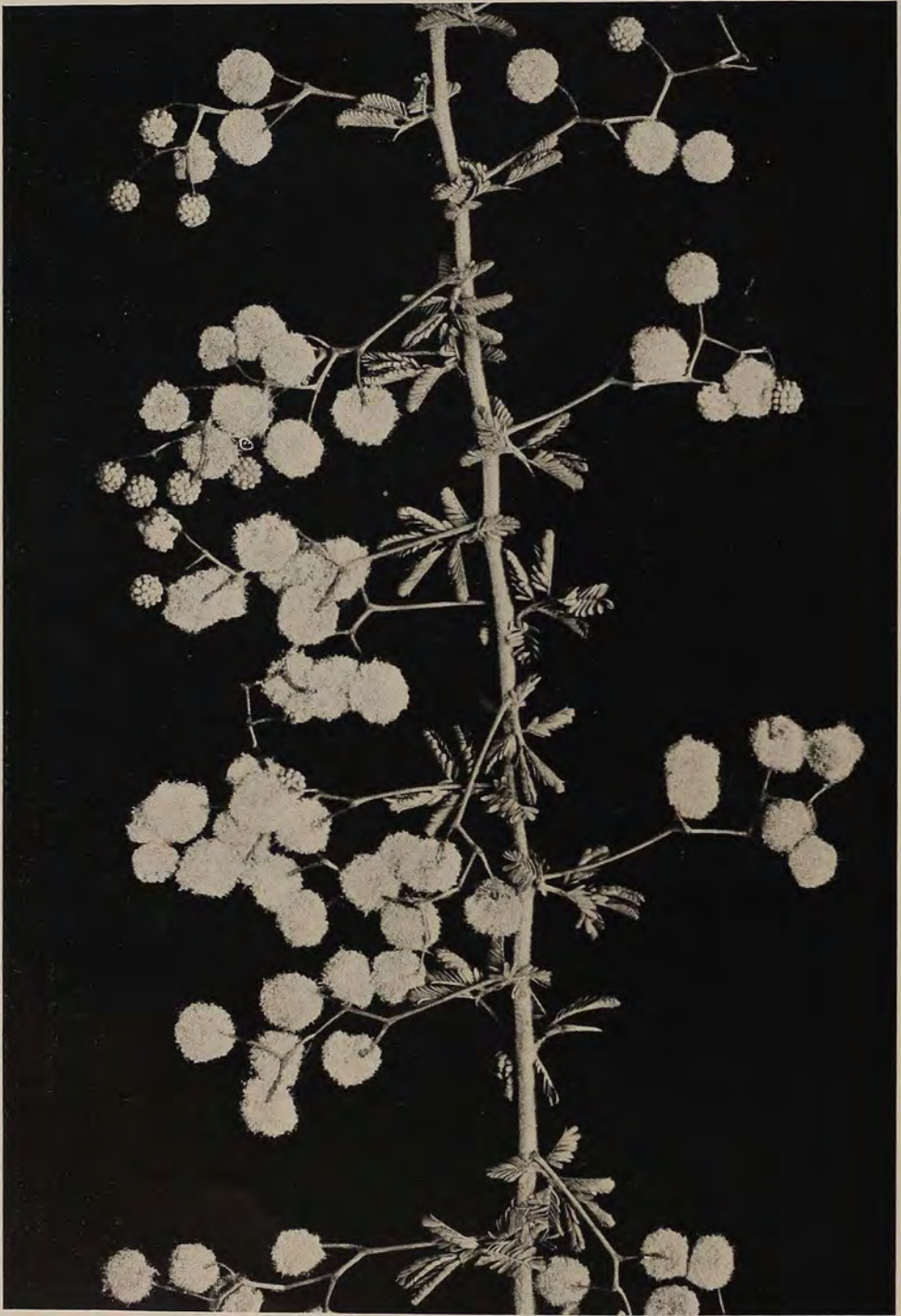
This is a forest tree that does well in all parts of California, north and south, on the coast and in the interior valleys. In Australia it is chiefly a highland species though it also grows on the coast where it never attains any size. J. H. Maiden says it varies greatly in mode of growth according to the situation and geological formation. It grows to 120 feet in height in Gipp's land in Victoria while "in Tasmania, in the rich alluvial valleys, it is 80 feet tall and with a girth of 12 feet of trunk," says E. H. Wilson. On high mountains among rocks it only grows to 20 feet. It prefers a sandy soil to stiffer soils, and will not stand hardpan. It is used mostly as a street tree in California but it is dark and somber most of the year and has many characteristics that are not ideal for that use. In southern California



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Acacia koa

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Acacia leptoclada

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Mathevos

Acacia leptoclada

Fruits

[See page 18]



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Acacia longifolia

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Acacia longifolia floribunda

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it is often interplanted with palms. A row was planted on Bancroft Way, Berkeley in 1879 and for many years the surface roots have been lying on the top of the ground, but they should have been ruthlessly chopped out to keep the main roots going downward. The seed pods hang on the tree a long time and are always untidy.

Blackwood Acacia is fast growing, about as fast as *A. decurrens dealbata*, and reseeds itself in favorable situations.

The leaves below the illustration of *Acacia melanoxylon* on page 27 are all from one tree in which you can trace the gradual evolution of the petiole of the feathery type of leaf to the phyllodine type shown on extreme right, which closely resembles an ordinary leaf.

Acacia obliqua.

This is a shrub that can be cheerfully recommended for small home grounds on account of its size, its several blooming periods and its profusion of flowers. It combines well with *Acacia acinacea*, *A. pravissima* and *A. armata*. It is not valuable as a cut flower for the flower heads are on stalks so slender that they can hardly hold up their heads. It thrives well both in adobe and in sandy soil but does not appear to be long-lived with us, possibly because it does not get enough moisture since it is a native of Victoria and New South Wales where parts of the land are well watered. It bloomed at the University of California in spring, mid-summer and possibly again in the fall. It was in bloom in Golden Gate Park in March and again in August and seems to keep on blooming as long as you can keep the young wood growing. It is not more than 3 or 4 feet high but it is fast growing nevertheless as it sends out a number of finger-like

branchlets at certain nodes and these soon thicken up the shrub.

Acacia pentadenia.

The dark feathery leaves of this tall shrub hold a promise of bright days to come in clusters of yellow balls that fill in the empty spaces between leaves and stems. The species is of special interest as it is another example of the various ways nature has developed the foliage leaves. It belongs to the feathery type and has from 2 to 5 pair of pinnae, each with 20 to 30 pair of leaflets with broad bases set obliquely to each other. There is a gland on the rachis below each pair of pinnae. The flowers are lemon-yellow, in clusters of 3 to 5 or more and as they are shorter than the leaves might easily be hidden by the latter except for the fact that the leaves are far enough apart to allow the flowers to be seen between them and the stem. It is a native of the southwestern portion of Western Australia at King George's Sound and therefore probably needs more moisture than the ordinary acacias that are usually grown in California under more or less dry conditions. It blooms the last of March and on into April and if planted with *A. Baileyana* and *A. decurrens dealbata* will prolong the blooming season into late April. In habit it is light and airy and will not produce much shade.

Acacia pravissima, Alpine Wattle,
Screw-pod Acacia.

In the spring this handsome tree appears like a weeping fountain covered with dainty yellow balls that completely hide the triangular leaves. If ever a tree was particularly suitable for a specimen tree, this is one. Its pendulous branches, bright spring flowers and small triangular leaves excite interest as well as admiration. Its slender racemes stand out far be-



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Acacia melanoxylon

[See page 20]



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Acacia obliqua

[See page 26]



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Acacia pentadenia

[See page 26]

yond the leaves and advertise the beauty and daintiness of each ball on the branches. Not only are the branches in long sprays but each spray is again divided, the whole forming a swaying mass of flowers that almost touch the ground. It seems to flower in February and March in San Diego as well as in Berkeley. It is fast growing (15 feet in five years) and is said to be growing on the banks of rivers in the highlands of Victoria and New South Wales. It would therefore appreciate more moisture than we give to most of our acacias. It is easily grown from seed and fresh young specimens can therefore be kept on hand to replace those killed by our neglect or by our ignorance of what they really need.

Acacia pubescens, Hairy Wattle,
Downy Acacia.

A favorite, superior weeping tree with golden balls hung on gracefully drooping branches so profusely that you can scarcely see the handsome hairy foliage. It blooms in this manner for weeks and it then shows its equally attractive foliage for the rest of the year, though it is in a lower key of color than the flowers. It is well to have this change as one could not long endure the intensity of color and emotion caused by the full bloom of many of these acacias. We need the more sombre greens and whispering notes as the wind sweeps through the leaves to sooth us into a quiet mood and set our spirit at rest.

It blooms in February or March and is one of the many pot plants for the conservatories of England and also in the United States where it is a favorite decoration for churches on Easter Sunday.

Hairy Wattle is easily grown from seed and prefers partial, though not too dense shade. There seem to be

two forms in cultivation one drooping and graceful, the other more erect and open. It is an interesting sight to look up under the branches of a well grown tree to see the numerous twists and turns and contortions that have accompanied its growth. Some branches turn about others with a twist that resembles the turns of a climbing plant. You must see it to appreciate what it can do.

Acacia pycnantha, Golden Wattle.

This was selected as the national flower of Australia on account of the color and abundance of its flowers, its fragrance and the fact that it would grow under "varying conditions" and anywhere in that continent "except in regions of prolonged frost." It is very common in South Australia in their undulating hill region and in Victoria in open forests. Mr. Wollaston states that it will grow either in sand or clay, on hill or plain, with little moisture or much. He considers that its "friendly loveliness and amazing prodigality is a true symbol of the outward prosperity and generosity of the people."

In California it generally blooms in early spring (March) with a profusion of large orange flowers of exquisite fragrance, but the weight of the flowers is often so great that it breaks the brittle branches and this in time makes the tree unsightly. The plant will grow in partial shade but should be protected from heavy winds which also help to destroy the symmetry. This tree is short-lived even in its native home and they feed it "well-rotted manure or sulphide of ammonia."

The Golden Wattle is one of the richest tanning barks in the world but it yields less bark per tree than *A. decurrens* and therefore not so profitable or so popular. On account of



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Acacia pravissima

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Acacia pubescens

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Acacia pycnantha

[See page 30]

its rapid growth it is used to bind rolling sands and is often found growing in poor sandy soil near the sea.

Although this is a very attractive ornamental tree it is rather scarce in California because of its short life. Perhaps we could prolong its life by following Mr. Wollaston's suggesting as to feeding it.

Acacia retinodes, Water Wattle.

A favorite shrubs for embankments or as single specimens, it blooms cheerfully for months, from spring through the hot summer days into the fall, without any attention whatsoever, while the narrow-leaved form is really everblooming. It is cheap and largely used to make a quick effect. For this reason its companions are not always chosen wisely and do not always combine well and often spoil the garden picture. While a branch by itself may be beautiful the different flower clusters here and there give the tree a spotty appearance, hence more or less restless. To my mind it is the least suited of all the acacias to our landscape. Curiously its color or the position of the phyllodia mar the effect of a group, but most of all it seems foreign, rather weedy and not of a choice texture.

It usually has a mass of pods which are too prominent but they soon drop and are not so disfiguring as those of the Cyclops Acacia or of the Sydney Golden Wattle.

It really is a delightful little shrub but its too general use has made it commonplace and unappreciated.

Acacia Riceana, Rice's Wattle.

This is a pleasing sight when in bloom and equally satisfactory as a specimen plant when flowerless, for the buds remaining unopened for a long period not only satisfy us with

present beauty but suggest much more to come. It is most graceful in habit with long weeping branchlets that almost reach the ground and slender narrow phyllodia more or less scattered and yet suggesting whorls. As a weeping tree it would be placed next to *A. pubescens*, a good specimen of which has more grace and character, but when in full bloom with flowers from top to bottom of those pleasing leaves, it is a sight worth a journey to see. It should be planted in a spot sheltered from the wind and must have abundance of water. It is a native of the southern part of Tasmania where there is abundant rain and should not therefore be thrust upon a dry sunny bank with the other hardy acacias but given moisture and shade and no wind.

A spray when in flower does not have good keeping qualities but if picked in bud they are popular "in England to wear in ladies hair or to trim long sprays upon white muslin gowns with telling effect."

Up to this time, *A. Riceana* has not been popular in California to any great extent, though it would make a pleasant feature at the end of a vista or as an accent plant in a lawn in front of a mass of shrubbery.

Acacia salicina Wayae.

Among this many larger species is this shrub for the small home grounds, that may be used in front of other acacias. The flowers are a deep orange, rather small in size but effective, appearing several times a year, at least while the plant is young, when it has been known to bear flowers from February to May. As the years went by its flowering season began to vary with periods of rest and periods of bloom. The leaves originally were plump and of a pleasing green but as



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Acacia retinodes

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Acacia Riccana

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Acacia salicina Wayae

[See page 34]

it began to age it became leggy and the leaves became more or less thin and dried, and its old pods hung on miserably among the dead branches. This probably represents another case of neglect or may possibly suggest that this species should be often renewed for on May 1st twenty years ago I made a note of its being in "full bloom and very attractive with its short thick leaves, graceful habit and of a good green. This should be planted more than it is."

It is easily grown from seed, which, by the way, must be collected immediately it is ripe as the seeds begin to pop out of the pod unless handled with care. It is evidently much used in South Australia where J. H. Maiden describes it as "a new variety, used in cultivation with bright yellow flowers used in great profusion. It is named in honor of Sir Samuel Way, Chief Justice and Lieutenant Governor of South Australia. It is much admired in the Botanic Garden, Sydney, N. S. Wales."

Acacia saligna, Golden Wreath.

This plant is so attractive and has so many good points that one wonders why it was not chosen for the national flower of Australia. Its flowers are fully as handsome and bloom for a longer period than those of *A. pycnantha*. It has more vitality for its stump sprouts readily when cut to the ground and once it gets old and ugly it can thus be readily renewed. It is also more drought tolerant. It has some faults; the wood is brittle, though not worse than that of *A. pycnantha*, which drops a load of blossoms into your arms when you barely touch the limb; it has a weeping habit and is therefore harder to group with other plants.

It hybridizes freely so that you never know just exactly what type

you are going to have. In fact this species varies so largely in habit as to be called and sold by two different names. If the lower phyllodia are blue and a foot long the plant goes under the name of *A. cyanophylla*. If, on the other hand, the phyllodia are short and narrow and green it is sold as *A. saligna*. Several nurserymen tell me they have secured the two different types from seed gathered by themselves from the same tree, all of which is rather trying.

All types are charming, however, of which four different kinds have been observed on the University of California campus. In one of the flowers are like wreathes and in groups of four or five strung along the axils of the leaves for two or three feet. This type may have large or small or even a mixed phyllodia. In No. 2 the flowers are in large clusters, standing erect on the branches. No. 3 has the flowers in large clusters but pendulous. No. 4 has the flowers in groups of four or five but with small phyllodia. *Acacia stenoptera*. (See page 3.)

A rigid-looking undershrub superficially resembling *alata* in having the winged stems but if you compare the two carefully you will see that the *stenoptera* has almost scytheshaped phyllodia while those of *alata* are clipped off square at the end as though done with a pair of scissors and there is a gland on one corner and a small point on the other.

Its flowers are a little larger than those of *A. alata* and it is now becoming a popular pot plant in Southern California. Its seed pods are somewhat sickle-shaped, about ½ inch wide in the middle and gradually tapering to each end "with a longitudinal wing on each side of the suture."

A. stenoptera is found on the S. W. coast of Western Australia where



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Acacia saligna

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there is ample rain and this should give us the hint to provide abundant moisture. It is only a low shrub a few feet high and while not what you would call fast growing it has numerous branchlets that soon thicken up and form a compact mass impenetrable even to a rabbit.

Acacia tenuifolia, Slender-leaved
Acacia.

Since this is a drought tolerant shrub it should be in the garden of every one who wants flowers but is too busy to water his garden. It is low growing, has light yellow flowers, an odor like honey and is everblooming. It has no bad habits, needs no care and is always "on dress parade."

Its slender light green leaves permit its association with *Acacia verticillata*, *Melaleuca ericifolia* and *Melaleuca linariifolia* with white flowers. All these are more or less drought tolerant, are also different enough to be interesting individually and yet combine into a charming group mass. It is easily grown from seed, will thrive and flower in shade, though it seems to like full sun better. It is slow growing, especially in height, but will eventually spread 8 to 10 feet in width in the course of 20 years or so, though it can be pruned and kept down to any size you desire. Here is a shrub that will absolutely take care of itself, provide its own food and water, exude a pleasantly pungent odor from the wax on its leaves and keep up a running succession of flowers that are the wonder of the horticulturist. To be sure the flowers, in our climate at least, never make those glorious bursts of sunshine shown by *A. calamifolia* but it is dependable and there is always need in the garden for its light airy foliage and its lemon-yellow flowers.

Acacia verticillata, Whorl-leaved
Acacia.

This is a rather tall shrub that can be clipped into a screen or into a thick impenetrable hedge. It begins to bloom generally in March and the flowers are then so dense, at least on some specimens, that they completely hide the leaves. It may continue to bloom for three or four months and then again, if conditions are unfavorable, they shorten up their blooming period and sink into a dark-toned shrub that ordinarily casts little shade with its whorl-leaved and sharp-pointed phyllodia. There are four strains on the University of California campus differing in length of spike, in color of flowers and in width and profusion of phyllodia. In Germany and England these forms have been given varietal names but with us the types run into each other so it would be difficult to keep each to its true variety and would create endless confusion.

It is a good plant to use for plant propagation in the schools as it germinates in about a month and soon assumes its characteristic mature sharp-pointed needles which interest the children. It is said to have been the first acacia sent to England where it has been cultivated and grows so dense that a stiff wind pulls it up by the roots. Such is not the case in Golden Gate Park where it easily resists the ocean winds although growing in sandy soil. It also stands drought and is very satisfactory where water is scarce.

It has rather a wide landscape use as it can be clipped to make a formal hedge; it can be planted in large groups in parks to keep the public from cutting corners; it may be used as a single specimen as its branches



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Acacia tenuifolia

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may be weighted down by bricks to make it graceful. The least attractive use of all is as a street tree. The stem is very apt to become crooked, a point we can forgive in a picturesque plant but for a street tree never. That calls for clean straight trunks, gradually tapering upward and a certain amount of symmetry to correspond to the long lines of the street. To be sure the whorled-leaved acacias might be clipped but that entails much expense and the result is not worth the effort.

Although it is said to be drought tolerant it looks far better with water and it is well to remember that in its native country it is abundant in moist situations throughout Tasmania and Victoria according to Bentham.

In conclusion it may be noted that out of a list of over ninety acacias which are said to have been grown in California the above article represents scarcely one-third of the number; nor does this one-third include all of the very best acacias that might be grown here for ornamental uses. The late Dr. J. H. Maiden, Acacia expert of Australia, mentions many others growing wild in their back country that are quite as attractive as any yet grown in cultivation and he spoke of the following as especially meritorious:

Acacia vestita, usually 8 to 12 feet high but on limestone formations it becomes much larger, growing 18 inches in diameter. It is a highland species in southern New South Wales and northern Victoria. Mr. Wollaston reports "the leaves are softly pubescent and about one-half inch long, the flowers much longer than the leaves forming lovely terminal panicles of bloom similar to those of *A. pravissima*. It is one of the finest on account of its glorious abundance

of bloom and its graceful disposition along the branchlets."

Acacia polybotrya, "a tall shrub with pubescent feathery leaves, known for its remarkable beauty. It is in boggy forest land or limestone hills in New South Wales and Queensland."

Acacia spectabilis, "a tall shrub with 2 to 4 pairs of pinnae and 4 to 8 pairs of leaflets. It grows in forest land in New South Wales and Queensland and is noted for its remarkable beauty."

Acacia glaucescens, Coast Myall, is recommended on account of its "fine glaucous leaves and long spikes of lemon-yellow flowers. It grows on the coast in New South Wales but ascends the mountains to 3,000 feet. It occasionally reaches a height of 70 feet and flowers before *A. Baileyana* does.

For different uses in California we would suggest the following:

1. FRAGRANT WOOD. *A. acuminata*, Jam Wood; *A. homalophylla*, Myall.

2. FOREST TIMBER TREES. *A. decurrens normalis*; *A. decurrens dealbata*, Silver Wattle; *A. decurrens mollis*, Black Acacia; *A. elata*, Cedar Wattle; *A. harpophylla*, Brigalow; *A. koa*, Koa; *A. melanoxyton*, Blackwood Acacia; *A. pendula*, Weeping Myall; *A. penninervis*, Hickory Bark.

3. GRAY FOLIAGED ACACIAS. *A. Baileyana*, Cootamundra Wattle; *A. cultriformis*, Knife Acacia; *A. cyanophylla*, Blue-leaf Wattle; *A. decurrens dealbata*, Silver Wattle; *A. glabrescens*, Coast Myall; *A. podalyriaefolia*, Pearl Acacia.

4. HEDGES. *A. armata*, Kangaroo Thorn; *A. cavenia*, Espino Cavan; *A. cultriformis*, Knife Acacia; *A. longifolia*, Sydney Golden Wattle; *A. longifolia sophorae*; *A. myrtifolia*, Myrtle-leaved Acacia; *A. verticillata*, Whorl-leaved Acacia.



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Acacia verticillata

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5. POT PLANTS. *A. alata*, Wing-stalked Acacia; *A. armata*, Kangaroo Thorn; *A. Baileyana*, Cootamundra Wattle; *A. cordata*; *A. decurrens dealbata*, Silver Wattle; *A. Drummondii*, Drummond's Acacia; *A. hastulata*; *A. heterophylla*; *A. longifolia*, Sydney Golden Wattle; *A. pubescens*, Hairy Wattle; *A. pulchella*, Beautiful Acacia; *A. seyal*; *A. stenoptera*, Short-leaved Acacia; *A. Riceana*, Rice's Acacia; *A. verticillata*, Whorl-leaved Acacia.

6. RIVER BANKS, growing on. *A. decurrens dealbata*, Silver Wattle; *A. decurrens mollis*, Black Wattle; *A. glaucescens*, Coast Myall; *A. implexa*; *A. leprosa*; *A. neriiifolia*, Bald Acacia; *A. longifolia*, Sydney Golden Wattle; *A. penninerwis*; *A. siculiformis*.

7. ON SEASHORE. *A. leptocarpa*; *A. prominens*, Golden Wattle; *A. polystachya*.

8. SHADE TOLERANT. *A. decurrens mollis*, Black Acacia; *A. Cunninghamii*; *A. elata*, Cedar Wattle; *A. Riceana*, Rice's Acacia.

9. SMALL HOME GROUNDS. *A. acinacea*, Blunt-leaved Acacia; *A. alata*, Wing-stalked Acacia; *A. armata* (if clipped), Kangaroo thorn; *A. calamifolia*, Broom Wattle; *A. cultriformis*, Knife Acacia; *A. hastulata*; *A. linearis*, Pale-flowered Acacia; *A.*

lineata, Small-leaved Acacia; *A. leptoclada*, Slender-branched Acacia; *A. obliqua*; *A. pubescens*, Hairy Wattle; *A. pulchella*, Beautiful Acacia; *A. salicina Wayae*; *A. suaveolens*, Fragrant Acacia; *A. stenoptera*, Short-leaved Acacia; *A. tenuifolia*, Slender-leaved Acacia; *A. viscidula*.

10. SPECIMEN TREES. *A. Baileyana*, Cootamundra Wattle; *A. cyanophylla*, Blue-leaf Wattle; *A. decurrens dealbata*, Silver Wattle; *A. decurrens normalis*, Green Wattle; *A. elata*, Cedar Wattle; *A. glaucescens*, Coast Myall; *A. longifolia floribunda*, Gassamer Wattle; *A. melanoxylon*, Blackwood Acacia; *A. pendula*, Weeping Myall; *A. pravissima*, Screw-pod Acacia; *A. pruinosa*; *A. pycnantha*, Golden Wattle; *A. retinodes*, Water Wattle; *A. Riceana*, Rice's Acacia; *A. saligna*, Golden Wreath.

Propagation. Usually by seeds, rarely by cuttings, taken with a heel. Pour boiling water over the seeds and let stand from 24 to 48 hours when they should come up like wheat in from one to three weeks, depending upon the species and the season in which they were planted.

Of all the beautiful plants that have been introduced from Australia perhaps the most popular ones in California are the acacias with their friendly loveliness.

A Few Uncommon Oaks

BY MARY G. HENRY

Quercus virginiana is a well-known evergreen oak, beloved by many. It is one of the most familiar trees of our southland and much of the beauty of the landscape of the coastal plains of South Carolina and Georgia, is owing to its presence.

But few people are familiar with *Q. virginiana heterophylla*. Just as *Q. virginiana* throws a mantle of green over the eastern South, so this form adds its far more valuable beauty to much of the western South. I saw it growing plentifully in southwestern New Mexico two years ago. Hundreds were growing on a dry plateau at an altitude of about 5000 feet or more.

I think this tree should be entirely hardy in our middle states climate, for very low temperatures are sometimes recorded in the high altitudes where it grows, even as far south as this. I was immensely impressed that such a dry, inhospitable soil where grass did not grow, could support such a handsome tree. The only other tree that survived the extremes of heat and cold that these high plateaus subject them to, were juniper trees of about the same size. The ground cover, where there was one, was a dwarf sage.

Old compact growing specimens of *Q. virginiana heterophylla* were about twenty feet tall, and their light gray trunks about ten to fifteen inches in diameter. Although I covered over two hundred fifty miles on horseback over mountain sides and plateaus, I never found one young plant in a convenient place, of a size, small enough to dig. Plant collecting in the Southwest is often difficult and disheartening. As one of my Texas

friends put it, "The trouble is in finding any roots smaller than a flour barrel and shorter than a telephone pole!" This of course applies only to trees and shrubs.

Almost anyone seeing *Q. virginiana heterophylla* for the first time would think it a holly as it resembles *Ilex aquifolium* in leaf and also in the stiff mode of growth, more than anything else I have even seen.

My Texas friend sent me a few small pieces about four years ago. Only one has survived. It seems entirely hardy and is a fine evergreen. I was anxious to bring a few home to keep my lonely one company, for I have been endeavoring for several years to obtain some more of these interesting oaks but have failed.

Unfortunately so far, it is an exceedingly slow grower and if this proves to be so, the fact will of course lessen its popularity. My little four-year old plant, is even now only about eight inches tall, so that at this rate it will be many years before I can report on its acorns. When it came to me, however, it was not much more than a sprout with a small piece of root attached and I believe that in the fertile, comparatively moist soil of the East it may surprise me its next growing season, for it probably now has a nicely started root system and I have hope that it will go right ahead.

Quercus undulata comes from Colorado, Nevada, New Mexico and western Texas. It is called the "Mountain Live Oak." It is said by the dealer who sent it to me to be a "large bushy shrub." Mr. A. Rehder describes it in his *Trees and Shrubs* as a "small tree to 10 meters."

My two small plants were about eleven inches high when I acquired them four years ago and during this period they have grown about eleven inches more. They are growing on a dry, exposed hillside in poor soil as I believe this place is the nearest thing I have to their native situation. The foliage holds on until late in the season and probably farther south would prove evergreen. The leaves are rather unusual for an oak, being colored a light bluish gray green and are of a firm, tough texture. They are coarsely and unevenly lobed, and are about two and three-quarter inches long and one and one-quarter inches wide.

Quercus Harvardii is another of our handsome and distinguished dwarf native oaks and is said to bear acorns when very small. This one comes from Texas, New Mexico and Oklahoma and is described in Wootton and Standley's "Flora of New Mexico." The common name for this little oak is Shin or Shinnery Oak and it is very abundant in its home states.

Its entire height, when fully grown, is less than three feet. Its leaves usually coarsely lobed or dentate, are almost as gray as those of *Q. undulata* and are about one and one-half to two inches long and one-half inch or less wide.

I have had it growing in my experimental garden for three years and it seems entirely hardy. It was four inches high when I planted it. A rabbit destroyed all of it that was above the ground two years ago. It now has three strong shoots each about ten inches tall.

Quercus dumosa comes from California where it is known as the Scrub Oak. It has a bushy habit and in its home, like so many of the western oaks, covers otherwise bare hillsides. It does not seem to be very well

known and is not described in any of my reference books.

I have had it for about a year. It seems to be happy and hardy in its new home, but of course this winter (1931-32) is a poor test though on two occasions the thermometer fell to sixteen and *Q. dumosa* is still holding its evergreen foliage. It made a nice growth of six inches the past summer. This little oak, I think, has about the prettiest foliage of any oak I have ever seen. The little leaves are about one and one-quarter inches long and one-half inch or slightly more wide, lobed and dentate with sharp teeth with fluted or ruffled margins.

Quercus virginiana heterophylla, *Q. undulata*, *Q. Harvardii* and *Q. dumosa* all require a neutral or slightly alkaline soil and always seem to grow in well-drained and dry situations with full sun or partial shade. Certainly in the East, they should have full sun and protection from the north winds might be desirable in the more northerly latitudes. When these conditions are met, I believe they should be hardy on the Middle Atlantic States.

Of course their growth will be different in our moister climate and they will probably, therefore, be less rigid of branch and grow taller but this will not make them any the less desirable. On the contrary, anyone who has ridden for days through the stiff scrubby oaks of the Southwest, and had their face and hands cut, their clothes almost torn off, would welcome a different mode of growth, at least that is the way I feel about it.

Quercus pumila is a very attractive dwarf oak that comes from South Carolina, Georgia and Florida. I brought several from South Carolina three years ago. This little oak only grows about eight to twelve inches

high and has a creeping rootstock. In shade it grows somewhat taller.

The small, thick, dark green, leathery leaves are about two and one half to three inches long and one-half to three-quarters of an inch wide. Their margin is entire and they resemble the leaves of the willow oak (*Q. phellos*). Its foliage is entirely deciduous or partly evergreen. One of my plants holds its leaves sometimes until March while another drops them usually two months earlier in the season.

It frequently bears its tiny acorns when only eight inches high.

It grows plentifully in many places on the Coastal Plains, where it is one of the indigenous groundcovers and is known as Running Oak.

This little oak is entirely easy to transplant and is not at all particular as to its situation although it grows naturally in a very poor sandy soil. My plants are growing in the natural soil here and have had no protection. One is growing in an open, exposed situation on the edge of the rock garden and although this one sometimes dies back in the winter, it sprouts up again very quickly and soon forms a pretty little bush. I have heard that in its native home, it frequently grows up and bears acorns the first season after having been burned to the ground. My other plant is growing on the south side of a low stone wall and it, too, is doing well.

I suppose that this little oak would not survive the winters very much farther north than Philadelphia although it probably would be happy in sheltered places on Long Island.

Dr. J. K. Small describes this oak in his interesting and invaluable "Flora of the South Eastern States."

Any one fond of oaks could hardly fail to want one of these little gems for his rock garden or any other place

a shrub of this sort could be used. In large rock gardens it should do very well in any place, and its handsome green foliage holds on well even in our hot and dry summers. In small rock gardens it is frequently desirable to plant a little shrub or two, sometimes as a barrier between garden and lawn, sometimes to form an accent or sometimes merely as a shelter to protect a choice plant from an overworking summer's sun.

Quercus Baronii is another dwarf oak and this one comes from West China. There is a short notice of it in Mr. Rehder's *Trees and Shrubs*, where it is described as a shrub or small tree. It was introduced into cultivation about 1915.

My little bushes came from the Arnold Arboretum in 1930. They have come through two winters and held their dainty green leaves until spring. Unfortunately I notice that this season some of the leaves are scorched. One of the plants has been placed on the south side of a stone wall and another is in a fairly exposed position. They seem to be faster growers than the other small oaks but they had splendid well cultivated root systems when they came to me which makes an enormous difference in getting off to a good start.

This little shrub does not in the least resemble the usual oak and all who have seen it express surprise when I tell them what it is. The glossy, deep green leaves are smaller, more delicate and refined than those of any oak I have ever seen. They are almost lanceolate with a few small teeth and are about one and one-quarter to one and one-half inches long and about one-half inch wide and being very shortly stalked, grow very closely along the slender branches.

Our Deciduous Conifers II

BY ARTHUR D. SLAVIN

The third member of the deciduous group is the *Taxodium*, or as it is sometimes called, The Deciduous Cypress. The genus is native in the southern sections of North America, and to my knowledge, is not represented elsewhere. It is identified by its rounded cones which are quite different than those of the preceding genera in structure, being made up of irregular, four-sided scales which break apart when mature.

It is an habitue of wet places in the wild, but succeeds in cultivation only in well drained soil. In the south, where it is at home, it can take care of itself in places where the roots are under water; but in the north, cold and frost will constantly injure the root system if planted in wet ground. It does well in a light sandy loam.

The nomenclature of this genus is quite interesting and it is my opinion that at least one point requires some rearrangement. There are three species represented, two of which are hardy in this area. The third, known as *Taxodium mucronatum*, is native in Mexico and cannot be grown here.

The Bald Cypress *Taxodium distichum* was at one time considered the only species of the genus, the others having had only varietal rank. Even now, this condition still holds true with some authorities. Previous to their rearrangement there were two so called varieties, (*Taxodium distichum imbricarium* and *Taxodium distichum pendulum*). The first mentioned was then given specific rank and called *Taxodium ascendens*. The second was considered to be a variety of the other and was given

the varietal designation *nutans*. Now there happens to be also a pendulous form of *T. distichum* about which we hear nothing in our botanical publications. It appears to have been left to the horticulturist for consideration. That it is not new is illustrated by the fact that two trees were planted in Rochester in 1896 under the name *T. distichum pendulum* and in the excellent catalogue of Hillier & Sons, Winchester, England, issue of 1930, the name is mentioned for a pendulous form of the species. They also quote the other species and varieties under their correct names. That it is a distinct variety can be seen from its description which follows in the proper order.

The Bald Cypress *Taxodium distichum* finds itself a citizen of the swamps and wet lands bordering the streams along the middle and south-eastern coast of the United States. Its straight tapering trunk is strongly buttressed at the base. Old trees growing in wet ground often produce cylindrical projections from the roots. These appear above the ground about the trees, as hump-like growths and are termed, "Cypress Knees." Just what part they play in the physiology of the plant, I do not know, but it is not unreasonable to believe that they may act as aerating agents for the water-soaked root system. I have never seen them on trees situated on dry land.

This species is entirely hardy in cultivation when placed in well drained soil. Trees 50 feet tall are not uncommon. The habit is narrow pyramidal with short, horizontal branches.



Taxodium distichum

The branchlets are of two kinds: the terminal growth is green when young, becoming brown during the first winter. The lateral branchlets which bear most of the foliage, are decidu-

ous. The foliage is scale-like and inconspicuous on the terminal growth. On the deciduous shoots, it appears laterally in the form of small, linear, distinctly pointed leaves. The ar-



Taxodium distichum pendulum



Branchlets and Fruits

Taxodium distichum, above
Taxodium distichum pendulum, below



Taxodium ascendens
Note upright branchlets
Fruits immature

rangement of these leaves on the branchlets gives the whole the appearance of being a pinnately compound leaf. This, however, is not the case although both are annual growths.

As the foliage appears in the spring, it is a delicate green and later becomes a soft green and somewhat pale on the underside. In the autumn it turns light orange-brown, a shade of color not duplicated in any of our other thees. It is this element in its beauty that makes it so much to be desired in ornamental work. The cones are subglobose (round in shape with flattened ends) and measure about $\frac{7}{8}$ inch in diameter. The pendulous variety of this species, known, at least horticulturally, as *Taxodium distichum pendulum*, is a far more graceful tree than the type. It is distinctly pyramidal, with a broader base than the species which narrows regularly to a small top. The branches extend from within a few feet of the base and are horizontal or somewhat drooping. Towards the apex, they are ascending. The branchlets, both persistent and deciduous,

are pendulous. Although the foliage is identical with the type, the cones are more oval than subglobose, slightly smoother surfaced than in the species and much larger, measuring about $1\frac{1}{2}$ inches in length and $1\frac{1}{4}$ inches in width.

The Pond Cypress *Taxodium ascendens* is a more southern conifer found generally in Georgia and southward. It is hardy in cultivation although it requires some protection in the colder sections of the country. It does not have the beauty of the Bald Cypress and is mentioned here only to record its presence in ornamental work. It is pyramidal in habit with short, horizontal branches and upright branchlets. It is easily recognized by its awl-like leaves which are small and appear almost as scale-like formations on the branchlets. The cones are identical with those of *T. distichum*.

The variety *Taxodium ascendens nutans* differs from the type in that the branchlets are pendulous rather than upright. Its ornamental value ranks with about that of the species. It is, of course, more graceful.

“A Well-Considered Schedule for Judging Narcissi”

BY FLORENCE EDNA FOOTE

One is amazed by the great wave of garden enthusiasm which has given birth to the hundreds, even thousands, of garden clubs which have been formed all through these United States. Certainly they can exert an immense influence for better and finer gardening. Two or three flower shows each year are a part of the program of every progressive garden club. Good flower shows afford a splendid opportunity for broadening the horticultural education of the public as well as the gardeners.

Last spring I had the pleasure of spending one day at the Cleveland Flower Show and the whole week at the New York Flower Show. They were indeed something to be proud of, for they were of outstanding beauty. The throngs of hundreds of thousands of people from every walk of life who came for a taste of beauty in these sordid times, prove that these great treasures of flowers gathered together will help to fill that part of our aesthetic nature which must be somewhat satisfied if we are to carry on.

Having attended several shows given by the Royal Horticultural Society of London, England, where the whole show was given over to the magnificent display of hundreds of thousands of the finest daffodils in the world, and being myself a daffodil specialist, I was terribly disappointed to find not one fine, outstanding variety shown at either the Cleveland or the New York shows. Indeed, there was no display of daffodils worth mentioning! Because of our varied climates in differ-

ent parts of the United States, we are most fortunate in being able to grow every kind of species and every variety of narcissus, whether it be hardy or tender. England grows some four thousand of the hardy varieties, and, in one sheltered section, some of the tender varieties.

Unfortunately, commercial growers have flooded America with a vast number of very old varieties which have been so tremendously improved upon with most of the new varieties, that it seems a pity that the general buying public cannot know what kinds are worth the money and time spent upon them. Several catalogs advertise as “new” varieties which have been in commerce for fifteen to thirty years and more!

Here is the big opportunity for the garden clubs to be of real service in educating the public to demand better and newer varieties of narcissus, for naturally, the nurserymen will supply only what we demand. If we have good narcissus shows, we must have competent, well-trained narcissus judges. There are perhaps not more than a dozen people in America who are properly qualified by actual personal experience to judge narcissi.

A good judge must know his flowers thoroughly. He cannot know them unless he grows them and studies them for years. He should prove to his own satisfaction exactly what perfection a given variety will attain under the most perfect, *normal* garden conditions for that particular variety. Then, with that ideal in mind, he can

judge how fine or how poor is another flower of that variety. He will also know if the *ideal* of that flower has been distorted by over feeding, so that its natural grace of form and proportion of balance has been destroyed.

I believe there is a very real necessity for a carefully considered judging schedule, which I venture to present, hoping it may be of service in improving the quality of our narcissus shows.

We have very few *show* flower varieties in America at present. Several daring but wise amateur gardeners have imported two or three hundred of the very finest varieties in the world and we may look forward to some excellent shows in the near future.

Several attributes of perfection are required in a show flower which are quite unnecessary in a flower grown for garden decoration only. Because we have little conception of showing or show flowers, we will first consider the regulations which govern that wonderful, efficient organization known as the Royal Horticultural Society of London, England, which makes three awards to daffodils, these ranking from the highest downward:

- F.C.C. First Class Certificate.
- A.M. Award of Merit.
- P.R. Preliminary Recognition.

When the award is qualified, the fact is indicated by the addition of a letter in brackets after the award. Awards may be qualified in one or more of the following ways:

- (e) As a show flower
- (c) As a variety of cutting
- (p) As a variety for cultivation in pots, pans or bowls
- (f) As a market variety for forcing
- (m) As a market variety for cutting from the open

(g) As a variety for garden decoration

(r) As a variety for the rock garden

By making such awards gardeners are encouraged to develop to its utmost perfection every form and type of the flower best suited for its particular purpose.

An exhibition flower must, to be pleasing to the eye, have *good color*. The eye is naturally caught first by color. By *good color* we mean that it must be clear, pure, clean and effective. If it is a white flower it must be a clear white. The colors of the narcissus are limited to white, yellow, orange and red in varying degrees of strength, and none of these colors or combinations of color can be really displeasing to the eye if they are clear and clean.

There has been some talk of developing an all-red daffodil. I am sure that I would not like it. The only daffodil I ever really disliked was one which I saw at the London R. H. S. Show, a new Poetaz, in which the color of the red cup had spilled over and stained the pale yellow perianth. It had value only as a new break in color. I thought at once of the juice of the blood-orange, which is neither red nor yellow, but a muddy, unattractive color.

The shades of primrose, buff, biscuit, topaz, and all of the deep creamy, peachy, pinky and "inside-of-a-melony" combinations now being developed in the Leedsii section are perfectly exquisite and will meet with the enthusiasm of every lover of delicate, enchanting colors.

The red in the cups of various varieties may be described as orange-red, lead-red or cherry-red, and are generally very pleasing, the standard of

perfection requiring a color that will not burn in the sun.

After color, the next requirement for a show flower is that of *good form* and a pleasing *balance of proportion* between the crown and perianth. Because many of the species of narcissus are so differently varied in type and form, the modern daffodil has inherited an infinite variation of forms. The most pleasing are those which show the influence of their parentage and, whether large or small, preserve the same general proportions of the original type.

There are the starry perianthed flowers, the long slender trumpets, the wide bell-mouthed trumpets, the broad, well over-lapping petalled perianths, the long almond-shaped petalled perianths, the reflex and the hooded perianths, the short-cupped crowns, the flat crowns, the straight crowns, and many, many other variations of form. But a pleasing form is always one of grace and balance of proportion.

The third requirement of a perfect show flower is that it shall have *good substance*—a solidity of texture which gives it lasting qualities. It is this splendid substance which keeps the flower from quickly withering up in the hot sun and rain and wind, and also makes it a good show or florist's flower. Some of the new varieties have a heavy cardboard-like substance, which makes them last for weeks.

The fourth asset of a good show flower is that of its *carriage* or *pose* on the stem. This corresponds with the standing posture of a man. The type and purpose of the variety will determine what its posture should be; for example, a fine exhibition flower should hold up its head well at right angles to the stem, while a tiny rock-garden variety or even a garden variety may more closely follow the

drooped-head characteristic of its ancestors and be a much more pleasing form for its purpose.

Fifth, the *strength* and *length* of the stem must be perfect in proportion to the size and weight of the flower it bears. A good stalwart stem, long enough to support the flower well above the foliage where it may catch the eye seeking for beauty; strong enough to hold aloft a dainty, tiny blossom or a massive four or five inch flower and keep it from bending over and touching the earth or breaking under the burden of its weight as it endures the attack of wind, hail and storm—a very stalwart flagstaff the stem should be, if it is to win an award for show or garden decoration.

The sixth requirement of a show flower is that it shall be in perfect condition at the time it is to be judged. It requires considerable experience in growing and in exhibiting to know what is exactly the right moment in which to cut the flower so that it will develop its size, its color, and its quality to perfection at the time it is to be judged. For example, a white trumpet daffodil opens cream and gradually becomes a pure white, at which time it will be ready for the judge.

The best time to pick depends upon the variety and the weather. As a rule, the trumpets and the incomparabilis are best left until almost fully expanded, while the more highly and more delicately colored ones should be picked as soon as the neck crooks and the bud bursts, letting it finish its development plunged in fresh water in a cool room. One should never pick any white on the end of the stem, as it will not absorb water. Proper packing is of the greatest importance in preserving the

perfection of condition in the flower.

A judge who has successfully and personally tended and grown a large variety of narcissi, studying their characteristics and tendencies and making his own comparisons, judging them year after year, will need no scale of points when judging narcissi at the show. It is an insult to such a judge to force him to use a local scale of points which may be decidedly bad, and he is greatly handicapped by having to use such a prepared scale.

The majority of small clubs, however, have not the financial means to obtain such a judge and yet they want to make their daffodil shows as successful as possible. For such clubs as cannot obtain the services of one of these few well-trained judges, who has achieved what the dean of all

daffodil hybridizers, George Engleheart, calls the "higher criticism," there is only one possible way for a less experienced judge to be perfectly sure of his reason for an award of merit, and that is by the "point system."

It is for these clubs, only, that I give the following schedule for judging the narcissus.

1—Color of flower.....	25 points
2—Form—balance of crown and perianth	20 points
3—Substance of flower.....	20 points
4—Carriage or pose of flower on stem.....	10 points
5—Strength and length of stem	15 points
6—Condition	10 points
	<hr/>
	100 points

Grand Rapids, Michigan.



Lewisia Finckii

Lewisias in Their Native Home

BY E. J. NEWCOMER

The lewisias are among the finest of the native rock plants. They are interesting because they are different. Their fleshy, odd-shaped leaves are very striking in a rock garden, and their blossoms are as delicate as any that could be imagined. They have been named very appropriately for Capt. Meriwether Lewis, who, with Lieut. William Clark, led the first overland exploring party into the Northwest. Lewisias are essentially of the Northwest—they do not grow wild east of Colorado or south of northern California. There is one exception: the bitterroot is found in Arizona.

One of the interesting things about Lewisias is that they are not espe-

cially easy to grow. I have collected half a dozen of the species and studied them in their native habitats, and I am writing this with the thought that a description of the climate, exposure, and soil in which they thrive will help the rock gardener to be more successful with them than perhaps he has been.

Lewisias fall roughly into two categories, one with deciduous leaves, and the other with leaves that persist. In the former class, the well-known bitterroot (*L. rediviva*) is the only one that merits space in a garden; unless its owner be one of those enthusiasts, like myself, who must have plants of all the species of the group he is an enthusiast about. This very remark-

able plant seems to withstand a variety of conditions, as long as those conditions are dry. I have found it blooming by the hundreds 3,000 feet above sea level, but always on well-drained, rocky, southern slopes, though often where there is a light shade from scattered pines or firs. It thrives, too, on the basaltic "scab rock" of our northern deserts, in the blazing sun, the disintegrated lava forming the rather scanty and surely not very fertile soil for its fleshy roots. The brush of thick, linear leaves develops from the root in early spring while the soil is yet moist, and as it dries the leaves wither and die, and the fat, spindle-shaped buds, colored like the rocks, push out and bloom. The delicate pink or almost white, fluted, rather large blossoms contrast curiously with their rough and sterile surroundings. Once the blossoms are gone, the plants are difficult to find, as very little is left above ground. In the garden, the plants tolerate much more water than they get when wild, provided the soil is porous and drains well, and there is plenty of sun; and their needle-like leaves often push through the ground late in the summer.

Associated with the bitterroot and closely related to it, is *Talinum spinescens*. This is a low plant, with woody branches above ground, from which grow clusters of rather short, linear, fleshy, deciduous leaves, and long slender stems bearing several rose-colored blossoms, not unlike those of *Lewisia columbiana*. This plant grows only in central Washington, and seems to be limited to the driest and rockiest benches, where it withstands the arid heat of summer and the subzero cold of winter, often with only a meagre protection of snow. It lives quite happily in a well-drained, sunny rock garden, and is worthy of trial.

Of the other deciduous *Lewisias*, I have collected the curious little *triphylla* and *pygmaea* in sandy spots in the alpine meadows high up on the slopes of Mount Adams. They are too small and inconspicuous to be of much value.

The showiest *Lewisias* are those with persistent leaves, and the finest, and perhaps the rarest of these is *Tweedyi*. This has broad, flat, fleshy leaves, and wonderfully delicate apricot or salmon colored blossoms, shaped like those of *rediviva*, but larger and less fluted. *Lewisia Tweedyi* has been found only in the Wenatchee Mountains, an eastward-projecting spur of the Washington Cascades. Even here it is not common at all, and it takes a deal of searching to find it, but once found it is usually plentiful within restricted areas. Curiously, I have found it only in the vicinity of gold and copper mines or prospects, though even here it may be plentiful on one slope and entirely absent from a nearby slope which appears to be identical.

Lewisia Tweedyi grows only on the steepest north or northwest slopes at elevations of 2,000 or 3,000 feet, usually in the open, but often under fir trees. Here the soil is loose, very gritty and sandy, with some humus, perfectly drained, and usually moist. In many instances the soil is so loose that the plants migrate down hill, and large ones may be found with roots two or three feet long, extending up hill from the plants. These slopes are shaded most of the day, though they get some sunshine in the afternoon, as this far north the summer sun sets in the northwest. The plants are buried in snow all winter, and often freeze solid in cold autumn mornings before the snow comes. During the summer, they get little rain, and in dry seasons, I have found the leaves



Lewisia Tweedyi

quite reddened and curled from drought.

Lewisia columbiana is a much commoner species, ranging all through the Cascades from British Columbia to Oregon, and in the Olympics. The foliage is something like that of *rediviva*, though somewhat flattened, but the blossoms are much smaller and are borne in many flowered scapes. This species is found in much the same sort of locations as the preceding, but it does not often grow under trees, and it is more apt to favor the thinner soil of the northward-facing, rocky points. It is often found in the vicinity of mine prospects. The leaves are occasionally subject to a rust, which does not seem to be very harmful.

In southern Oregon and northern California, there are several very similar species, including *Howelli*, *cotyledon*, and *Finchii*. These have flat, broad leaves, closely hugging the ground in a dense rosette. In *Howelli* the margins of the leaves are hyaline and crisped, in the others they are not. The blossoms are much alike, in panicles, apricot or pinkish, with a red or orange stripe down the middle of each petal. The blossoms open a few at a time, and one of my plants has bloomed continuously for six weeks.

I wanted to see these plants in their natural habitat, and when opportunity offered, I had only general directions for finding them. But with my knowledge of the Washington species, I followed a mountain road out of Medford, leading toward California. Imagine my surprise to find that the road ended at a mine. This was promising. *Lewisias* and gold mines

seem to thrive in the same soil. Taking a trail, I climbed up to the top of the ridge, and there, on the north slope, in just the surroundings that would please a *Lewisia*, was *Howelli* by the dozen. Some of the plants looked much like *cotyledon*, but there were all degrees of "crisping." In addition to these three species, there is *Heckneri*, with distinctly toothed leaves, found "somewhere" in California. Since these three or four species occur in high, isolated places within a fairly restricted range, we may wonder if they were not originally but one species, which have gradually become differentiated through being separated on these alpine "islands."

With the exception of *rediviva*, all of these *Lewisias* may be treated alike. In my garden they thrive on north slopes or in well-drained, raised beds shaded by trees most of the day. The soil should be plentifully supplied with grit, sand, and humus. A few large native rocks imbedded in the surface add a natural touch to the bed. We have a great deal of sunshine and warm weather during the summer, and in a cool, cloudy habitation, shade might not be needed. But the drainage and porous soil are essential, for the roots decay easily. Drought need not be feared, for after the plants are thoroughly established, the fleshy roots tide them over such periods wonderfully well.

Young plants of the bitterroot may be raised from seed quite easily; the others are more difficult, though I have got a few plants that way. The seed matures soon after blooming is over, and doubtless germinates naturally that fall or the following spring, depending on moisture conditions.

Concerning Tea

Lately we seem to have been bringing back into our gardens the herbs our ancestors grew for thousands of years, that have disappeared for the last century. Once there, one likes to use them in as many ways as possible and besides harvesting the seeds, roots and flowers to use as condiments, the leaves may be dried to brew into fragrant teas. In olden days, teas were made of herbs for medicinal purposes as well as for their pleasant soothing or stimulating qualities and so we turn to old records to find out which were the palatable ones and which were safe, so that in our enthusiasm, we will not poison the family.

Herb teas were much in favor during the American Revolution when the tax on the leaves of *Thea bohea* was the kindling which set aflame the War of Independence. The following article was written to discourage the colonists from bootlegging China teas and to encourage them to drink what were called 'Liberty Teas' by telling them how poisonous and unhealthy were teas imported from the Orient. The people were to feel that besides being unpatriotic when they drank the amber, fragrant beverage brewed from the leaves gathered from what had been called the "Queen of the Camellias," they were not only shortening their lives but what was far worse, were spoiling their dispositions. Therefore many other teas were described as substitutes, some of which sound most unattractive to us today but others that seem quite delectable. Lately I have been experimenting, making teas from the leaves of bee-balm, lemon verbena, sage, balm, costmary and mint and have found them fragrant, spicy, sometimes tasting of

lemon and always different and pleasant. So I invite others to try the herb teas, so strongly recommended by this ardent propagandist, 'Philo-Aletheias.'
—HELEN M. FOX.

Virginia Gazette, Williamsburg, Virginia, January 13th, 1774.

"TEA! How I tremble at the beautiful name!
Like Lethe, fatal to the Love of Fame."

—DR. YOUNG.

Can posterity believe that the constitutional Liberties of North America were on the Point of being given up for Tea? Is this exotick Plant necessary to Life? Or does our Health depend upon it? Just the reverse. It was ushered into Europe, A. D. 1679, by the extravagant Encomiums of Cornelius Bentekoe, a Dutch Physician. The Tyranny of Fashion spread it with amazing Rapidity though the general State of Health has undergone a great Revolution by it; so that our Race has dwindled, and become puny, weak, and disordered, to such an extent, that were it to prevail a Century more we should be reduced to mere Pigmies.

Physicians soon discovered its Mischief, and wrote against it, at least, all the eminent in that Profession.

The great Boerhaave strongly opposed it, as the most pernicious Custom; and all his Pupils, who have been the chief Ornaments of Physick, followed his Example.

Dr. Tissot, Professor of Physick at Berne, eminent for Patriotism, as well as philosophy, says boldly: "The Teapots, full of Warm Water, which I see on their Tables, put me in Mind of Pandora's Box, from which all Sorts of Evils issue forth; with this

Difference, however, that they do not even leave the Hopes of Relief behind them, but, on the contrary, by inducing hypocondriack Complaints, diffuse Melancholy and Defpair."

He tells us, in a very late Publication, "That Coffee and Tea are forbidden in Sweden and that a considerable Province in Germany has voluntarily given up Coffee, as the English Colonies in America have left off drinking Tea." I am sorry we have not so much good Sense, Perseverance, or Self-Denial, as to deserve this character. He alleges, it has so much increased the Diseases of a nervous and languid Nature, in the Countries where it is introduced, that we may, by attending to the health of any City, discover whether the Inhabitants drink Tea or not; and that it would be one of the greatest Blessings to Europe to prohibit the Importation of these Leaves, which contain an acrid, corrosive Gum, and a few astrigent Particles, and nothing further at all.

Dr. Cullen, present professor of Medicine in Edinburgh, who has the reputation of improving the Theory of Physics, considers both Tea and Coffee as deleterious (of a deadly or destructive Quality) and having mischievous Effects on the nervous System, though Habit abates in some Degree their Effects; that all the Virtues ascribed to them may be fairly attributed to the hot Water, which undoubtedly relieves in Cafes of Rigidity; that Tea weakens the Tone of the Stomach, and therefore, of the whole System, inducing Tremors and spasmodick (convulsive) Affections; that Water of the same Warmth, impregnated with some of our own Plants, is attended with none of these Harms; that from botanical Analogy, Tea belongs to an Order of Plants of

the Narcotick (sleeping) Kind, viz. the Coadenata; that hence the Asiatics do not use it till it is a Year old, and that its emetick Quality shows its Acrimony is not then diffipated. Hence he considers Tea and Coffee are Sedatives, weakening the Tone of the System and diminishing the Force of Nervous Power.

These Effects sensible people of Age and Experience must have observed in Spite of the Prejudice of Education and Habit, and I am bold to say, I never saw a Man or Woman who from Youth was fond of and practiced drinking Tea freely that was not rendered a weak, effeminate, and creeping Valetudinarian for Life.

I cannot hope that the strongest Arguments can prevail with the Slaves of this pernicious Custom to exchange it for Milk the most easy Nourishment of Nature, but it might be expected, whatever they do themselves, they will entirely deny it to their Children, to whom it is a slow but dangerous Poison.

But if we must, through Custom, have some warm Tea once or twice a Day, why may we not exchange this slow Poison, which not only destroys our Constitutions but endangers our Liberties, and drains our Country of so many Thousands of Pounds a Year, for Teas of our own American Plants, many of which may be found pleasant to the Taste and very salutary, according to our various Constitutions. Even drinking Warm Water, in moderate Quantity, like Tea, with Sugar and Cream, has relieved many hysterical Cases; and has cured some, even when attended by considerable Convulsions and Flatulencies, which were the effects of Green and Bohea Teas, in delicate Constitutions. Here permit me to propose a list of several Kinds of Teas, with a Hint of their

Ufes; any of which would be more pleafant than Bohea, &c., provided we ufed them as long:

1. Saffafras Root, fliced thin and dried, with Rafpings of Lignumvite, makes a Tea extremely agreeable when made weak. (x) It beautifies and fmoother the Complexion, prevents Pleurifies, Scurvies, and Cachixies, etc.

2. Sweet Marjoram, and a little Mint, relieve the Head and Nerves, ftrenghening the Stomach, helps all the Digeftions, are good in Catarrhs and Afthmas, and alfo giving a good Colour to the Skin, preevnts Hyftericks, and Melancholy.

3. Mother of Thyme, and a little Hyffop, revive the Spirits, and make cheerful, alfo are good againft cold Difeafes, Afthmas, Coughs, and Vapours.

4. Sage and Balm leaves (the firft dry, the latter green) are gently aftringent, ftimulating and ftrenghening, excellent in Fevers, when joined with a little Lemon Juice; good for Weak Stomachs, Gout, Vertegoes and Cachixies.

5. Rofemary and Lavender, excellent for Diforders of the Head and Weaknefs of the Nervous System, occafioned by India Teas or otherwife, they refolve cold Humors, ftrenghen the Stomach, and roufe the Spirits.

6. A very few fmall Twigs of White Oak, well dried in the Sun, with two Leaves and a Half of fweet Myrtle. This fo exactly counterfeits the India Teas that a good Connofeur might be miftaken in them. They are drying and very ftrenghening, in all wafting Difeafes and Fluxes, fuitable to Women with Child, and good againft Agues.

7. Clover, with a little Camomile. This Tea is pleafant and has done Wonders in Obftructions of the

Spleen, Liver, &c., See Baron Swiden, &c.

8. Twigs of Black Currant Bufhes greatly relieves Afthmas, and often cure them in Children, with a few Worm Purges.

9. Red Rofe Bufh Leaves and Cinquefoil recruit the Strength, mitigate Pain and Inflammations, and beneficial to Confumptives and feverifh People, healing to Wounds, and ferviceable in ffitting of Blood.

10. Miftletoe and English Wild Valerian. This Tea is not the moft pleafant, but tolerable, and is one of the fimpleft Antifpafmodicks; has cured many of the Falling Sickness, purging by Sweat and Urine, and deftroying Worms better than the narcotic Pink Root.

11. Pine Buds and Leffer Valerian, make a Tea fufficient to cure moft Agues, and are very powerful Diureticks, removing Indurations of the Spleen, Liver, Reins and Dyfenterry.

12. Ground Ivy, with a little Lavender Cotton or Roman Wormwood, or Southernwood, are excellent to open Obftructions, preventing malignant and infectious Difeafes, cure Agues and Coughs, and kill Worms in Children.

13. Strawberry Leaves and Leaves of Sweet Briar, or Dog's Rofe, make a Tea agreeably dulco-acid, cooling in Fluxes, Sharpnefs of Urine, and Indifpofitions of the Stomach.

14. Golden Rod and Belony. A Tea of thefe, drank with Honey, are highly corroborative and deterfive to cleanfe Ulcers, in the Lungs, and Wounds of the Breaft, Palfies, &c.

15. Twigs of the liquid Amber Tree (commonly called Sweet Gum) with or without Flowers of Elder. This Tea, fweetened with honey, is very pectoral, and a Specifick with fome in Pleurifies.

17. Peppermint and Yarrow. These, together or apart, are agreeable enough, the first highly beneficial in Flatulent Cholicks, Hyftericks and Depreffion of Spirits; the latter vulnerary and good in all Waisting Hem-morages and Fluxes.

Many more might be added, but I fear I am tedious already. However, these are all so safe and innocent, that, except the 3rd, 10th, and 12th, a pregnant Lady may drink them with Safety, and many with advantage. Married persons may add a little Ginger to any of them.

I see only one Objection that can be made, viz. that in such a variety different Tastes or Constitutions would require different Sorts, which would take too many Pots for the Tea Table and some trouble; but it may be answered, Teapots are not very dear, and (Thank Heaven) we have no unconstitutional Tax laid on them yet. Water is plenty. Sideboards may be had, and if Teapots fail, what Hardship is it for some to make

their own Teas in Mugs or Tankards!

If the Gentlemen and Ladies of the first Rank will use their influence and Example to abolish this pernicious Custom of drinking the Asiatick Teas, and introduce and persevere in using their own, they will have the Satisfaction of having emancipated their Country from the basest Slavery and Tyranny of Custom, and erecting a Monument to Common Sense, which will merit the Praise of Unborn Generations.

PHILO-ALETHEIAS

P. S.—In the low and damp Lands in Maryland and Virginia where flow and bilious Fevers prevail, with Coughs and Catarrhs, the Author of Nature has plentifully supplied them with Hairy Mosses on their Trees, which is very agreeable to the Taste, and an excellent strengthening and pectoral Remedy for their Common Complaints.

(x) Every Sort of Tea is rendered disagreeable by being too strong.

A Book or Two

Western American Alpines. By Ira N. Gabrielson. The Macmillan Company, New York, 1932. 271 pages, illustrated. \$3.50.

Among the dozens of garden books that appear each year, few can fill important niches, because the field is becoming more limited and it is increasingly difficult to find new territory to be occupied. The present volume is not faced with that difficulty, but even if it were, this reviewer feels that it would rank as one of the, if not the most important American book of the year. It has but one

serious fault and that is that there is no more of it.

Mr. Gabrielson has limited his endeavor and then has developed the chosen field with care and thoughtful attention. For the other-than-Western reader the first chapter, describing the native home of the plants enumerated, is the most important in the book as it gives the key to cultivation if we have wit to read it. It is even better than Chapter II which contains some pertinent comments on the growing of the plants described in Chapter III, the encyclopedia chapter that largely fills the book.

The descriptions of the plants themselves are inevitably brief, slightly Farraresque in places, often opinionated. Many plants are included that might well be omitted if the limitations set forth in the preface were rigidly adhered to and the greedy reader would have been happier to have made space for some of the too briefly described species by omitting some of the genera mentioned slightly such as *ader*, *chlorogalum*, *cimicifuga*, *astragalus*, etc., but this is no great matter.

The illustrations are numerous and useful chiefly as habit records as many are slightly out of focus and are suggestive rather than definite. They show reductions of various scales and are not always helpful as in many cases no dimensions are given in the text, but taken with the text should precipitate veritable orgies of purchasing among all readers.

From a Sunset Garden. By Sydney B. Mitchell. Doubleday, Doran & Company, Inc., Garden City, 1932. 337 pages, illustrated. \$3.00.

So many American garden books suffer from a too obvious "program," that one puts down this book with a rather special affection. There is, to be sure, a certain deference to the passage of time in the ordering of the chapters but one might begin here, there, or anywhere instead of with Chapter One with almost equal delight for each is an essay in itself—leisurely, informed, witty, sometimes even tongue-in-cheek.

The experience that lies behind this garden book is essentially Californian, or to limit the field even more, is from Berkeley, which as any Californian will know is a place in itself and not to be confused with Oakland or Ala-

meda, Sausalito or San Francisco, all with their own special climates and claims for attention. In spite of this, this is no book for Berkeley. It has a cosmopolitan turn. One may pass hurriedly the engaging notice of such tender plants as the New Zealand veronicas and others, but the chapters on Daffodils, Tulips, Spring Bulbs, Iris, Dahlias, and Gladiolus are for all of us though we must approach with a different attitude, Geraniums and Pelargoniums, Perennials Sometimes Tender, Sun Roses, Rock Roses and Brooms, Fuchsias, Native Sons. This, however, is as it should be.

The book has other charms than mere information. It is delightfully written. It is mature. It is opinionated, gently but firmly so. It touches upon the many fringes of life and living that gardens should and do for the vivid and active soul. One ventures to believe that it will take a place, in years to come, not merely on the shelf of new books, but upon that other shelf that changes little with time, save in evidences of continual use.

Gardens in America. By Marion Cran. The Macmillan Company, New York, 1932. 320 pages, illustrated. \$3.00.

This book of course is poorly named. It should have been "Marion Cran in American Gardens" and so a garden reviewer has his own troubles with the book, for any one who knows any of Mrs. Cran's books knows she is no gardener and that gardens and plants are merely the setting of her maturer years, the background of her emotional and personal adventures.

The book remains, however, an important document for one reason if no other. It is that astonishing thing, a book about American gardens by a

Britisher who is not only friendly but admiring. For once, there has been laid aside that ancient, honorable, and enviable assumption of absolute perfection that we younger gardeners find so difficult. Here our efforts are judged against an ultimate standard, not a British one. Although there are passages of too intense rapture, there are others of very pertinent comment. Although one gasps at the personalities indulged, one girds up his loins for future reformations.

Diseases of Narcissus. By Frank P. McWhorter and Freeman Weiss. Station Bulletin No. 304, Agricultural Experiment Station, Corvallis, Oregon. 42 pages, illustrated. 1932.

An interesting bulletin brings together much of the recent information from the larger bulb growing areas on the Pacific Coast that relates to the various diseases, classified here as Virus, Fungus, and Nematode diseases

and their relationships to other bulb diseases. The illustrations are excellent, the discussions clear and specific and a brief summary of control practices if provided for those who will not read further.

Narcissus Pests. By W. E. H. Hodson, A. R. C. S., D. I. C. Bulletin No. 51 of the Ministry of Agriculture and Fisheries, His Majesties Stationery Office, London, England, 1932. 40 pages, illustrated. One shilling.

This is a non-technical bulletin addressed to growers of narcissus in Britain. It is a brief discussion of the narcissus flies, the bulb eelworm, the bulb mite, and the bulb scale mite, slugs, root eel worms, yellow stripe, and the methods of control, with a brief statement of the literature for those who wish to read further. The illustrations, which include one color plate, are clear and informative.

The Gardener's Pocketbook

Clematis Joviniana. Schneid.

I have for many years wondered why one of the most vigorous and attractive of climbing plants, *Clematis Joviniana*, which is common in English gardens, is so rarely found in our own. It is a hybrid of the non-climbing *C. heracleifolia Davidiana* and the common European climber *C. Vitalba*, and those who know the former will recognize its three coarsely toothed leaflets and the shape of its flowers, which in this case are white flushed with a lovely pale grayish lilac-blue, and borne in large axillary clusters. But they will be unprepared for its rampant growth, and perhaps even for the profusion of its bloom in late

August and September. It will grow almost anywhere so long as it has lime and sunlight; and on a trellis or on a fence, hanging over a garden wall, tumbling over a bank or tree stump, or clambering up a tree, it makes a charming picture. It should be in every garden, vying in popularity with *C. paniculata*, yet outside of botanic gardens it is almost completely unknown in America, and so far as I know, has never been offered under its right name by a single American nurseryman.

It seems to have originated on the Continent of Europe at the very end of the nineteenth century or early in the twentieth, and owes its specific

name to a Monsieur Jouin, manager of the Simon-Louis Nursery at Metz. But the exact place and time of its origin or introduction are shrouded in mystery. Monsieur E. Lemoine of Nancy informs me that he obtained the first plants from Henri Correvon of Geneva under the name of "jardin alpin" about 1909, but Monsieur Correvon writes that he obtained *his* plants from Vilmorin who in turn had obtained them from Lemoine, and that it was universally regarded as a hybrid of *C. Davidiana* × *Vitalba* (or *paniculata*) which originated in the Lemoine nursery at Nancy! It was described in the *Gardeners' Chronicle* of London in 1912, but was widely diffused before that time.

It is, as I have said, well-known in English gardens, where it often masquerades under the name of *C. grata*, which really belongs to an Asiatic species with white flowers and of much less hardiness. Under this name it figures in William Robinson's charming little book on clematis, *The Virgin's Bower*, and receives its meed of praise. It appears under its real name in E. A. Bowles's *My Garden in Autumn and Winter*, where it is called "one of the best" of the clematises. Mr. Bowles's description of his plant as "white with a greyish tinge on the back of the petals [sepals]" indicates, what is indeed the fact, that there are various forms differing somewhat in shades of color. There are also the Lemoine varieties grown from seed of *Jouiniana*, called *Campanile*, *Oiseau Bleu*, and *Côte d'Azur*, but these have reverted to the non-climbing character of *C. Davidiana*, and so belong in a quite different category from the superb climber discussed in this brief note.

Though this plant has been grown for a long time in the Arnold Ar-

boretum and in two or three other collections, I have seen no reference to it in popular garden literature on this side of the Atlantic under its right name. It is passed over in silence in the interesting chapter on clematis in E. H. Wilson's *More Aristocrats of the Garden*. Some fifteen years ago, however, a New England florist introduced a hybrid which he called *C. Ina Dwyer*, and which he informs me he originally discovered on his own place. This is obviously a hybrid of *C. Davidiana* and some climbing sort, and is so indistinguishable from *C. Jouiniana* that it may be regarded as the same hybrid for all practical purposes. This plant is described briefly in Mrs. Francis King's *Pages from a Garden Note-Book* and in other of her delightful writings. But *C. Jouiniana* deserves to be accorded a welcome under its rightful name, and I hope the nurserymen of America will perform their share of the work needed to make it widely known in American gardens.

J. E. SPINGARN.

Amenia, Dutchess County, New York.

Prunus serrulata Lindl. Oriental cherry. Variety Oh-nanden. (See page 69.)

One of the charming features of certain flowering crabapples is the pleasing contrast afforded by the pale green of the foliage and the delicate pink of the blossoms. This particular type of contrast is not so common among the flowering cherries, but one of the best examples is found in the subject of this note.

The rather spreading tree, eventually 16 to 18 feet high, has dark-gray bark, and the young brown leaves fade to pale green by the time the flowers commence to open. If the growing tips of the young shoots are examined



E. L. Crandall

Oriental Cherry, Oh-nanden

[See page 68]

closely, one notices the deeply divided yellowish stipules, half an inch long, with the very narrow divisions gland tipped. These drop off in a week or two, about the same time that the dull red-brown of the youngest twigs has faded to green. The squarish flower buds are deep pink or red, and over the ends of the youngest of them curl the ends of the large, green, entire-margined sepals. Occasionally there may be seen protruding from some of these flower buds the tips of the one or two prominent green carpels. The flowers are decidedly double, with about 47 petals, nearly 2 inches across and of a clear delicate pink, somewhat deeper pink below and at the margins but not with the decided color contrast that one sees in varieties like Tankoshinju and Higurashi. Nor does the pink of the center fade appreciably with age, as it does with Shirofugeri. There are generally three or four flowers, on long slender pedicels, in each pendulous cluster.

Oh-nanden, known occasionally as Nanden also in Japan, means literally "snowslide" or "avalanche," a reference to its free-blooming habit.

This is a variety of real merit, with flowers resembling those of Kwanzan in size and doubleness, but paler pink. Its green or greenish young foliage likewise distinguishes it from Kwanzan. There is also something about Oh-nanden which reminds one of Shogetsu, but the flowers of the latter are much paler, with serrate sepals.

There is a tree of Oh-nanden near Washington, D. C., and one at the Arnold Arboretum, Jamaica Plain, Mass. It is not known to be established elsewhere, and is not yet in the trade.

PAUL RUSSELL.

Washington, D. C.

Iris Douglasiana Herb. (See page 71.)

In one of the illustrations of Mr. Mitchell's book "From a Sunset Garden," reviewed elsewhere in this number, is depicted a mass of this species that might well be the envy of other Californians. How many pangs of envy an Easterner need suffer, it is hard to estimate.

The illustration, an English one, suggests very clearly the general appearance of this plant and its habit of making rather open clumps of grassy evergreen leaves well furnished in time with slender, foot-high flower stalks bearing the usually paired flowers that sit on their stalks with singular grace. As in the case of other Pacific Coast species, there is a great range of color variations, from white through creamy yellows, toward buff and again through light lavenders toward dark, more rosy-purple, all forms being conspicuously veined on the falls.

The plants will grow from seed which is an easy if somewhat slow way to establish them. The old suggestion for purchase of plants was that the plants be secured in mid-winter or just as they were starting into growth, in order that the accompanying formation of new roots should take effect in the new situation.

This autumn I had occasion to purchase a collection of nursery-grown Pacific Coast iris and was delighted to find on their arrival that they had pushed a whole crown of new roots into the packing sphagnum. With a little care in the watering, these roots suffered no check and took immediate hold in the leaf mould of their new location. It might be suggested that this was perhaps particularly true of these plants because they were seedlings and nursery grown and far better rooted than in ordinary plants from collectors or general nurseries. Washington, D. C.



Donald C. Merritt ©

Iris Douglasiana

[See page 70]

Allium triquetrum L. (See page 73.)

In spite of the fact that one turns often to Farrer's "The English Rock Garden" for a variety of data on a great variety of subjects, there are times when one rebels even at the piquant vocabulary. One sentence concerning this species is an example. "The plant has great attraction, and is always to be known by its fat, three-sided stems of some 6 inches or so, each carrying perhaps six large, pendulous flowers of a diaphanous white, looking like the ghost of a dead white flower drowned long ago in deep water."

Our illustration comes from an English garden and shows to my eye and mind no thought of strange sea changes. Here in the robustious fatness of good Maryland clay soil, the plant is as crisp and dead white as any narcissus or snowflake with smart lines of vivid green down the backs of each petal. The first season, after coming from a California nursery, it attempted a fall growth of leaves that were more or less ruined through the freezing weather that followed. Spring weather brought good foliage and fine flowering.

So far the species has shown no tendency to spread underground or by seeds, but this may be only a temporary matter that will follow more complete acclimatization. Washington, D. C.

Verbena canadensis Brit. (See page 74.)

This native of the United States, our European friends hold in greater favor and use more freely than we do here in its home. Inasmuch as it is found from the Florida straits along the sandy shores and hot dry banks to the rich soils of Ohio near Lake Erie with its cold hard winters, climate and soil conditions can not be the reason for not using it. A plant that will

grow and succeed in such varying climates in the wild should at least be seen occasionally in cultivation and in my estimation, be better known.

Here are a few things in its favor. It will grow in the shade, though like most plants blooms more profusely in half shade or full sun. Like its better known relative, *Verbena hybrida*, it is an exceedingly free bloomer. *Verbena canadensis* begins to bloom in the vicinity of the nation's capitol about the twentieth of April and after a short vacation in July will begin in the late summer or early autumn to continue again with blooms in abundance. Plants that have started to thin in the center, however, should be cut back well in mid-summer to assure maximum effect in the autumn. If planted in the difficult dry pockets of a rock garden or a dry poorly constructed section it will solve this problem, another place it will be found useful is as a ground cover for spring bulbs.

The flowers are rosy-purple and are very much like those of its tender hybrid relatives in general texture and general habit of growth. The foliage is also very similar. *Verbena canadensis* rarely forms seed in which it differs from the hybrids. I have tried several times to cross pollinize *Verbena canadensis* with *venosa* and also with various named varieties of the hybrids, but nothing ever happened. I did not get any fertile seed from any crosses I made. This proves to me at least that the best way to propagate is vegetatively. I have been very successful in increasing my stock in this way.

Why let plant lovers in other countries know more about our own plants than we do? We should be the first to grow, appreciate and improve our native flora.

I. N. ANDERSON.

Virginia.



Donald C. Merritt ©

Allium triquetrum

[See page 72]

*Lilian A. Guernsey**Verbena canadensis*

[See page 72]

CORRECTIONS

SIR:

In the last October issue of the magazine, it was said that *Pentapterygium serpens* had been introduced into cultivation over a hundred years ago. It should have been 48 years ago.

MARY G. HENRY.

SIR:

In my article on phlox (July, 1932) Willis Fryer was mentioned as an American originator of new varieties of phlox. The address of his nursery was given as Faribault, Minnesota. It should have been Mantorville, Minnesota.

ETHEL L. CAMPAU.

SIR:

My attention has been called to a grave error committed in the review of Doctor Bailey's Blackberries of North America published in the July magazine. On page 244, in mentioning the type of *Rubus centralis* the statement was made,—“We trust that Deam 967 was collected from the same plant as Deam 27.” Mr. Deam informs me that his number for this specimen is not two numbers, 27 and 967, but one number, 27967. Think of it! Twenty-seven thousand herbarium specimens! I apologize; the error is all mine.

H. C. SKEELS.

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