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Walter Beebe Wilder

Echinopanax horridum, Devil's Walking Stick

Plant Hunting in Alaska

WALTER BEEBE WILDER

To any Chechahco (the Indian name for newcomer or tenderfoot) Alaska signifies a wild romantic region perpetually covered with snow and inhabited by Eskimos and bearded prospectors. The appearance of Juneau, Alaska's capital, in July is a very definite shock to one harboring this impression.

The town nestles comfortably at the base of Mt. Juneau and Mt. Roberts whose summits are certainly snow-covered but the Eskimos and bearded prospectors are conspicuously absent.

The flower lover will be surprised to find stocks, nasturtiums, delphinium and lilies thriving in practically every dooryard. In fact almost any plant which can withstand a rainy season will do well. Not cold, but 140 inches of rain or the equivalent in snow a year is the enemy. This heavy precipitation accounts for such glaciers as Mendenhall, Taku and others which are the largest in the world as well as for the fine growth of timber on the lower mountain slopes.

The searcher after wild flowers will find the trail up Mt. Roberts well worth while. Much of the way the mountain is almost vertical and the trail zigzags back and forth, making an easy climb through a fine forest of Sitka spruce and western hemlock. Many of the trees attain to six feet in diameter despite very shallow soil and the precipitous slope.

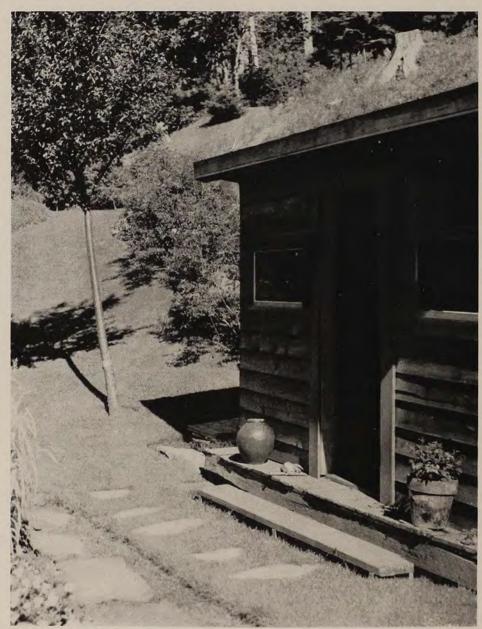
As in the woods of New England and eastern Canada, the tiny dogwood, *Cornus canadensis* is everywhere under foot but here it does not grow with quite the enthusiasm which it displays in the East.

There are patches, particularly in damp hollows, of a plant with enormous leaves and occasional clusters of brilliant red berries which succeed its spike of whitish flowers. It is often higher than one's head and the terrifying array of reddish thorns and prickles along its stems make good the implications of its name, Devils Walking Stick or *Echinopanax horridum*. If you slip when you're climbing and try to grasp it, "horridum" is scarcely the word. Despite the worst intentions, it is a very handsome shrub.

Pyrola secunda is everywhere with its graceful curving five-inch stems of greenish flowers. The white sprays of Tiarella trifoliata stand out surprisingly from the shadows.

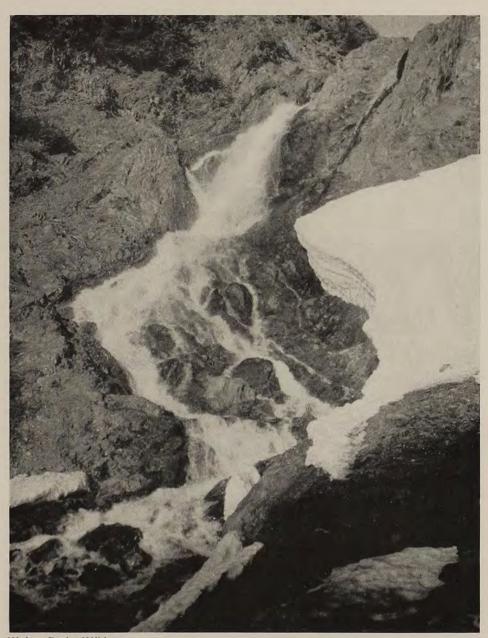
In glades or spots where the woods are more open, the fine white spikes of Spiraea acuminata always appear showing off their graceful sprays three or four feet above the stolid and indifferent heads of the northern yarrow (Achillea borealis). Here, too, one is almost certain to find the red and yellow columbine, Aquilegia formosa, larger and sturdier than the Acanadensis of the East but also more sparing of bloom. There is likely to be a quantity of Arnica latifolia, its yellow stars a foot or so from the ground.

Naturally, it will be no surprise to encounter in these open spaces the ubiquitous but, none-the-less handsome. Fireweed whose tall tapering spikes of rose-colored flowers teeter so dangerously on the brink of magenta from coast to coast. The accuracy of this common name was never very apparent to me until I saw a burned-over area of several hundred acres in Washing-



Walter Beebe Wilder

A Garden House in Juneau, Alaska



Walter Beebe Wilder

Stream near Juneau, Alaska

ton which was literally covered with the plant. It had even outstripped the blueberries in its redecorative effort and cast a weird rosy veil over the blackened ground as far as the eye could see.

Less well known but, to my mind, more beautiful is the dwarf Epilobium latifolium which, at Juneau wanders from sea level far above timber line, almost to the edge of the snow. The flowers are about the same color as those of its relative but very much larger and borne somewhat more sparsely. At the base of Mendenhall Glacier it actually trespasses upon glacial detritus which is underlain by ice. As with so many plants which seem to seek out hazardous homes, its growth in these locations is more compact but no less, and sometimes more, floriferous.

It would certainly not be fitting to proceed above timber-line without mention of the Alaska lupine, *Lupinus nootkatensis*, whose close-flowered blue and white racmes are so spectacular in southern Alaska. Low meadows are often covered for acres with the gray furry foliage and handsome spikes of bloom. Unfortunately although the plant strays into the heights, it suffers there and definitely puts its worst foot forward.

Timber-line on Mt. Roberts is a sudden and startling change. From dense all-enclosing forest the climber passes at a step into a region of treeless alpine meadows. Instead of the close-packed vertical pillars of spruce and hemlock he is confronted with a prospect limited only by haze and the earth's curvature. Gastineau Channel which, from below, had all the majesty of a Hudson or Mississpipi seems now merely a broad blue ribbon with its clean surface marred by the strangely fingershaped

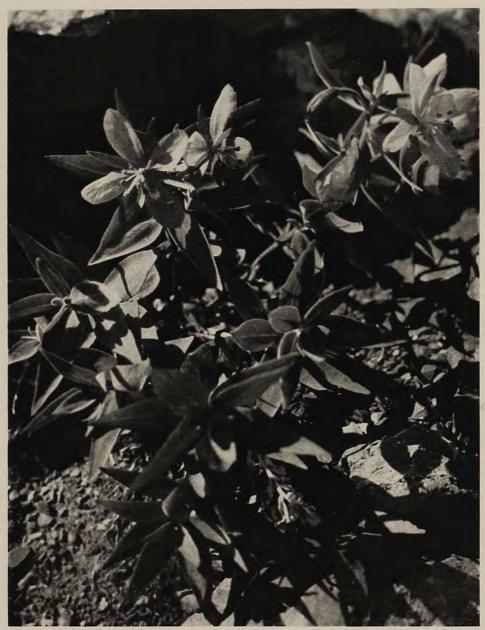
dumps of the A. J. Gold Mining Company. It seems incredible that, from under his very feet, thirteen thousand tons of pulverized rock are added to these slender gray fingers every twenty-four hours, transported at that by the very streams of which he is suddenly aware roaring at his back.

Any weariness from the long climb vanishes like mist from the valleys below as he gazes at the long succession of snow-clad peaks across the Channel or the intricacy of waterways to north and south or, best of all, the meadows, cliffs and snowfields yet to be surmounted.

The flora shows an even more pronounced change. Most of the plants from below which persist above timberline seem a little alarmed as if the whole thing had been a mistake. Aquilegia formosa hardly dares show a flower; Cornus canadensis makes itself as small and scarce as possible. Sanguisorba sitchensis, whose fragrant white two-foot spikes and serrate foliage decorate the lowland roadsides, seems more or less cheerful for a little way but soon disappears. Only the lesser fireweed seems perfectly at home.

However, there is no lack of plants; they merely change to typical alpine flora. The little aconite, *Aconitum chamissonianum* is everywhere among the grass with its large dark-blue flowers never near enough together to make much of a show. Equally modest is *Fritillaria camschatcensis* whose nodding bells on four to eight-inch stems are so dark a brownish-purple as to be almost black.

The pale pink blooms of Erigeron perigrinum show up unexpectedly in the grass singly or in groups, with flowers an inch or more across and stems varying from six to eighteen inches according to the pressure of their neigh-



Walter Beebe Wilder

Epilobium latifolium



Walter Beebe Wilder

Epilobium augustifolium



Walter Beebe Wilder

Silene acaulis

bors. One plant of the high meadows which seems unconcerned with its companions is *Castilleja parviflora*, an Indian Paint Brush which refuses to hold its raspberry-colored head higher than twelve inches regardless of surroundings. Its relative in this strange parasitic family, *C. pallida*, is more susceptible to environment and is tall (to two feet) when its neighbors are tall and low growing when they are likewise. It even shows its yellow green head far below timber-line on occasion.

I had almost reached the snow line and glimpsed a tuft of *Silene acaulis* when I realized that dusk was descending. Instead of sensibly following the regular trail I skirted the summit and after a time found myself in a deserted mining camp, as wierd and lonely a place as I have ever seen.

Buildings were windowless, machinery lay rusting, test-tunnels exhaled a cold draft into the gathering darkness. Added to my troubles was the fact that numerous pale flowers beamed at me from the margin of the mountain stream which I elected to descend. I dared not stop to identify them.

As I reached the bottom of the valley I ran across a small shack. The last ray of sunlight between the peaks shone through a window and guess what it illuminated; not a rare plant but a case of dynamite! Civilization at last.

Bronxville, N. Y.

The Camellia

GEORGE GRAVES

THE camellia is now enjoying a revival of interest, in greenhouses in the North and in the open in southern and west coast gardens. This present spurt in popularity harks back over nearly 100 years of quiescence to the first half of the 19th Century.

Many of the varieties which are now being grown are vegetative descendants of the very plants which bloomed in the greenhouses of plant hobbyists along the eastern seaboard 100 years ago. During the long interval when camellias were out of favor, many varieties, through negligence or lack of interest, lost their labels, others were subjected to multiple rechristenings, and still others dropped from sight altogether.

Still another form of present confusion is the result of the persistence of old names currently attached to quite unauthentic material. It is not at all unusual for several clones with quite different flowers to be offered under the same well established old name, sometimes on the same catalogue page.¹

Just as the plants are confused and confusing, so also is the literature which has grown up around the cultivated camellia. One unskeptical author has copied the other or has set down conclusions at which he has jumped rather than arrived, with the result that there seems not to be in English any complete and accurate historical account of how the camellia got from the Orient to wide development and distribution in western Europe and America by the opening of the 19th Century. It is worth while to try to get at the straight record of the plant's westward migration.

Botanically, the camellia is an Asiatic

member of the tea family, which family has such native American representatives as Stewartia and Franklinia, both of southeastern United States. The latter was long placed in the genus Gordonia, which was named for James Gordon, who after serving as a gardener on the first estate in Europe to grow camellias, established the famous Mile End Nurseries in London in 1742 and became, seemingly, the first commercial grower of camellias.²

In general, camellias may be looked upon as being evergreen trees or shrubs with lustrous, alternate leaves and perfect flowers which are borne one at a time in the axils of the leaves. Gardeners are interested principally in but two of the approximately 45 species of camellia which have been found in tropical and subtropical Asia—Camellia japonica and C. sasanqua.³

Both of these species were known to European botanists before they were brought into cultivation in the Occident. There is a picture of the so-called scarlet-rose tea (*C. japonica*) in the first volume of James Petiver's "Gazophylacium Naturae et Artis" published in the first decade of the 18th century. Petiver has it listed as *Thea chinensis pimentae jamaicensis folio roseo*, flore roseo and not flore pleno as misquoted by Claudia Phelps. The plant which Petiver illustrated was single pink or, as he put it, "roseo simplici."

It must be remembered that Linnaeus had not yet created the name "camellia" and applied it to these plants.

The next important listing after Petiver was Kaempfer's "Amoenitatum Exoticarum," published in 1712.

Kaempfer listed both species of camellia together with numerous variants, under the Japanese name of Tsubakki.—There was San Sa, vulgo Jamma Tsubakki for *C. japonica*, and Sasanqua Tsubakki, etc. Incidentally, Kaempfer's drawing of *C. japonica*, probably made from life in the Orient and showing a seven-petalled flower, is still one of the best.⁶

The camellia, particularly C. japonica with single and double, white, red, and purple flowers, had long been cultivated in the Orient on an ornamental basis.7 Its introduction into European gardens was evidently a by-product of the attempts of numerous 18th century Europeans—including the great Linnaeus-to bring the tea plant of commerce into occidental cultivation. Much energy and ingenuity was expended before John Ellis was able to write to Linnaeus from London in 1769 that "I make no doubt that by this time twelvemonth we shall have many hundred plants of the true tea growing in England."8 But in the meantime, much grief had been encountered. For instance, Osbeck got a living tea-tree as far as the Cape of Good Hope only to have it wash overboard in a storm. Another living tea plant, consigned apparently to Linnaeus, was actually brought as far as the Cattegat by a Scandinavian ship's captain only to be stripped of its bark in a single night by rodents. This sort of tribulation is all too familiar to gardeners, whether of the 18th or the 20th centuries. Or. as Linnaeus summed it up, "So adverse is Fate on some important occasions."

It seems that the shipping problem was finally solved, after a number of experiments fostered by Ellis, by importing, not plants, but seeds which were specially treated to preserve their viability or which were sown sometime during the long voyage home and thus

arrived in Europe in a condition to permit their safe handling.

One of the difficulties encountered in several of the attempts at importing the tea plant was that, after successfully overcoming the hindrances to the importing of live plants of some age, those plants turned out to be, not the tea plants in China, but rather camellias. This disconcerting experience came to Linnaeus about the middle of the 18th century.9 Also, somewhat later, to the King of France, and to John Ellis in London. 10 The idea seems to have been held by numerous interested Europeans that the crafty Chinese were not anxious to give up the true tea plant and thus lose the sale of tea, which at that time amounted to a monopoly. Hence, plants which closely resembled those of the tea were substituted. In the case of the two camellias which Lagerstroem brought to Linnaeus in 1755, Ellis claimed that the Chinese had pulled off the blossoms to deceive the European sailor at the time he was buying them. This seems to be in line with Osbeck's story of how, in his voyage to China, about 1750, he bought from a blind man on the srteet a camellia "which had double white and red flowers." But Osbeck goes on to say, "By further observing it in my room, I found that the flowers were taken from another; and one calvx was so neatly fixed in the other with nails of bamboo, that I should scarce have found it out if the flowers had not begun to wither. The tree itself had only buds but no open flowers."

The same idea is carried over into European cultural literature in the first mention of camellia in William Curtis' "Botanical Magazine" which says that the firm-textured blossoms are "apt to fall off long before they have lost their brilliancy; it therefore is a practice with some to stick such de-

ciduous blossoms on some fresh bud where they continue to look well for a considerable time." The same idea was expressed by Chandler and Booth some years later.

Linnaeus published the name camellia in his "Genera Plantarum" in 1737, without making reference to the man who was being commemorated. Without doubt, the genus was named in honor of George Joseph Kamel. Kamel was born in 1661 in the City of Brunn in Moravia, once a portion of Austria but more recently known as Brno, Czeckoslovakia.

In 1682 Kamel entered the Society of Jesus as a lay brother. He was probably never ordained, since in 1688, only six years after entering the Jesuit Order, he is reported to have set out for the Marianne Islands, better known as the Ladrones, and devoted himself to botany and pharmacy. He later opened a medical clinic for the treatment of the poor of Manila. Death came to Kamel in Manila in 1706.¹⁴

During his active years, Kamel studied the natural history of the Philippines and transmitted his findings to be published in Europe by such men as John Ray and James Petiver, both in their own publications and as intermittent contributions to the Philosophical Transactions of the Royal Society of London.¹⁵

Despite the stories which have found their way into numerous horticultural publications, there seems to be no positive evidence that Kamel ever saw a camellia, much less had anything to do with its introduction into western gardens. The genus does not grow wild in the Philippines and apparently Kamel did not botanize on the Continent of Asia or in Japan. Thus, it would seem that Kamel's connection with the genus Camellia consisted entirely posthumous honor granted him by Linnaeus for his

contributions to man's кноwledge of natural history. Latinized his name became Camellus, and Petiver's Thea, Kaempfer's Tsubakki, Edwards' and Collinson's Chinese rose took the name of Camellia.^{16, 17}

As stated before, Linnaeus published his name Camellia in 1737. The record of earliest cultivation of the plant in European gardens is placed by the second edition of the Hortus Kewensisapparently based on evidence supplied by that inveterate letter writer, Peter Collinson-as being in the garden of Robert James Lord Petre at Thorndon Hall, in Essex, in or before 1739.18 How, from whom, and exactly when Lord Petre got the plant or plants is not clear. Judging from the painting of one of Lord Petre's plants as rendered by the artist George Edwards, and from Edwards' accompanying text, it was a few-petalled red or pink variety comparable to those illustrated earlier by Petiver and Kaempfer. There is some evidence of doubtful authenticity that Lord Petre also had a white-flowered variety; also, that Collinson had some camellias in his own garden.19

Then, there is a report that those earliest plants were thought to be much more tender than they actually were and hence were killed after a few seasons by the mistaken kindness of being grown in an extremely warm greenhouse.20 However, Collinson reported that during a visit to Lord Petre's widow in 1746-about four years after the young nobleman's death - among other plants in the vast collection of tender species which were still doing well at Thorndon Hall was Rosa chinensis. By this he meant camellia and not the true R. chinensis which did not come into cultivation until 1768, some twenty years later.3a

Although Collinson spoke of this rose-like plant growing in a stove or a

tropical greenhouse, he had previously written of a Chinese tea tree which was growing happily in a temperate English greenhouse along with oranges. ^{17a} By the end of the 18th Century the camellia, as well, had become a recognized orangery plant. Some years later its ability to thrive outdoors in lower temperate or sub-tropical areas was recognized.

The camellia did not become important in Europe horticulturally until toward the end of the 18th Century. As stated above, the plant had arrived at various times in Sweden, England, and France by 1770 as a stand-in for the tea plant. The records of all these early importations are none too clear. Also, concerning this period and of later developments, there have grown up stories and traditions which seem to have little or no foundation in fact. For instance. Le Texnier's history of the camellia21 stated that the plant was mentioned in the catalogue of the Cambridge Botanic Garden in 1742. This statement is puzzling when it is recalled that the Botanic Garden at Cambridge University did not get underway until 1762 and that the first edition of Donn's Hortus Cantabrigiensis did not appear until 1796.22.23 Evidently, Le Texnier misread an earlier statement in the Herbier General de l'Amateur which pointed out that the early editions of Hortus Cantabrigiensis listed the plant as being in England as early as 1742. Later editions of the latter followed Hortus Kewensis in moving the date forward to 1739.23a

There as been other confusion, too, principally as regards the spelling of names; for instance, the varietal name Donkelaarii, evidently given to a plant brought home by Siebold and named after two famous Belgian gardeners, father and son, can be found spelled in almost as many ways as there are math-

ematical possibilities. Of course, the variety got off to a bad start when Morren's original publication spelled it three different ways, all of them wrong.²⁴ The present spelling seems as right as any.

Beginning with John Slater's importation of the double white and the variegated red varieties of C. japonica through the agency of Captain Connor of an Indiaman in 1792 (or -93?). other oriental garden forms followed quickly.25 The double red, the anemone-flowered or Waratah, the fringed white, the varieties Wellbankii and Pomponia and others—some of which were to be famed later as seed parents -came in in the next few years, usually by arrangement between individual garden owners and ships' captains. Chandler and Booth in 1831 listed 16 garden varieties as being of Chinese origin. The single white variety which apparently was late in coming into general cultivation is reported by some to have been imported from the Orient.26 Chandler and Booth, however, stated that this last was raised from seeds in England by Messrs. Rollinson about 1814.27

By this time camellia interest was high and becoming widespread, both in England, on the continent, and along the Atlantic seaboard in the United States. Interest in direct importation from the Orient slackened and growing and selection of seedlings was undertaken on a very large scale. The first named seedling variety of European raising was apparently exhibited by a man named Ross at a show of the Royal Horticultural Society in 1824.28

These early 18th Curry collections were increased by methods little different from those which Cunningham and older travelers had observed among the Chinese in the previous century. Seeds, however, were seldom formed

without artificial pollination. This latter practice led to the idea of calling unusual seedlings hybrids. As in the case of interfertilizing the garden forms of the common lilac, the parents being all representatives of the same species, the offspring are, of course, not hybrids in the true sense.

Camellias were also increased vegetatively by layering, cuttings, and various ways of grafting. In recent years, grafting methods have given way largely to own-root processes, principally cuttings.

The first camellia to reach America was apparently the single red type which John Stevens, of Hoboken, New Jersey, imported from Europe in 1797. Three years later, Michael Floy, later a prominent New York nurseryman, brought a plant of the double white variety from England to add to Mr. Stevens' collection. New England was not far behind, because in 1806 John Prince had also received a plant of the double white through Joseph Barrell of Charlestown, Massachusetts. Further collections were assembled in Philadelphia, Baltimore, and other cities. By 1826 (or -27) William Prince published a catalogue listing no less than 53 available varieties.

There is also the legend that the first camellias in the United States reached the neighborhood of Charleston, South Carolina, before 1785, through the agency of Andre Michaux, a plant and wildlife collector sent out from France.^{29, 30} Three of what are supposed to be original Michaux plants are reported to be still alive in the recently restored garden at Middleton Place. Another has been reported still growing in the neighborhood of the former Michaux garden.

That this tale has lost nothing in the telling seems indicated by the fact that Michaux did not arrive in America until 1785 and did not go to Charleston until sometime in 1786, at the earliest. There is a South Carolina record reported by H. A. M. Smith that a deed to "Goose Creek. French Garden" was passed to Michaux on November 3. 1786.31 Unfortunately, that portion of Michaux's Journal recording his movements from the time of his arrival in New York in October, 1785, until April 19, 1787, is not extant. On the latter date, however, he notes: "Venu de Charlest, a la Plant," thus indicating the previous establishment of the Charleston nursery, in which he assembled American plant material for export to France.32

Michaux is also reported to have interested himself in the importation of foreign plants into the United States. This phase of his American experience is supposed to have been most active during 1790 and 1791 when contact with Europe was broken by war between England and France. Deleuze states that Michaux naturalized several Asiatic trees, "the seeds of which he had procured from American captains trading to China."33 The camellia could well have come to Charleston by this means. However, Deleuze does not list it with other Michaux introductions such as the tallow tree, the scented olive, the silk-tree, or the Persian pomegranate. Whether Michaux actually imported all these plants into the United States for the first time is problematical, since in a letter to John Ellis dated March 21, 1774, Dr. Alexander Garden reported having a yearold specimen of the tallow tree.8a Nor did John Dravton list either the camellia or the tea among the exotic plants in cultivation in the Charleston area in 1802.34

Although direct trading with the Orient was not reported by Drayton, it is possible to assume that the camellia

might have come to South Carolina as a substitute for the true tea plant of commerce, just as had happened in Europe years before. However, it seems more likely that the Charleston camellias came to this country from Europe expressly for garden ornament. 1770 the British and French had imported both camellias and tea plants. In 1774 Dr. Garden reported sowing tea seeds received from John Ellis in England through the agency of a returned traveler named Blake.8a Whether Garden's seeds developed into plants is not certain. However, tea as such is mentioned in one or two reports soon after 1800.

One anonymous correspondent to the "Southern Agriculturist" wrote in 1830 that he had seen tea growing 25 years previously on Skidaway Island, at the mouth of the Wilmington River near Savannah.35 Another unknown writer in the same periodical had stated two years earlier that the tea plant had had its start in the Carolinas in the Charleston nursery of Philipe Noisette about 1913. From the meager records available, it appears certain that the serious culture of the tea plant was restricted to that nursery for at least 15 or 20 years.36, 36a, 37 Considering Noisette's French connections, it is quite possible that he had something to do with the growing of the first camellias in South Carolina.

Thus, the arrival in Charleston of camellias remains a matter for conjecture. When, whence, how and through whom they came is as yet an unsolved problem.

The so-called type and variants of *C. japonica* are known in the South as simply japonicas. This species is less tea-like in aspect and has larger flowers which appear later in the season than do those of that other important species, *C. sasanqua*. In aspect, *C. sasan*

qua is a much less strong-growing plant, of loose, straggling habit, with flowers usually solitary and terminal, rather than lateral as in the case of the C. japonica. In the type plant known usually as Lady Bank's camellia, which Captain Welbank brought from the Orient in the East Indiaman Cuffnels in 1811, the white flowers are small and open in November and December.27a In general, C. sasanqua bears closer resemblance to the tea plant of commerce than does C. japonica. In horticulture, its habit of blooming early is of considerable importance and interest.

The high point in camellia interest seems to have been in the 30's, 40's and 50's of the 19th Century. It was then that several authors, such as Chandler and Booth in England and the Abbé Berlese in France, published volumes which together contained hundreds of colored plates illustrating desirable varieties. Evidently, Berlese wrote his "Iconographie" as a camellia book to end camellia books, and vet some years later Verschaffelt in Ghent published 13 volumes, each containing 48 colored plates of varieties mostly untouched by previous authors.38, 39, 40 And so the list of varietal names went on lengthening. Anyone who takes the trouble to examine these older books - and there have been no new ones of importance since that time-will realize just how difficult or, in some cases, futile it is to try to identify plants of old varieties which have lost their labels. And, of course, not all camellias of 100 years ago were named and introduced. There were large collections of unnamed seedlings.

The Abbé Berlese did try to bring order into the cultivated camellia situation by suggesting in his monograph of the genus two systems of classification.⁴¹ One was based on "ascending

chromatic gamuts, of the tones and natural shades of the flowers." The other system took into consideration the shape and arrangement of the flower parts. The first edition of Berlese's monograph was translated by Henry A. S. Dearborn, first president of the Massachusetts Horticultural Society, and was published in Boston by Joseph Breck & Company in 1838. The classification based on flower form did not appear in Berlese's monograph until later editions and, hence, is not considered in Dearborn's translation. This is the system which, with some modification, is now being used widely in the United States. It can be studied in its present form in Mrs. Phelps' contribution to the Bulletin of the Garden Club of America of March, 1940.

Another important and often overlooked Boston contribution to camellia literature was the series of articles written for Hovey's magazine by Marshall P. Wilder—beginning with its first issue in 1835. Also, there was his paper on pollination and seedling raising in the Transactions of the Massachusetts Horticultural Society about 1847.

Most of the many books on camellias discuss their cultural requirements to some degree. However, the most complete and the only exclusively American treatment of the subject was written by Robert J. Halliday, and published in Baltimore in 1880. For years it remained the last significant contribution to important camellia literature.

Massachusetts Horticultural Society.

BIBLIOGRAPHY

1. Fruitland Nurseries, Nursery Guide, Augusta, Georgia, 1940-1941, page 22, Group No. 1.

2. Loudon, J. C., Arboretum et Fruticetum Brittanicum, London, 1844, Vol. I, pages 77, 78. 3. Rehder, Alfred, Manual of Cultivated Trees and Shrubs, Second Edition, New York, 1940, pages 633, 634.

3a. Same. Page 449.

- 4. Petiver, James, Gazophylacium Naturae et Artis, London, 1702-09, Plate 33, fig. 4.
- 5. Phelps, Claudia, A Short History of Camellias, Bulletin of the Garden Club of America, July, 1934.
- 6. Kaempfer, Engelbert, Amoenitatum Exoticarum, Lemgoviae, 1712, pages 850-853.

7. Thunberg, Carl Pehr, Flora Japonica, Lipsiae, 1784, page 273.

8. Smith, James Edward, A Selection of the Correspondence of Linnaeus and Other Naturalists, London, 1821, Vol. I, pages 109-10, 148, 154, 162, 176, 193, 232, 241, 246.

8a. Same. Vol. I, pages 571, 591, 601, 602.

9. Lettsom, John Coakley, *The Natural History of the Tea-Tree*, London, 1799, Second Edition, page 9, footnote 2; page 51, footnote 3.

10. Ellis, John, Directions for Bringing Over Seeds and Plants from the East Indies and Other Distant Countries, in a State of Vegetation, London, 1770, page 28, footnote.

11. Curtis's Botanical Magazine, London, 1787, Vol. I, plate 42.

12. Linnaeus, Carolus, Genera Plantarum, Leyden, 7737, page 208.

13. Miller, Philip, The Gardeners and Botanists Dictionary, 9th Edition, Corrected and Arranged by Thomas Martyn, London, 1807.

14. Summervogel, Fr. Carlos, Bibliotheque de la Compagnie de Jesus, Brussels, Paris, 1891.

15. Kamel, Georg Joseph, Historia Stirpium Insulae Luzonis et Philippinarum. (In Ray, John, Historia Plantarum, London, 1704, Vol. III.)

16. Edwards, George, A Natural History of Birds, London, 1747, Part

II, plate 67.

17. Richardson, Richard, Extracts from the Literary and Scientific Correspondence, Yarmouth (Eng.), 1835, Letter CLIV, page 393.

17a. Same. Letter CLIII, page 391. 18. Aiton, W. T., *Hortus Kewensis*, Second Edition, London, 1810, Vol.

IV, page 235.

19. Brett-James, Norman G., Life of Peter Collinson, London, (1926?),

page 56.

- 20. Loudon, Mrs. Jane Webb, Ladies' Flower-Garden of Ornamental Greenhouse Plants, London, 1848, page 43.
- 21. Le Texnier, Le Camellia, Paris, 1911, page 5.
- 22. Preston, F. G., University Botanic Garden in Cambridge, Journal of the Royal Horticultural Society, London, 1940, Vol. LXV, page 174.

23. Lindley, John, Hortus Cantabrigiensis, 11th edition, London, 1826,

page a2.

- 23a. Mordant de Lounoy & Loiseleur-Deslongchamps, Herbier General de l'Amateur, Paris, 1816, Vol. I, page 43.
- 24. Morren, Ch., Horticulteur Belge, May, 1834, Vol. II, page 63, plate 29.
- 25. Andrews, Henry, Botanists Repository, London, 1797, plates 25, 91.

26. Botanical Register, Vol. II, Lon-

don, 1819, plate 353.

27. Chandler, Alfred, and Booth, W. B., The Plants which Compose the Natural Order Camellieae and the Varieties of Comellia Japonica, London, 1931, plate 17.

27a. Same, plate 5.

- 28. Wilder, Marshal P., Observations on Camellia, American Gardeners Magazine, 1835, Vol. I, pages 13-17.
- 29. Gardens of Colony and State, New York, 1934, Vol. II, page 259.
- 30. Pringle, Henry F., *The 200th Year*, Collier's Magazine, New York, April 12, 1941, page 80.

- 31. Smith, H. A. M., Goose Creek. French Garden, S. C. Historical and Genealogical Mag. 24:8-10, 1928. (Transcribed for the author by Dr. R. J. Wilmot, of the University of Florida.)
- 32. Michaux, Andre, *Journal*, with an introduction and notes by Charles Sprague Sargent, Proceedings American Philosophical Society, Philadelphia, 1888, Vol. XXVI, No. 129.
- 33. Deleuze, Memoirs of the Life and otanical Travels of Andre Michaux, Annals of Botany, Vol. I, London, 1805, pages 338, 345.
- 34. Drayton, John, A View of South Carolina, Charleston, 1802, pages 84-87.
- 35. Anon., Remarks on Fruit Trees and the Introduction of New Articles of Culture in the Southern States. Southern Agriculturist, Vol. III, Charleston, 1830, pages 185-186.
- 36. Anon., Brief Notes on Agricultural Resources of South Carolina, Southern Agriculturist, Vol. I, Charleston, 1828, pages 17-18.
- 37. Bachman, J., An Address Delivered before the Horticultural Society of Charleston, July 10, 1833. Charleston, 1833, page 25.
- 38. Berlese, Laurent, Abbé, *Iconographie du Genre Camellia*, Three volumes, Paris, 1841-43, 300 colored plates.
- 39. Verschaffelt, Ambrosius, Nouvelle Iconographie des Camellias, Ghent 1848-60, 13 volumes each containing 48 colored plates. For complete index see reference No. 40.
- 40. Morren, Edouard and De Vos, Andre, *Index Bibliographique de l'Hortus Belgicus*, 1887, pages 395-425, published by la Federation des Societes d'Horticulture de Belgique.
- 41. Berlese, Laurent, Abbé, Monographie du Genre Camellia, Paris, 1837, Edition II, Paris, 1840, Edition III, Paris, 1845.



Louis Buhle

Fragrant Garden

A Garden of Sweet Perfume

HELEN M. Fox

ALL GARDENS are supposed to be sweet smelling. However, there are many plants in our borders such as dahlias, gladioli and most of the tulips which are scentless and grown for their colors, or delphiniums grown for their stately spire-like inflorescences. Not all people agree on what is agreeable in fragrance. Some like the odor of rue or hyssop which is unpleasant to others. and there have been men or women who do not like the scent of tuberoses. It is not only the flowers which are fragrant but frequently the leaves, though these sometimes give forth their perfume only when they are rubbed between the fingers or bruised. In medicinal plants and perfume herbs the seeds and roots are sometimes fragrant.

In planning a Fragrant Garden one should not have all the scents of the same family or all of them sweet, but should introduce a few plants with bitter or piny scents to contrast with and enhance the flowery. Yet, no matter how carefully the flowers would be placed to waft forth their fragrance in rhythmic sequence, wind and weather—dampness, frost or rain—would alter the intensity and quality of the emanance of scent from the glands in the leaves and flowers.

Most fragrant plants come from warm climates and do best in a sunny situation, where they have protection from the north by a wall or shrubbery. Except the mints which thrive in a damp place, all other herbs prefer a somewhat sandy soil and good drainage. There are many plants with fragrant flowers at home in the woods but they will not be included in this paper which is devoted to a small perennial garden growing in the sun.

Chinese and Japanese artists plan their gardens for solitude and meditation and furnish them with symbolic stones, plants and streamlets to evoke the concepts of their religious beliefs. Americans plan their gardens for outof-door rooms and to look like pictures. They use the plants for line and color but without a deeper significance. As with all pictures, a frame gives the garden depth and precision and emphasizes the end and beginning of the composition. The frame can be a clipped hedge or naturalistic shrubbery. When the hedge is to be strictly architectural in line, no plant is better than box, Buxus sempervirens, which has enclosed pleasances from the days of classical antiquity down to the present era. The leaves are particularly fragrant after rain, after they have been clipped and when the hot sun shines on them. The smell is warm and reminds one of old time colonial or European gardens with brick paths and geometrically patterned beds. As an ending in the north, Buxus microphylla koreana takes the place of Edging Box, Buxus sempervirens suffruticosa, and makes a low spreading plant, green all winter but with a slight vellow cast. In the north, arborvitae, Carolina hemlock and some of the junipers also provide fragrant, exact looking frames.

When the hedge is not to be clipped it could be composed of Sweet Briar roses, Rosa rubiginosa, having leaves fragrant of resin when wet by rain. South of New York, rosemary, with light blue flowers blooming in the short days of late winter and early spring and lavender with violet spires rising from

grey leaves, furnish poetic enclosures and still nearer to Mexico the garden could be framed with Salvia Greggii varieties with white as well as rose-colored flowers intermingled. The three last mentioned have fragrant leaves as well as flowers. From South Carolina down, Osmanthus fragrans or Osmanthus Delavayi with glossy foliage and deliciously scented flowers make sturdy hedges.

When the garden is small, a hedge composed all of one kind of shrub provides unity and looks better than one of many varieties and species, but the collector of fragrant plants might prefer a mixed frame to his garden in order to have as many plants as possible in a small space.

If the frame is composed of a mixed shrubbery, in the back, there might be a strawberry-bush, *Calycanthus floridus*, with shiny leaves and pompon-like dark red blossoms strongly fragrant of strawberries.

Beside the strawberry-bush would rise Vitex Negundo incisa. South of Philadelphia, V. Agnus-castus would be included. Vitex Negundo incisa comes from northern China, Mongolia and Korea and as might be expected, is perfectly hardy. The shrub grows to ten feet high and is wide-spread and every part of it is characterized by a smooth elegant texture. The leaves are divided into five leaflets which are spread far apart and impart an airy look. They are "parrot green," the longest measure four inches in length and four and a half across and they smell agreeably of pine blended with a flowery quality. The flowers grow in spike-like racemes, are labiate, of "light violet" and the lower lip has a white furry hump and a violet line down the center. They exhale a fragrance of heliotrope and bloom from mid-July until after a hard frost in October. Vitex

Agnus-castus, called chaste-tree, hemptree or monks' pepper-tree, comes from southwest Europe and western Asia. The leaves are palmate and the spires of flowers are blue in the type, white in alba and pink in rosea.

Another member of the mint family for the shrubbery is mint shrub, Elsholtgia Stauntoni. It is hardy although it dies back a little during the winter in my Peekskill garden. The shrubs require a sunny situation and the plants thicken in a short while and can be increased from divisions, as also from cuttings. The stems are stiff and ridged. The thin-textured leaves are pointed at both ends, wider below the center, toothed along the margins, excent the lower fourth and measure one and a half inches across and five inches in length. They are yellow green, glabrows and smell of mint when rubbed between the fingers. The flowers are arranged in spire-like inflorescences about five and a half inches long and at the termination of the branches. They are borne to one side of a velvety plumtinted stalk, are tiny, close together, and pink tinted lavender, "light marve," with pistil and stamens exserted and of the same color as the corollas. They smell deliciously of forgetme-nots, keep well in water and bloom from the end of August deep into September. Recently a form called Farquhari has come into the market which differs from the type in having larger flowers of a deep "amparo purple" shaded "violet purple."

A plant with a suede-like surface and foliage fragrant of pine is blue-beard, Caryopteris incana, which opens its clusters of slaty blue flowers the latter half of September. The bush is about two feet high and although Mr. Rehder lists it for Zone VII it is hardy when in a sheltered position in my garden, which is Zone V. The plants are in-

creased easily from cuttings and develop into new plants so quickly they can be treated as annuals, if the gardener has a greenhouse. The stems are much branched and covered with bloom while the leaves are ovate, roundedly toothed half way down from the tip and dark shiny green above and grey-green on the under surface. The flowers, in flat clusters, two together, grow to one side of the stem. One of the five-pointed lobes topping a tube-like calvx extends into a lip. The exserted stamens, "beards," of grey-blue, are tipped with dark blue filaments and give the flower clusters a fuzzy look. However, though the leaves are fragrant the flowers smell a little like dogs in wet weather. A variety called superba rosea has rosecolored flowers larger than in the type and there is also a white form.

Since the stems are prostrate *Perovskia abrotanoides* can be planted in front of the shrubbery. The whole plant is redolent of rosemary. The square stems as well as the much pinnate leaves are grey and the slender spikes of violet flowers are similar to those of the lavenders but much smaller. Perovskia prefers a warmy sunny place and is readily increased from cuttings.

If there is a sunny slope sweet fern, Comptonia peregrina, a shrub two feet or so high, furnishes an excellent covering. The plant, although called "peregrina," which means foreign, is native from Nova Scotia to North Carolina and westward to Indiana. Near my garden it is found on dry, somewhat acid banks and always in the sun, but in cultivation it grows in the shade too. The pendulous brown catkins come in early May and under them are the coneshaped feminine inflorescences. The charm of the plant consists in the slender leaves, so regularly and deeply toothed as to appear pinnate, and giv-



Margaret DeM. Brown

Origanum vulgare

ing forth a scent of bay leaves, with a dash of lemon and orange peel.

Closely related to sweet fern, being of the same family of Myricaceae and also smelling of bay, are the Myricas. Like the sweet ferns, once the Myricas are established they increase into colonies likely to smother other plants. Bayberry, Myrica pennsylvanica, grows well along the seacoast from Newfoundland to Maryland and makes a spreading plant two feet high. The grev branches are oddly dotted with round orange glands as are the leaves. The leaves are glossy green, narrow, wider above the center, toothed along the top with wavy margins and a prominent central vein. The fruits coming after the catkins are grey, have glands and look shrivelled. They furnished the wax for colonial candles, colored them dark green, and caused them to give forth a bay-like perfume as they flickered in pewter holders on oaken tables.

Sweet gale, Myrica Gale, is found in Europe and northeastern Asia as well as North America and has narrower and less hairy leaves than bayberry and is not as good looking.

No fragrant garden would be complete without its quota of true herbs. plants used for medicine, perfume or flavor. There would be winter savory, Satureja montana, with glossy aromatic leaves bespangled with little white flowers in July and August and alpina with purple flowers. The savories with thyme, Thymus vulgaris, having grey foliage and pink bloom would margin the beds while the Serpyllums in their infinite permutations would carpet the walks, creep between and over stones and sometimes grow into the lawns where they would replace the grass with their mats of closely growing little green leaves and give forth a delicious scent when stepped on. In wilder parts of the garden there would be

clumps of pot marjoram, Origanum vulgare. The white-flowered form, to my taste, is more elegant than the pink. Sweet marjoram, Origanum Marjorana, is not as pretty but is more strongly fragrant. It has to be treated as an annual in the North. There would be sage, Salvia officinalis, handsome with grev puckery leaves and in July with spires of blue, white or pink blooms. Clary sage, Salvia Sclarea, adds to the beauty of a flower border with its virile looking humpy, hairy leaves and tall spires of bloom, or rather of conspicuous floral bracts, iridescent with pinkblue tones.

There are many relatives of the herbs which have not been put to practical use, yet have fragrant flowers and foliage and are attractive looking and an addition to the Garden of Sweet Perfume. Among them are other sages. Salvia patens, from the mountains of Mexico, is a half hardy perennial in cold climates and the roots have to be stored indoors over the winter. The flowers are large and of an exquisite pale blue. Also from Mexico, perennial and not hardy north of Virginia is pineapple sage, Salvia rutilans, with leaves fragrant of pine apple and with brilliant scarlet flowers which bloom when the days are short. From Asia Minor comes Salvia azurea grandiflora with narrow leaves and flowers of "dull violet blue" crowded into whorls on violet-shaded stems. It, too, is perennial but can be treated as an annual in cold climates, since it grows fast and flowers the first season. A sturdy perennial is pratensis with blue- or rosecolored flowers on stems two feet high, blooming in June and, if the stems are cut back, repeating in September. Przewakski and virgata are similar to pratensis but much coarser and more shrubby. A biennial salvia very like Sclarea is argentea with leaves so hairy



Margaret DeM. prown

Salvia sclarea

as to be quite grey and spires of small white flowers made conspicuous because of large silvery bracts subtending them. Salvia Horminum is a satisfactory annual for the fragrant garden, its flowering spikes terminate in tufts of dark blue or bright pink leaflets. The plant is much branched, has fragrant foliage, grows eighteen inches high and self-sows from year to year.

The grey-leaved mint, Mentha rotundifolia argentea, has decorative woolly grey leaves, spikes of pale-violet flowers and emits a fragrance of mint when it is touched.

Lavandula Spica is a herb properly speaking, yet many forms of it are so decorative they embellish the borders. It has two relatives, little known in gardens and not hardy in the North. One is Lavandula dentata, a handsome low shrub with hairy stems and leaves which are dentate. The flowers grow

in spikes which are topped with white bracts tinted lavender. The spikes are numerous, borne at the tips of stems standing up straight and bloom all summer and when the plant is potted and brought indoors continues to flower all winter. Lavandula multifida is not as sturdy, at least with me, as dentata, has doubly pinnate leaves and the flowering spike borne at the termination of a long naked stem. A few florets open at a time and the spike is made up of four rows of blossoms, one dovetailing into the next and twists spirally. Both leaves and flowers smell slightly of kerosene with an unpleasant dash of gasoline. Hardly a poetic aroma.

One seldom thinks of onions as ornaments, yet they are most attractive and bloom in mid-summer. Some of them have flowery scents but only until they are touched when the characteristic smell associated with fine cooking is

emitted. The flowers of Allium flavum are redolent of lilv-of-the-valley. Allium flavum is dainty and bears clusters of tiny vellow bells on stalks of different lengths which hang down, or stand up with the still unopened buds among them and all together look like a wind-blown fountain. Very like it. equally pretty and blooming at the same time, is pulchellum with flowers of roseate lavender-"Mallow-purple" shaded "Phlox-purple"-on darker stalks with the effect of a dusty Victorian and light colored plum. The flowers are scentless. Allium odorum has grevish white balls of flowers topping stems fourteen inches or more high and smells of heliotrope-but only until it is touched. The whole plant of caeruleum looks steel-blue and the flowers in clusters are "grevish-violet-blue" but it smalls strongly of onion.

The nepetas are stars of the fragrant garden. The scent of their foliage sometimes has a sour quality but more frequently is a pleasant blend of mint and pennyroval. Nepeta Mussini is the best known of the family, has recumbent stems, greyish leaves and violetblue flowers in scattered panicles. Very like it is melissaeafolia with furry grey leaves and loose spikes of bloom. Nepeta macrantha and its variety André Chaudron have crisp leaves with humpy surfaces and flowers the color of some violet irises, borne in elongated panicles, so striking and so much larger than in other nepetas that at first glance they look like penstemons. Attractive in early summer but soon growing too rampant is grandiflora, unless it is cut back, when it continues to produce grev branches with grevish leaves and blue flowers. Upright stems characterize Nepeta nervosa which has terminal conical inflorescences composed of crowded whorls of violet-blue flowers which bloom all summer long.

A little plant very like savory is Mi-

cromeria rupestris. It has somewhat recumbent stems, makes a shrubby, but small plant and has dark green obovate leaves three-eights of an inches long, fragrant of pennyroyal. The flowers are tiny, white, labiate and sprinkle the plant as with snow when in bloom.

From the usual collection of flowers the most fragrant could be brought into the Garden of Sweet Perfume. The season would begin with snowdrops, crocuses, violets and the exceedingly fragrant species narcissi. Later in the season, Scotch or grass pinks would form cascades of pink, white or red bloom on glaucous stems along the borders, and in the back would be clumps of Phlox paniculata, their trusses of colored flowers exhaling a delicious scent especially noticeable in the evening. In the corners, where their flowers would gladden the eye and their foliage stand straight and stiff in pleasing contrast to the spreading Labiatae. would be some of the fragrant iris and alongside of them the low early blooming hemerocallis. Behind them would be clumps of fragrant lilies. The scent is sweet in speciosum, formosanum and Henryi, very strong in regale and positively headache-inducing in auratum.

To fill in the inevitable spaces there would be fragrant annuals. Heliotrope, mignonette, erysimum, sweet alyssum, Martynia fragrans, stocks and calendulas. Sweet peas make a beautiful hedge in cool countries where the nights are long as in Scotland, Ireland or Maine. Nicotianas are fragrant at night but like a little shade.

The plants chosen for their fragrant leaves or flowers are not always as gay or brilliant as the scentless plants but no matter how a plant may shimmer with iridescent color or how gracefully bear its exquisite form, when it lacks fragrance it also lacks the poetry possessed by many a humble thyme or violet.

The Illusive Ivy-VI

ALFRED BATES

BECAUSE of the long period which has elapsed since the July 1934 issue of this magazine in which the question · was raised as to just what amount of authority could be accredited to Shirley Hibberd by students of the genus Hedera, it will be well to recall that the writer had concluded that Hibberd's book should not be taken too seriously. That this conclusion was justified is proven by the following extract from a letter written by the late Leonard Barron to the editor of this magazine. Under the date of November 23, 1934, Mr. Barron wrote: "I have been getting a great kick out of the Ivv discussions and, particularly, in the July number-a tremendous amount of attention is given to Shirley Hibberd. I knew that man pretty intimately in his later years. Our families were quite intimate; in fact, my sister was out to a banquet with him the night he died and his little daughter was living with us at the time. Hibberd was an amazing character and one fact that has been overlooked is that fundamentally he was a hilarious humorist. He had an extraordinary career. His origin no one knew-not even myself. He got into journalism in a north London suburban newspaper and dabbled in second-hand books.

"He was, essentially, a journalist and not much else and I imagine that if he conceived the solemnity with which he is treated by Mr. Bates that even in his grave he would be exploding with hilarious laughter. Mind you, he was honest in his way and I imagine that his attempt at the Ivies was a perfectly simple, honest effort—to just give some identification tags to a group of plants that interested him and concerning

which he had run into a lot of trouble. Scientific? Oh, dear, no! Hardly realized what the word meant. He had a florist's sympathies and was a great entertainer on the lecture platform. He loved to play with an audience. I remember him on one occasion asking me, at a meeting in which I was interested, 'Leonard, what shall I do tonight-shall I make them cry or roll off their seats with laughing?' and he could accomplish whichever thing he started out for. He was a lonesome kind of a character; for many years secretly nursing an invalid wife in his home in Stoke, Newington, England, until she died. I don't believe that anybody ever entered that house-I mean of the gardening people. Then, he moved to Kew and used to visit my father two or three times a week.

"His amiability, affability, his entertaining personality and the humorousness with which he took things in general, endeared him greatly to the gardening craft of the day. When he died a testimonial to his memory was raised by popular subscription as a benefice to the daughter. I was a trustee of that fund,

"Hibberd knew no other language but English. French, German, Latin, Greek, were absolutely closed with him. I remember Botting Hemsley remarking to me on one occasion that it was evident, from Hibberd's writings, he could not understand any other language—other than English.

"I think that Mr. Bates' summation that Hibberd's Ivy must be relegated to the prettily illustrated parlor books would be in exact consonance with Hibberd's own ideas. He wrote a lot of nonsense consistently. One was called 'The Silver Gate with Golden Steps and Patches of Tinsel round about,' a book of nonsense stories that he wrote in his late years in the hope that his then infant daughter (by a second wife) might have something to remember the humor that was in her father because he knew he would never live long enough to, himself, tell her all the funny stories he wanted to. That is not hearsay, it is exactly what Hibberd told me himself.

"It is quite true that Hibberd was, to some extent, vainglorious. He, himself, delighted in his acting capabilities. I could tell you about a very curious story about him;—as a satirist and humorist, but the biggest joke of all is that anybody should really take him serious.

"Yours faithfully,
"Leonard Barron."

But Hibberd cannot be dismussed as easily as that because botanists who have worked with the genus have given him a greater authority than he deserves. Nicholson (1885) did good work in returning to many of the earlier names which Hibberd had so confused and also cited the Hibberd names and figures in many cases. Rehder seems to accept him without question. Bean follows him in only a few cases. But Tobler accepts him completely as far as text is concerned although in many cases he returns to earlier names and lists Hibberd's as synonyms BUT does not question Hibberd's use of synonyms; this point will be taken up later.

For this reason it has seemed advisable to go through all available garden and botanical literature in order to establish priority of nomenclature and also to obtain the earliest description wherever possible. This has been a long and tiresome task and, so far as

clear descriptions are concerned, the results have not produced as much definite evidence as was hoped for. Before listing the material searched through it will be well to give a final analysis of Hibberd.

The large majority of his names cannot stand under the strict adherence to the rule of priority; how closely we should follow this rule is a question to be decided later. His use of the word synonym is altogether misleading for he quite definitely states that the names listed as synonyms were names under which he obtained the various plants and at no time does he say that he made any effort to eliminate any such mistakes. His method in this would be comparable to a person, who had ordered the roses "La France," "Pink Dawn" and "Briarcliff" and had received "Radiance" for each, maintaining that "Radiance" was a synonym for the three.

Then too we cannot, in every case, even depend upon his descriptions for sometimes they do not agree with the figure cited; such cases will be dealt with later on in the series when that particular form is under discussion. This brings us to the question of the accuracy of the drawings; Hibberd says that the artist "has faithfully rendered" several of them-that is in several of the descriptions he uses this phrase but he at no time gives a sweeping credit to the artist; but that I consider an idiosyncracy peculiar to the author. I wish to go on record as considering the drawings excellently done and faithfully drawn, as far as they go. But there is a suspicion in my mind that the leaves chosen were not always typical of the general character of the form but were sometimes selected to illustrate Hibberd's idea of what the leaf-form should be in order to conform with his nomenclature.

Yet in spite of all this we should be grateful to the man for having gathered together the list of names and placed them in some sort of order under somewhat typical leaf shapes (when "synonyms" are repeated they often give us a clue if we will carefully dig it out) and for the many clear descriptions. Perhaps when he sluffs over a description we may take it to mean that he is not sure of himself; usually such cases are where odd types are being dealt with or in some of the variegated forms that really merge into each other. And we must always be very grateful to the artist, the longer I study the book the more highly I value his work; there was a time when I considered his vellows "poetic license" but I have since seen a yellow, and a healthy plant, fully as deep in color as his deepest.

In the search through botanical and horticultural literature it was deemed advisable to carry it through the year 1873, one year later than the publication of the Hibberd book, in order to cover all controversy over his changes. It was surprising to find that there was hardly any controversy: the book was almost ignored. This was probably due to the fact that Hibberd had given to the public his list of "new names" in the 1870 issue of The Garden Oracle which was a sort of gardeners' almanac edited by himself; and the controversy had died down by the time the book was published.

As before stated, the results of this search has been disappointing; first, in that very few additional names were added to those given in the Hibberd book, and second, in that such descriptions as were given were scant and often very inadequate. The fullest and best descriptions being those given by William Paul in 1867 and repeated by Dr. Karl Koch; see July, 1934 issue of this magazine for full discussion of

same. As this list was compiled by an English nurseryman and checked by a German botanist, presumably after examination of the plants, I am considering it to be of better standing than the innovations of Hibberd and so accept these names in all cases. Whether or not these long Latinized names should be used today is not the question before us now; what concerns us is to get back to the original name and build up from that point. Therefore in the list of names which follows we will not be involved with descriptions but will give names and earliest dates only. What we consider each name to stand for will be taken up in future articles when the forms of the different species are discussed.

LIST OF PUBLICATIONS CONSULTED

Should any reader have access to any publications not here listed and find in same any ivy names not included in my list I would welcome such additional information. French and German publications were not consulted because the writer's knowledge of both languages is as inadequate as Hibberd's was. When references were found to such Mr. B. Y. Morrison has kindly supplied me with translations of same.

The Gardeners' Chronicle—1841-1873 Transactions of the Horticultural Society of London—1820-1848

Journal of the Horticultural Society of London—1846-1854

Paxton's Magazine of Botany—1834-1847

Gardeners' Yearbook, Almanack & Directory—1860-1873

Gardeners' Magazine (J. C. Loudon, ed)—1826-1843

Gardeners' Dictionary, 7th edition. Philip Miller, ed.—1759

A Systematic Arrangement of British Plants, Wm. Withering, 4th edition —1801 Handbook of British Flora, Geo. Bentham—1865

Florigraphia Britannica, Richard Deakin—1857

Beautiful Leaved Plants, E. J. Lowe & W. Howard—1864

New & Rare Beautiful Leaved Plants. Shirley Hibberd—1870

Arboretum et Fruticetum Brittanicum. J. C. Loudon—1838

Journal of Botanv-1863-1873

The Gardener—1867-1870

The Garden—1871-1873

The Floral World & Garden Guide— 1858-1873

The Florist and Fruitist—1848-1867 The Florist and Pomologist—1868-1873

The Garden Oracle—1866-1873
Gardeners' Magazine of Botany—185

Gardeners' Magazine of Botany—1850-1851

Gardeners' Weekly Magazine—1860-1873

Sowerby's English Botany, 3rd edition —1873

The British Flower Garden—1823-1838

The Botanical Register—1815-1847 The Floricultural Cabinet—1833-1859

The Floral Magazine—1861-1870 The Florists' Journal—1840-1848

The Floricultural Magazine—1836-1841

The Gardener's Gazette—1839-1842 The Gardeners' & Foresters' Record— 1833-1836

The Cottage Gardener—1849-1873
The Midland Florist & Suburban Horticulturist—1847-1861

All publications listed above are English. It is to be regretted that no catalogs were available. As most of these names are for varieties and forms it is logical to suppose they would appear in catalogs more than in garden or botanical publications unless of very marked characteristics. This is proven by Tobler who was able to use old catalogs of Haage & Schmidt in his check list of

1927 and so give earlier dates for names than those found in botanical or horticultural literature

LIST OF NAMES

As in this list we are concerned with priority of name *only*, varieties and forms of different species will not be placed under their respective species; these will be dealt with later on after the nomenclature has been simplified.

The names of species are printed in heavy face type; all species in cultivation at present had been named prior to 1873.

Names in good standing are printed in italics. First reference is given in brackets following the name; in many cases I have availed myself of Tobler's check-list of 1927 and used the Haage & Schmidt date as this proved the name to have been in use prior to Hibberd's change.

Names which are not in good standing or are synonyms are enclosed in parentheses with reference to the correct name.

There remain some names which I regard as questionable; in that it seems to me that Hibberd took leaf-forms and gave them names before that form was definitely established as a plant and he also made forms of minor points of variegation which are not constant. Such names are listed with a question mark after them and must remain in the questionable class until plants can be found which will fulfill his description.

Many of his "arborescent" forms are also questionable; to such an extent that I feel justified in omitting them from this list. All arborescent forms are merely mature growth of a species, a variety or a form and as such are not entitled to a separate name but should be designated in some such manner: Hedera Helix, arborescent; or H. H. var. Cavendishii, arborescent. It is true that this is going to cause compli-

cations because we will need to be positive of the juvenile stage and may also give us some long and awkward names but at present I can see no other way to handle the nomenclature of the mature stage. And even as I write this I realize that another factor may enter in: that a wholly green "tree" ivy may take upon itself the desire to become variegated or yellow or white and so complicate the scheme; I have recently seen an ordinary green "tree" ivy become wholly golden when planted in the sun. But we must draw the line from which we will begin to work somewhere and I am arbitrarily excluding all names of mature stages from the following list.

LIST OF NAMES THROUGH 1873 algeriensis (Haage & Schmidt, 1862) (algeriensis foliis variegata-see canescens) algeriensis variegata (Wm. Paul, 1867; not in Hibberd) (angularis—?) (argentea elegans-?) (argentea rubra—see Cullisii) (aurea maculata—see pallida) (aurea spectabilis much confused by Hibberd; there is now a form in good standing called spectabilis aurea) canariensis Willdenow, 1808. var. aureo maculata (Wm. Paul, 1867)

sophylla") var. foliis aureis (Wm. Paul, 1867) var. latifolia maculata (Wm. Paul, 1867)

var. (aurea marmorata-see "chry-

var. nova (Wm. Paul, 1867) canescens (Hibberd, 1870) Cavendishii (Wm. Paul, 1867)

(chrysophylla used for so many "synonyms" that it is meaningless)

(chrysophylla palmata—see palmata aurea)

(cinerea—see the species nepalensis) colchica—Koch, 1859

var. dentata (Haage & Schmidt, 1869)

var. (purpurea—?)

conglomerata (Gardeners' Chronicle, 1871; p. 744)

contracta (Hibberd, 1870)

cordata (No record save that Hibberd uses it as "synonym" for his "scutifolia")

(cordifolia—see the species colchica) (coriacea—see the species colchica) crenata (Wm. Paul, 1867)

Cullisii (Hibberd, in Floral World, 1864)

(cuspidata minor—?) dealbata (Hibberd, 1872) deltoidea (Hibberd, 1872) digitata (Loudon, 1838)

digitata aurea (Hibberd, one of the "synonyms" of his "chrysophylla") digitata nova (Wm. Paul, 1867) (discolor—see minor marmorata) donerailensis (Haage & Schmidt, 1867) donerailensis minor (Wm. Paul, 1867)

(elegantissima—see Cullisii) foliis argenteis (Loudon, 1838)

foliis aureis (Loudon, 1838)

Glymii (Wm. Paul, 1867) gracilis (Hibberd, 1864)

(grandiflora—see the species canariensis)

Helix—Linnaeus, 1753

heterophylla (Hibberd, 1870)

hibernica (Haage & Schmidt, 1862)

Hodgensii (Mackay, 1836)

incisa (Prior to 1872 as Hibberd uses it as a "synonym")

(japonica and combinations of same should be ignored as meaningless; Japanese and japonica were applied very loosely at that period)

(latifolia elegans—see Cullisii) latifolia maculata (Wm. Paul, 1867)

lobata (Hibberd, 1864)

lobata major (Hibberd, 1870; is he simply adding to the above?)

(lobata taurica—? a Hibberd "synonym")

lucida (Hibberd, 1870) (luteola—?) maculata (Hibberd, 1870) maderensis (Koch, 1870) marginata—? (Hibberd, 1872) marginata argentea (Wm. Paul, 1867) (marginata aurea—? Hibberd, 1872)

Note: these marginata forms are so badly mixed by both Paul and Hibberd that with the exceptions of *Cavendishii* and *Cullisii* it is almost hopeless to try to get at the correct names. Size of leaf seemed to be the determining factor; and soil conditions govern that. I very much fear that most of them are now lost to cultivation.

(marginata canescens—see canescens) marginata elegans (Hibberd, 1864) (marginata elegantissima—see Cullisii) (marginata grandis—see marginata robusta)

(marginata latifolia—? Hibberd, 1864) marginata major (Hibberd, 1864) (marginata minor—see Cavendishii) (marginata pulchella—see Cullisii) marginata robusta (Hibberd, 1864) (marginata rubra—see Cullisii) marmorata (Hibberd, 1864)

(minima—Hibberd's name for several quite different forms; as taurica, doncrailensis, pennsylvanica and so cannot stand. I feel we have the right to use this name for the plant now known as minima; but I have been unable to find when it was introduced.)

minor (Hibberd, 1870) minor marmorata (Wm. Paul, 1867) (minor marmorata elegans—Hibberd, 1864)

ncbulosa—? (Hibberd, 1872) nepalensis—Kock, 1853 nigra (Hibberd, 1870) pallida (Hibberd, 1870) palmata (Hibberd, 1864) palmata aurea (Hibberd, 1864) pedata (Hibberd, 1870) (pellucida—? Hibberd, 1872) (pennsylvanica—? Hibberd, 1864) pustulata-? (Hibberd, 1872) rhombea—Siebold & Zuccarini, 1846 rhombea variegata (Wm. Paul, 1867) (Roegneriana-see the species colchica) rugosa-? (Hibberd, 1870) sagittifolia (Hibberd, 1864) (scutifolia—see cordata) (sub-marginata—see rhombea variesuccinata-? (Hibberd, 1872) taurica (Hibberd, 1864) (tortuosa—see Glymii) (tricolor-see marginata robusta and Cullisii) triloba (Hibberd, 1870) (viridis—see algeriensis)

Attention should be called to the fact that the name Hibberd or Paul after an ivy name does not mean that either man is responsible for that name but means that the earliest record of the name was found in their respective lists of the dates given. These lists are as follows.

Hibberd, 1864. A list appearing in *The Floral World* and Garden Guide of 1864 consisting of fifty-two names with rather full descriptions.

Wm. Paul, 1867. A list appearing in *The Gardeners' Chronicle* of 1867 consisting of forty names with brief descriptions. This list was later repeated by Dr. Karl Koch in *The Hamburger Garten—und Blumenzeitung* of 1868, evidently after he had checked it. As many of the names are already listed in the 1864 list of Hibberd's they are not repeated above.

Hibberd, 1870. A list appearing in *The Garden Oracle* for 1870. In this list Hibberd made most of the changes which he two years later gave in his book.

Hibberd, 1872. Some few new changes which did not appear in the *Garden Oracle* list and were given for the first time.

Rock Garden Notes

ROBERT C. MONCURE, Editor

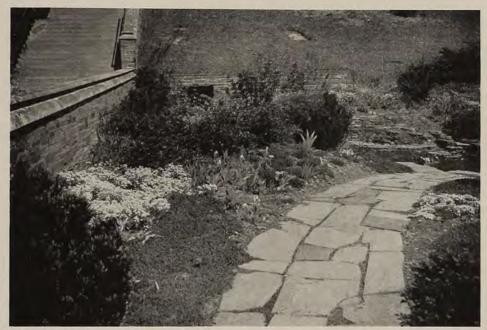
CORNELL KOCK GARDENING STUDIES

ONE OF the first colleges to initiate a comprehensive experimental program dealing with some of the more important rock gardening problems was Cornell University. Work has been in progress there for about four years. One unit used in this research program is the Cornell Rock Garden, located on the University Campus. It has a natural stream flowing through it over falls and cascades. The many existing rock outcrops have been supplemented by harmonious artificial ones. posure and moisture conditions are varied: part of the garden is shaded by mature trees, the rest is open to the sun; soil moisture is high in some sections, low in others. Although the beauty of this garden attracts increasing numbers of visitors each year, it is not maintained for display purposes alone. It is primarily a trial garden where plants can be tested under conditions the same as those found in private gardens. Other units of equipment include a greenhouse, coldframes, and outdoor beds at the Cornell Test Gardens, a mile from the Campus. The greenhouse is used for propagating work and for growing the plants until they are large enough to be planted outdoors. Experimental work demanding accurately controlled conditions is carried on there. Plants not grown in the rock garden and greenhouse are in outdoor beds where data can be readily taken. There are over eighteen hundred species and varieties of rock garden plants in the Cornell collection this

Particular stress is being placed on rock garden plant propagation. Tests have been made to determine the relative value of different rooting media for cuttings. It was found that for most of the plants tested the alkaline sand and gravel locally available gave poorer results than quartz sand and gravel or washed cinders composed of the same sized particles. Cuttings often rooted more rapidly in the cinders and, in most cases, produced better root systems than in the quartz material. Media made up of particles about the size of rice grains and containing peat moss, one third by volume, gave better results than the finer material.

Early in the work at Cornell difficulty arose in germinating the seeds of many rock garden plants and in keeping the tiny seedlings from damping off. The usual, widely recommended methods of seed sowing were tried and found unsatisfactory. A new seed pot was developed and tested. It has proved its superiority by the several hundred kinds of seeds which have been successfully germinated and grown in it. This seed pot was fully described by M. A. Nagler in the November, 1938, issue of Gardeners' Chronicle of America.

The cultural requirements of rock garden plants are being intensively investigated. Data are taken on their growth under different exposures, and under different soil nutrient, moisture, and aeration conditions. Winter hardiness and drought resistance are also noted. One point concerning the requirements of these plants stands out clearly. The majority do not require special soils to grow well. This is contrary to popular opinion, but it has been demonstrated many times. For



Warren C. Wilson

Plants in the Cornell Rock Garden

example, a mixture of two parts loam and one part peat moss is used successfully for general potting purposes in the greenhouse. This mixture is approximately neutral in reaction; ground limestone is added for those plants needing alkaline conditions, sulphur or iron sulphate for those requiring an acid reaction. Most ericaceous plants and certain others are given an acid mixture containing a greater proportion of organic matter. Another specialized phase of the cultural requirement studies deals with native American plants suitable for rock gardens. Particular attention is being paid to both eastern and western alpines. Collecting

trips have been taken to observe these plants under natural conditions and to bring back specimens.**

Horticultural qualities and uses of rock garden plants are being studied simultaneously with their cultural requirements. Data are taken on time and showiness of bloom, attractiveness of foliage, habit of growth and other pertinent factors. This information will make possible definite recommendations for the use of these plants in the garden.

^{**}For accounts of these trips see: "Collecting Western Alpines by Air" and "Collecting Alpines in the Shickshocks," by the author, in the April, 1938, and April, 1939, issues, respectively, of this magazine.



Warren C. Wilson

Central Part of Cornell Rock Garden

In much of the Cornell Rock Garden the soil and rocks are almost covered by mat forming plants. This ground cover principle is only beginning to be used by rock gardeners. It has several advantages over the older method of using plants as specimens and in small groups. A pleasing effect is created by the flowers and year around cover of foliage. Individual specimens and small colonies of taller plants, when properly located, blend well with the low growing plants. There are also practical advantages-washing of the soil and weed invasion are largely prevented and resistance to heaving by frost and to summer drought are somewhat increased. A ground cover experiment is under way in outdoor beds where some fifty kinds of rock garden plants, most of which are not ordinarily used as ground covers, are being tested.

The nomenclature of rock garden plants is receiving particular attention. An essential part of correctly naming the plants is keeping them labelled at all times. Since the names under which the plants or seeds are received cannot be relied on, each kind is assigned a key as soon as it arrives. This key, through the use of letters denotes its source, and through numbers its nu-



Warren C. Wilson

In the Cornell Rock Garden

merical order of reception from each source. Records are kept of the assigned keys and names under which the plants are received. Each kind of living plant, and pressed specimens, photographs, and slides of it bear its key. Specimens with their attached keys are submitted to the Bailey Hortorium, a part of the university devoted mainly to the taxonomic study of cultivated plants. As rapidly as correct names are determined, they are applied by use of the keys to the proper plants.

Of course, the object of the research on rock gardening is to gather reliable information and then release it to gardeners. Lectures and radio talks on the subject are given and some material has been published. A preliminary mimeographed list, *Perennials for Rock Gardens and Similar Situations*, by M. A. Nagler, describes some of the more desirable plants for eastern rock gardens. A printed bulletin, *The Rock Garden*, by Henry T. Skinner, discusses rock garden construction in detail. These publications are available on request. Additional information will be released as rapidly as accurate data are collected.

WARREN C. WILSON Ithaca, N. Y.



"Rhododendron Dell"

Rhododendron Notes

CLEMENT GRAY BOWERS, Editor

Notes on Rhododendron Species at the University of California

THE University of California Botanical Garden is fortunate in being located in a climate ideally suited to the needs of a wide range of plant material. Within the garden may be found cacti from the arid deserts of Mexico growing within a stone's throw of rhododendrons from the moist forests of the Himalayas, or rare and beautiful bulbous genera from the Peruvian Andes thriving in an area where one may also see the curious stonelike Pleiospilos and other mimicry plants from the South African veldt-all growing out of doors the year around! The Director of this Botanical Garden, Professor T. H. Goodspeed, has built up in the relatively short period of 10 years an extremely varied and interesting selection of genera and species which cause ever increasing comment from plant iovers in California. One of the more interesting plant groups in the Garden is the rhododendron collection. As a matter of fact, one could almost say that the Rhododendron Dell is the heart of the Garden since its display in Springtime always brings the Garden forcibly to the attention of the public.

In 1927 there was purchased for the Botanical Garden a collection of rhododendrons brought together by a local nurseryman who had made a specialty of the genus. It originally comprised some 100 species and a number of hybrids. Many of the plants were fairly large, but the majority had not yet attained flowering size. Since that time an additional 150 species have been propagated by the Botanical Garden from seed, and the collection as it now

stands is possibly one of the largest outdoor representations of the genus in the United States. During the last two years a great many of these species have bloomed and the following notes record our observations on the behaviour of our flowering sized specimens. The additional 150 species were grown from seed collected by the University of California Botanical Expedition to Western China and Tibet in 1932, and also from seed contributed by the Royal Botanic Gardens at Edinburgh and Kew. The majority of rhododendron species seem to take kindly to our Berkeley climate although certain precautionary measures are used to prevent damage by freezing temperatures which sometimes occur in December and January, or by long, dry periods in the late summer and fall. Since the collection has been acquired, there have been two winters when the thermometer registered as low as 15 degrees below freezing point. Such temperatures are of course unusual in Berkeley, but luckily they were anticipated and pine boughs were cut and placed around and through all species reputedly tender. With the exception of one or two, such as R. diaprepes and R. Maddenii, where barksplit occurred, relatively little damage was done. During the months of September and October, the humidity is at its lowest and when hot dry winds are blowing, as they often do at that time of year, the atmosphere around the plants is kept moist by overhead sprinkling night and morning. A careful check is also kept so that the plants do not dry out; otherwise, species that come from the moist forest regions of the Himalayas are liable to have their leaves scorched. From May to December there are no rains to speak of, but occasionally there is some precipitation from sea born fogs. This means that irrigation must be resorted to during the dry months and, while our overhead sprinkling system obviates, to some extent, the necessity of watering, individual inspection of the larger specimens is carried out at regular intervals to ensure the proper moisture conditions at the roots.

The collection is grouped under the shade of a grove of native evergreen oaks (Quercus agrifolia). The shade cast by this grove is augmented by plantings of Pinus spp. and where plant requirements demand deciduous shade and more light, birches, maples, and flowering cherries are used with good effect. The soil has a sandstone origin with a pH value of 6.5 to 7.0 In the Rhododendron Dell, however, there is a preponderance of heavy, black, retentive soil which has been lightened to some extent by frequent applications of peat and sand. The continual applications of decayed pine needles in the form of mulch has aided greatly in making the soil more friable and, incidentally, in lowering its pH value.

The following notes have been made principally while working with the collection at the Botanical Garden in Berkeley but where occasion warrants reference will be made to species not at present grown at Berkeley, but which were observed at the Royal Botanic Garden in Edinburgh and in Golden Gate Park in San Francisco. The species will be dealt with according to series. A "series," in this case, denotes an aggregation of nearly related species grouped around an outstanding member of the genus. This system of classification is used by the Rhododen-

dron Association of Great Britain and readers who require more botanical information are referred to this Association's publication entitled "The Species of Rhododendron."

Arboreum Series

The members of this series are mostly large shrubs or small trees and require several years to attain flowering size when grown from seed. A mature specimen plant of R. arboreum or R. Delavayi is certainly worth waiting for, however, and is a valuable acquisition to the garden where there is sufficient shade and enough space to set the plant Specimens of off to best advantage. R. arboreum here are now six to eight feet high. One plant has bloomed in April for the past two years and its great brilliance gives promise of a glorious show in years to come when it has reached a more mature flowering condition. The truss was compact and well formed, the individual flowers were tubular, of good texture, and lasted fully two weeks, the color a brilliant scarlet. R. Delavayi, considered by authorities to be the Chinese equivalent of the Himalayan R. arboreum, flowers at an earlier age and is also very desirable. Ten-to twelve-year-old specimens are now six feet high and their scarlet trusses make a striking effect in March. R. Delavayi is hardly divisible from R. arboreum by any one character except that in habit it is not so arborescent and that it is more susceptible to barksplit in cold weather than the latter. In four years from seed R. arboreum subsp. Kingianum has formed a sturdy bush four feet high and three feet through. The foliage is handsome, more so than that of the type, the leaves being more rounded and the veins very deeply impressed. So far it has not bloomed but gives promise of a handsome shrub for the woodland. The flower truss is said to

be similar to R. arboreum in shape and color. Specimens of R. arayrophyllum are still quite small and no flowers have been formed. The illustration of R. argyrophyllum var, leiandrum will give some idea of its type, truss not so compact as R. arboreum, color white flushed rose. R. insigne is very slow growing. Ten-year-old plants are now only four feet high with no sign of a flower bud yet, but we are looking forward to its first bloom with a great deal of anticipation since specimens seen in Great Britain were attractive plants up to twelve feet high and with large pinkish trusses. R. Ririei bloomed last year for the first time and has proven hardier than R. arboreum although the color is not so striking. The truss which opened in late February was large, fairly compact, and a good shade of purple. It is unfortunate that this species is not what one might call floriferous since it rarely produces a mass of bloom. Members of the Arboreum series, grouped under the live oaks, seem happiest in a deep leaf soil where there is an abundance of moisture without stagnation. Since the majority of Arboreums are from the moist forest regions, care is taken to keep the plants moist at the roots so that leaf tip burn will not occur during our hot, dry periods in late summer. Auriculatum Series

One of the smallest groups within the genus consisting of two well-known and attractive species; namely, *R. auriculatum* and *R. Griersonianum*. The former is very slow growing and, as a rule, does not bloom until it has attained a fair size. Our specimens are only one foot high and we do not expect them to bloom for three or four more years. Plants of *R. auriculatum*, seen in England last July, were in full bloom, and looked very handsome with their large, loose trusses of white blossoms. The

individual flowers were funnel shaped, four inches across, and sweetly scented. I think I am quite safe in saving that R. Griersonianum is the most outstanding species in the Garden. Some of its desirable characters, its ease of cultivation, its striking color, and its period of flowering. There are not many flowering shrubs that will flower in four vears from seed and vet seed of R. Griersonianum sown in the Spring of 1933 has produced vigorous specimens three feet high and three feet through which bloomed last June (1938). Older specimens have thrived exceedingly well on a well drained slope where they have the lacy shade of the birches and the protection of a nearby belt of pines, but no dense overhead shade. With the possible exception of R. ponticum they have withstood drought better than any other species in the collection. Toward the end of June buds begin to open when practically all other species have ceased to bloom. The inflorescence is a lax corymb of from five to twelve blossoms. The individual flowers are funnel shaped, about three and one-half inches long and four inches across; the color is best described as bright geranium scarlet and in average weather the flowers last fully two weeks. R. Griersonianum with its ally R. auriculatum survived a temperature of 17° F. in 1935 with only an interlacing of pine boughs to ward off the cold. Probably the fact that these species were planted on a well drained slope prevented the formation of cold air pockets and also kept the roots free from an excess of moisture. R. Griersonianum is being used with great effect as a parent in hybridization and in years to come its admirable characteristics should be apparent in many lovely hybrids.

One of the largest groups within the genus, but unfortunately one of which



David Wilkie

the Botanical Garden has few representatives. It is hoped however that in the near future a larger number of species can be grown since up to now members of this group have taken kindly to our Berkeley conditions. The Arnold Arboretum has been more instrumental than any other institution in the world in classifying this large and difficult group, and readers seeking more information on azaleas are referred to the various publications from this institution. R. Vasevi, one of our native eastern azaleas, is an attractive species, easily grown, and in Berkelev does best under the light shade of birches where the plants can receive ample moisture. The flowers are fully an inch across, pale pink, and produced in late April before the leaves have fully expanded. It is only recently that we have flowered R. arborescens and the plants are still quite small. The flowers appeared toward the end of May, were pale pink, about two inches wide and pleasantly fragrant. It is rather early to form an opinion concerning this species but judging from older specimens in European gardens I should imagine that it would be of greatest value in a large garden where it could be alloted sufficient space to attain its maximum development. R. calendulaceum is the eastern counterpart of the western R. occidentale and while it lacks the fragrance of the latter it is much more desirable from an ornamental standpoint. The flowers of our specimens were deep vellow, about two inches across, and appeared in May. During October the leaves turn a brilliant scarlet forming a striking contrast against the papery whiteness of the surrounding birches. Another desirable feature of R. calendulaceum is that it will succeed in a comparatively dry

location provided that it has some light shade during our hot, dry summers. R. molle is, of course, known to all but its familiarity has by no means made us indifferent to this showy Chinese species. It is a parent of many of our loveliest azalea hybrids; even so, in itself it is worthy of a prominent place in any garden. A form of R. molle sent to us from China by Dr. Rock some years ago has produced flowers of a deep orange and its habit seems to be a wee bit more robust than our original plants. R. occidentale like R. molle has been used with great success in hybridization. Our experience with it might appear something of a paradox since we have better success with the eastern azaleas than we do with our western species. We grow it, of course, after a fashion, but to date we have not succeeded in establishing a well formed specimen. An explanation may, no doubt, lie in the fact that our plants were collected in the wild and, owing to the nature of its root system which is woody and travels quite a distance under ground, it does not recover as quickly as nursery grown stock. As a rule R. occidentale blooms in June and if the season is at all dry and warm another crop of blossoms appears in October and November which does not displease us one whit because its fragrant white flowers are always welcome. In 1932 we received seeds of an azalea from the University of California Chinese Expedition which, blooming, proves to be R. indicum forma. This species, which is not to be confused with the Azalea indica of the trade, is a dense growing shrub with dull green foliage and brick red flowers, not unattractive, and perhaps when the plants are a little older they may have value as a contrast planting with the lighter colors of other species. R. mucronatum, often referred to as Azalea ledifolium.

is one of our favorites and certainly a worth while plant for gardens where temperatures do not fall much below 20° F. We have forms of this species with pure white flowers and others which are white with rose markings in the throat of the corolla. In exceptional vears as many as three distinct crops of blooms are produced-one in May, another in midsummer, and finally a small showing in October. This might be regarded as overproduction and injurious to the plant's welfare but it doesn't seem to retard growth at all. They form low spreading shrubs and are excellent subjects for the foreground of larger plantings. Space does not permit of descriptions of the many R. obtusum hybrids but I do think that R. obtusum var. Kaempferi is worthy of mention in passing. This variety is somewhat eccentric in its growth, shooting off at odd angles occasionally, but this tendency could be overcome by judicious pruning. The leaves are partly persistent and turn a bright red in October. The flowers open in May and require the protection of some deciduous shade or otherwise the salmon red flowers fade rather badly in our strong California sunshine. R. obtusum along with its varieties Kaempferi and japonicum have been used extensively in hybridization. Another desirable species belonging in the same group as R. obtusum is R. Oldhamii from Formosa which becomes rather a large shrub with yellowish evergreen leaves and brick red flowers. So far this species has not been over floriferous with us. The plants are slow growing and though over ten years of age are not more than three feet in height.

Another evergeen azalea that has played an important role in the development of better types is *R. Simsii*, one of the progenitors of the greenhouse, hybrid "Indian Azaleas," and some-

times erroneously called R. indicum. The flowers, which appear in April and May are deep rose red and sometimes are produced in such abundance as completely to conceal the foliage. This is an excellent species for the warmer and more favored localities such as Central and Southern California, and Florida. The more recent hybrids of this species are, of course, a great improvement and should become better known in California gardens. Seed of R. vedoense var. poukhanense was sent to us by Mr. Gable of Stewartstown, Pennsylvania, in 1934, and we now have plants one foot high and one foot across. plants are growing well in a semishady location and to all appearances will form low growing shrublets. We are hoping to see the fragrant, rose colored flowers this coming spring. we were to select six of the best azalea

species, R. Schlippenbachii would certainly be given first choice. The handsome large pink flowers, about three inches wide appear in May, just about the time that the leaf buds are beginning to break. Older plants are literally covered with blossoms and show to great advantage in an open woodland or to the front of a tree planting where they can enjoy a leafy, moist soil. The foliage in October and November turns from green to crimson and finally to yellow before dropping. One specimen now six feet high and about eight feet through, gives some idea of its ultimate habit, and if you can visualize a mass of bright pink flowers against the light fresh green leaves then you must realize that R. Schlippenbachii is worthy of a prominent place in the best of the gardens.

P. H. BRYDON, Manager.

Illustrations

Part of the "Rhododendron Dell" in the University of California Botanical Garden. A view from the Azalea Pool showing, in the foreground, plantings of the Irroratum series on either side of the path and in the background, on the left, members of the Arboreum series. Corydalis lutea on the left-hand border of the path.

Rhododendron argyrophyllum var. leiandrum, a member of the Arboreum series. Flowers white flushed rose.

Photograph, David Wilkie, Royal Botanic Garden, Edinburgh

A Book or Two

A Book of Garden Flowers, Margaret McKenny and Edith F. Johnson. The Macmillan Company, New York, 1941. 72 pages, illustrated. \$2.00.

The color plates are from Miss Johnson's paintings; the text from Miss McKenny's facile and pleasant pen. This is a pleasure-book to intrigue the young, to waken memories in the old. The recipient likes to think he can qualify in each group!

Farm Soils, Their Management and Fertilization. Edmund L. Worthen. John Wiley & Sons, Inc., London; Chapman & Hall Ltd., 1941. 515 pages, illustrated. \$2.75. Printed in U. S. A.

This is a reference book with many supplementary references after each chapter. It is written for the farmer as the title indicates, but it is worthy of the serious attention of the home gardener. The publisher may be British, but the materials are based in the United States and from many parts of our country.

Pruning Trees and Shrubs. Ephraim Porter Felt. Orange Judd Publishing Co., New York, 1941. 237 pages, illustrated. \$2.00.

It always pays to see what Dr. Felt has to say, and this book is no exception to that rule. Emphasis is laid on principles and procedure rather than on case histories. If you want to understand pruning you should read it.

The Fragrant Path. Louise Beebe Wilder. The Macmillan Company, New York, reissue, 1941. 407 pages. \$1.00.

Like all of Mrs. Wilder's books, this makes pleasant reading, for it is packed with her store of learning and couched in her charming style. The reissue at a lower price should bring it to many who may have missed it in 1932.

Adventures in a Suburban Garden. Louise Beebe Wilder. The Macmillan Company, New York, reissue, 1941. 250 pages, illustrated. \$1.00.

This was, in its first issue, very largely made up of what Mrs. Wilder had published serially. It is well said and represents the adventure of a person of taste and skill—not really adventureous in the usual connotation of that word but certainly reporting on her trials and assays.

Maintenance of Shade and Ornamental Trees. P. P. Pirone. Oxford University Press, New York, 1941. 422 pages, illustrated. \$4.50.

Too many persons accept trees without much thought after planting and fail to recognize their difficulties until it may be too late. The author brings together here much valuable information in regard to all the things the tree owner should know. To read the book at a sitting may make the problems seem enormous, but one will return again and again for help. A reference work chiefly for the eastern half of the United States.

Science in the Garden. H. Britton Logan and Jean-Marie Putnam, Consultant, Lloyd Cosper. Duel, Sloan & Pearce, Inc., New York, 1941. 255 pages. \$2.50.

As everyone has observed the scientists have been discovering horticulture

for a decade or more but have contented themselves, more or less, in writing for their own circle. Although, as the preface intimates, there has been some lack of mutual understanding and confidence, the scientists have done much that we should know about, even if we do not intend incorporating it in our daily routine. Much of this will not concern us, to repeat, but it is worth reading.

The Gladiolus, 1941. Yearbook of the New England Gladiolus Society, printed for its members. Albin K. Parker, Sec'y., Norwood, Mass. 200 pages, more or less. Illustrated. Supplement, 36 pages.

A typical yearbook from this lively and accomplished group. If you like gladiolus and want to know them, you should have it: if you think you might like them, the same: if you hate them, don't look at it.

The Principles of Vegetable Gardening. Liberty Hyde Bailey. The Macmillan Company, New York, 1941. The Eighteenth Edition, "Re-made and Re-set." 490 pages, illustrated. \$3.75.

Now that the attention turns so keenly once more to vegetable gardening, this should have a renewed popularity. One expects nothing but the best from this distinguished author and usually is satisfied.

The vegetables in all their kinds and forms march through the pages with much of scientific note, homely comment and pertinent advice.

If you are about to raise vegetables seriously here is your first text.

Classification Scheme for a Garden Center Library. Marjorie Bolton Clelland. The Garden Center of Greater Cleveland, Cleveland, Ohio, 1941. \$1.00.

A simple and, I am told, reasonable scheme for numbering books that make up a garden library. With its aid you are supposed to be able to decide whether your new book will wear 83 or 91 on its back. It's a good business and a good scheme, but thank Heaven we aren't a librarian or even a near-librarian.

Who's Zoo in the Garden? Charles Palmer, Jean-Marie Putnam, Lynette Arouni. The Greystone Press, New York, 1941. 127 pages, illustrated. \$1.50.

Prose and verse, pictures, etc., mostly etc. We conclude this is supposed to be funny, witty, gay, scintillating and again etc., but personally we feel it should have perished in one conversational afternoon and never have risked embalming in printers ink. (Of course it's our own jaundiced fault!)

The Gladiolus. Forman T. McLean. Whittlesey House Garden Series, McGraw-Hill Book Co., Inc., New York, 1941. 197 pages, illustrated. \$2.00.

A very pleasant book about a flower that inspired many to their major summer activity. It follows the inevitable pattern of all good plant material books devoted to a single flower and does it very well and readibly. Personally we are not converted but being jaundiced it is perhaps fair to add arterio-sclerosis to our other handicaps!

The Gardener's Pocketbook

Passiflora quadrangularis L. [See page 280]

For most persons in the north the word passion-flower suggests an ornamental vine rather than a fruit and it may be that if one lived really in the tropics, one might think of it only as a fruit and not as an ornamental.

If one looks back over old horticultural publications, mostly European, one is forced to the conclusion that while the passifloras were taken home in the hope that they might fruit well, the flowering had to be accepted as the sum of the horticultural return.

The beautiful plate in the Botanical Register (tab. 14) published in 1815 would certainly appear to draw attention to the flowers which are much more brilliantly colored than those in plate 2041 of the Botanical Magazine, published four years later.

Recalling the sudden passion for vines in certain parts of Florida, it may be amusing to quote a portion of Sims' text—"From its quick growth and thick foliage, it is well suited for forming arbors and covered walks but Jacquin observes that they are apt to be infested with venomous serpents who chose the Passion-flowers, more especially this species and the laurel-leaved, for their abode, well knowing that their favorite prey, the squirrels nowhere more abound, these animals being fond of the fruits. *******

This same note is stressed in the text of the Botanical Register (1.c.).

The latter reference supplies the note that "Jacquin never saw our plant but in a cultivated state. Swartz makes it a native of the woods in the West Indies. Yet neither he nor any other author expressly states the having seen it or even heard of its being seen, wild. It was cultivated in this country by Phillip Miller in 1760; and it is pretty general in our hot-houses, where it sometimes ripens its fruits. ******"

Edouard Andre, writing in Revue Horticole in 1898, and reporting chiefly upon the fruiting of this species out-of-doors at Marseilles, after being twice hand-pollinated by M. Davin, reminds us that the Tacsonias (also known sometimes as Passion flowers) are native to the higher cordilleras but the "passifloras with edible fruits are generally from the more tropical climates. They are chiefly the species: Passiflora alata, P. maliformis, P. cdulis, P. quadrangularis, P. ligularis, P. laurifolia, and its variety linifolia."

"This last species, known in the Antilles and in the Guianas under the name of 'Pomme liane' and 'Marie Tambour' have large fruits with a delicious perfume."

For *P. quadrangularis*, Andre quotes the common names of "Barbadine" or "Granadilla" or "Parcha." He describes the flowers as "ephemeral" and "fragrant." He then passes on to the discussion of the fruit which apparently is best when made into a marmalade or if eaten fresh, fortified with "rum or madeira or kirsh or white wine" and sugar to taste! M. Davin himself is reported to have used rum and to have decided that the taste "was very agreeable and the perfume like pineapple!"

(In some ways this doctoring recalls to mind the sops of wine added to many an old herbalist's brew!)

Much later notes from England, none of which need concern us, save one small bit from the Garden (vol. 50, p. 313) in which a note signed "South-



H. F. Loomis

Passiflora quadrangularis

ron" ends with the sentence—"It is not, I am quite aware, the natural method of displaying the cut blooms to put them into bowls of water, as if dealing with Water Lilies, but in such a case I consider this mode is quite justified by reason of the beautiful effect that is produced."

In the supplement of the U. S. Department of Agriculture Yearbook for 1937, published as Separate 1589 (pp. 63-64) there is a very brief mention of the passifloras which are grouped under the common name "Granadilla" where scanty attention is paid to any of the species and little more is added save to suggest that nematodes are one of the seriously limiting factors at least for Florida and that a breeding program is under way that it is hoped will produce some individual plants resistant to those attacks.

Meantime, it may be quite enough to treasure the vine for itself, to enjoy its masses of foliage, its wonderfully constructed flowers and its fruits whether eaten, drunken or merely sniffed.

Antholyza revoluta Burman, [See page 282]

This species grows from "Little Namaqualand to Grahamstown, attaining an elevation of two thousand five hundred feet," a region of high temperatures ranging from 56° to 82° F. average high temperatures with relatively lower ranges as one goes to higher elevations but no frosts save at the highest. Rainfall is not great (between 20 and 30 inches) and with the peak during their winter months. This accounts for the persistent habit of the plants in making winter growth here and the need for a cold greenhouse.

Planted in deep pots or flats, the gladiolus-like corms soon push up the slender grasslike foliage, one leaf to the growing axis and later the slender. indeed often rather weak, flowering shoots topped by the large and brilliant flowers which are natural size in our figure. Unlike the flowers of most species of antholyza in which the flowers seem tubular with relatively small segments, all of which gives the inflorescence a look quite unlike that of the present species. This plant, because of its large flowers with spreading segments, has sometimes been classified as a gladiolus. It carries, however, the usual cylindrical tube that characterizes the flowers of *Antholyza* as compared with the funnel-shape tube of *Gladiolus*.

Just what place this antholyza should take in our horticulture is hard to decide. Each plant by itself is so slight that they must be considered in some quantity if any good effect is to be had. If corms were abundant so that they could be grown for winter cutting, that would be desirable as the flowers last well when cut and their brilliant color makes them very useful in late winter and early spring.

One can not help but wonder what the effect might be, provided the proper area in the United States could be ascertained, if hundreds of corms were planted in a grassy place where other plants might support the uncertain stems. In none of the South African texts available here are there any descriptions of its natural habitat, so there is the chance that this idea is quite erroneous.

Antholyza is one of the genera that has been divided by botanists into many smaller bits. N. E. Brown in the Transactions of the Royal Society of South Africa, vol. XX, p. 261, did the job! One plant, according to him, should now be called *Homoglossum watsonium* N. E. Br. And in addition to that the *Antholyza paniculata* that was illustrated as long ago as October, 1928, must now be called *Curtonus panicula-*



Lillian A. Guernsey

Antholyza revoluta

tus N. E. Br. There are other botani ts, however, who do not follow N. E. Brown, so if you care to be a conservative stick to *Antholysa*.

Two Dittanies

The name of Dittany has been applied to at least four plants, belonging to three different genera: Dictamnus albus, False or Bastard Dittany, of the Rutaceae; Lepidium latifolium, the Broad-leaved Pepperwort or Dittander, of the Cruciferae; and two of the Labiatae, Cunila mariana, a small American herb, and Origanum dictamnus, the Dittany of Crete, which the old pharmacists called Dictamnus creticus. The generic name of the first and the specific name of the last were not given because of any resemblance between the plants, but because both are common near Mt. Dicte in Greece.

The description of the Dittany of Crete given in Woodville's Medical Botany (1794) is sufficiently full:-"Root fibrous, perennial. Stalk about a foot in height, branched, downy, ligneous. Leaves ovate, blunt, opposite. on short footstalks, thick, covered with soft white hairs. Flowers purple, in spikes. Bracts roundish, smooth, colored, numerous, forming quadrangular spikes. Calvx small, five-toothed, concealed by the bracteae. Corolla monopetalous, consisting of a long tube, divided at the limb into two lips, of which the upper is straight, and encloses the filaments: the underlip is cut into three obtuse lobes, of which the middle one is the largest. Filaments two long and two short, filiform, longer than the corolla, and furnished with simple antherae. Germen divided into four parts. Style slender. Stigma bifid. Seeds four, of an irregular ovate shape. and lodged at the bottom of the calyx. —It flowers from June till August."

It is to this plant that a sentence from

More's "Antidote against Atheism" refers:—"Virgil reports of Dittany that the wild goats eat it when they are shot with darts"; which seems to be taken from this passage in the Aeneid, L XII. 411.—

"Hic Venus, indigno nati concussa dolore, Dictamnus genetrix Cretaea carpit ab Ida Puberibus caulem foliis, et flore comantem, Purpureo: non illa feris incognita capris Gramina cum tergo volucres haesere sagittae."

This "Righte Dittany," "sacred herb of Crete," seems to have aroused much interest of late among herb lovers, largely on account of its antiquity, for "Both the Greek and Roman writers have fabled this plant into great celebrity." It was grown in England before 1568, by Mr. Riche, whoever he may have been.

This Dittany is so tender that it must be pot-grown, and in the winter must have very little water and very much sun. A soil of two parts fibrous loam and one part silver sand and leaf-mould suits it, and cuttings taken in spring root readily in sand under a bell-glass in the greenhouse.

"The leaves are very warm and aromatic, of an agreeable smell, and hot biting taste.—Though rarely used at this day, it certainly possesses, in a very considerable degree, the stimulant and aromatic qualities which characterize this class of plants," says Dr. Woodville. Its present use seems to be largely confined to the flavoring of drinks, in its native Candia.

Origanum dictamnus is a "collector's item." but Dictamnus albus is well worth growing for its beauty alone, though it has figured in plant lists as Dittany or Fraxinella since the thirteenth or fourteenth centuries. "Whilst I seek for dictamne to recure his scarre"—

A well-grown Dictamnus may be four

feet across, and nearly as tall, and will bear from fifty to seventy-five flower spikes. The plant is handsome at all times, its stalks thickly clothed with firm-textured, ash-like leaves, (which account for the common name of Fraxinella); and when the ten-to-twelve-inch spikes of white or pink spidery flowers are in full bloom, there are few if any more beautiful plants in the garden. It blooms here in late May or early June, though plants set in different locations will carry the bloom pretty well through the latter month.

It will stand the driest of conditions without drooping a leaf, and has had no pests whatever, of root, or leaf, or flower, in our experience of several years. It doesn't need to be divided every two or three years; in fact, it rather resents disturbance. The leaves, when pinched or brushed against, give forth a rather strong and entirely distinctive odor, about which no two people seem to be agreed. Perhaps one might say that it is a not wholly successful mixture of several scents, all agreeable in themselves.

Dictamnus is easy enough from seed, though slow both as to the germination of the seed and growth of the plant. It self-sows freely, and seeds sown in the fall will germinate in the spring. It may be three or four years before the plant will bloom, but it grows more beautiful every year, at least for several years, and plants have been known to have lived a hundred and fifty years in the same spot.

A lighted match held under the spike of bloom on a hot dry evening will cause a slight flash up through the flowers, whence the other common name of Gas-plant.

Fraxinella also had a number of medical uses. The root in powdered form, or in extract of it, was used as a "stomachic, tonic, alexipharmic," for destroying worms, in intermittent fevers, for epilepsies, and for some other troubles! But though "undoubtedly a powerful medicine," it had rather fallen into disuse by 1790.

A variety sent to me as caucasicus is larger in all its parts than the type. Its flower spikes will reach eighteen inches in height, and the leaves a length of about fourteen inches, as against about twelve and eleven inches respectively in the type.

Personally, I think I prefer the white to the colored variety, but with us it has never seemed so vigorous.

Being herbaceous, the plant dies to the ground in the winter, but all the growing season, its rounding mass of rich dark green leaves is as effective as an evergreen of the same shape and texture would be.

Bailey gives its range as from S. Europe to N. China, adds another common name—Burning-Bush,—and two varieties besides *rubra*, the ordinary pink form;—var. *purpurcus*, with dark flowers, and *dahuricus*, a form of the species.

There is still another good point, that it is much beloved of hummingbirds.

Antrim, N. H. RACHAEL COUGHEY

From the Midwest Horticultural Society

Pinus strobus.

Of the scant half dozen evergreens native to the lower lakes region of the middle west, the most outstanding is the white pine. Occurring in many places as isolated stands the white pine is found in swampy places, and on high bluffs. In central Illinois is the famous White Pines State Park where a magnificent stand of these pines reminds one of a northern forest. Not far away is a fine planting of these pines on the estate of Mr. F. O. Lowden. Several of the cemeteries in and near Chicago

have made good use of these and other pines in creating excellent landscapes.

The white pine (Pinus strobus) should be balled and burlapped for transplanting. Given a good soil and plenty of room it will soon develop into one of the finest evergreens for the large or small garden. This is one of the pines that has character and beauty at all periods of its growth and does not undergo the adolescent straggliness of some of the others.

Rosa Harison's Yellow.

A few years ago many nurseries became quite enthusiastic about the Golden Rose of China (Rosa Hugonis). While this rose is a beautiful and desirable addition to a garden yet it does not equal the old proven Harison's Yellow in depth of color, flower size, hardiness, or fragrance.

Harison's Yellow is seen at its best in old plantings around farms, in old cemeteries, along roadsides, and in country towns where gardens have been built by the swap method.

As a hardy subject this rose has been known to survive a quarter century or more of absolute neglect. It is not particular as to soil or exposure, but does best in an open situation in a medium soil.

As an early blooming subject for a hedge or as a specimen in the shrub border this rose deserves a re-introduction to our midwestern gardens.

Celtis occidentalis.

On a recent trip to the Field Museum in Chicago I was agreeably surprised to notice a walkaway of hackberry, *Celtis occidentalis*, lining the eastern approach to the building terrace. The striking beauty of these medium-sized trees brought to mind the magnificent specimens in Starved Rock Park near the site of the old lodge. At

first appearance the hackberry might be mistaken for the more common elm. The leaves, however, are longer and thinner in the hackberry and a lighter green. The tree is more spreading than the elm and generally of smaller stature.

The bark of the hackberry is variable. In most plants rows of small protuberances are rather prominent on close inspection. These "warts" are one good means of distinguishing the species. In Starved Rock Park there are many large plants exhibiting this wartiness of the trunk but in others the bark is smooth and gray and greatly reminds one of the bark of the beech.

Another characteristic of the hackberry is the presence of "Witches Brooms" in large plants. These brooms are but numbers of small twigs growing from one locality on a branch and resembling the branches of sticks supposed to compose the brooms of the witches of ancient lore. The "Witches Broom" is caused by insect injury and does little damage to the plant other than causing the formation of numerous twigs at the point of attack by the insect.

As a small to medium tree for the grounds that need something a little different the hackberry is quite useful.

ELDRED E. GREEN.

Double Forms of Our Wild Roses

Our "garden" roses (those with double flowers) have all had their origin in Europe and Asia. While the single wild rose of any land is just as sweet as any cabbage-like fullness, yet fashion today decrees that roses in a formal planting should be double. But this increase in petalage and size of flower has already begun in our native species, though these sorts are as yet little known. By conservative botany our native species are about 21—R.

acicularis and forms, R. arkansana, blanda, californica, carolina (humilis), ioliolosa, gymnocarpa, macounii, minutifolia, nitida, nutkana, oreophila, palustris (carolina), pisocarpa, rudiuscula, setigera, spaldingii, stellata, suffulta, virginiana, and woodsii and var. fendleri; and 9 species less known—R. adenosepala, manca, melina, mohavensis, pinetorum, pyrifera, sonomensis, spithamea and subserrulata. Botanical forms and white-flowered plants are known of many of these, but true doubles are not yet numerous.

Oldest of double American roses is Double Virginia Rose, or Rose d'Amour (R. virginiana plena; sold also as R. rapa), known before 1768 and introduced to gardens before 1820. The plant has very dark green leaves, very shining and quite smooth both sides. The flowers are the usual rose red of wild roses, of 25 or more petals. The plant may be found wild somewhere between New England and Missouri, particularly in New Jersey and Pennsylvania, but it has been offered by nurserymen. Yet the plant that I purchased last year had the normal single flowers. There has been a plant in the collection of the Arnold Arboretum.

Most showy of double native roses are the doubles of our Meadow Rose (R. blanda). The wild plant has very red stems in winter, always nearly without prickles or bristles. The seven leaflets are smooth both sides, but not shiny. Several forms with double flowers are now known, the plant much as the wild form. Oldest is Betty Bland. a hybrid with a HP., put out by F. L. Skinner of Dropmore, Manitoba, in 1930. The flower is of medium size, of 25-30 petals, of a clear pink, blooming in great profusion in June. It is the wild rose greatly glorified. Similar is Lillian Gibson, described in 1938. now to a limited extent offered by the producer, Dr. N. E. Hansen, at Brookings, S. D. He crossed the wild rose with Red Star, HT. The flowers are quite large (3 inches across), of 40-50 petals, clear rose pink, much as some of the HP, sorts. The stems are smooth and deep red in winter. It is the most beautiful in form of the garden sorts from our native species. It is really the wild plant of R. blanda with HP. flowers. Pax Apollo (Dr. N. E. Hansen, 1938) is similar, but the flowers are not as large or full. It has about 15 petals. The form is of a semidouble pink sort of R. multiflora in bush habit. The seed parent was a form of R. sempervirens, with pollen of R. blanda. Pax Amanda is similar, being a union of a R. multiflora climber X pollen of R. blanda. Pax Iola (Dr. Hansen, 1938) is a climber, thornless, much like Tausendschön in effect, the winter twigs bright red. The flowers have 15 or so petals, soft pink, fading white, clustered. Now Yawa will be released (Dr. Hansen, 1940), also of R. multiflora parentage and growth, more double than Pax Iola. Not only do these five R. blanda hybrids have thornless stems, bright red in winter, but they are wholly hardy to temperatures far below zero.

Sunshine Rose (R. suffulta, known also as R. heliophila and R. pratincola) is native from Alberta to Texas. It is a sister of R. blanda, but the stems are very prickly, dull brown in winter. The leaves are downy below, and even grey tinged above, so the foliage color is unlike the smooth light green of R. blanda. But the flowers are the same, perhaps not quite as large. Two double forms are known, both natural varieties. The first was found by Mrs. Mina Lindell, before 1924, in Butte County, South Dakota. It was given her name and sold by Dr. Hansen in 1927. It is very much like Betty Bland in effect,

or the "Pax" roses, a clear pink of about 15 petals, but the plant is thorny. Percy Wright, of Wilkie, Saskatchewan, offered "Woodrow," a double form, in 1939, presumably found wild in that province. It is a clear pink, quite double, not as large a flower as Mrs. Mina Lindell, but with more petals.

California Rose (R. californica) is a sister species from our west coast. The prickles are stout and wide, and the pink flowers are in broad flattened clusters. A form with semi-double flowers was in the Arnold Arboretum, and apparently at Kew Gardens. A hybrid, Theano (Geschwind, in Hungary. 1895), has been offered by Bobbink & Atkins since 1936. The flowers are of medium size, opening flat, of 15-20 petals, light carmine-rose, in broad flat erect clusters. The effect is like flat clusters of polyantha roses on a big wild shrub.

A similar plant, but the flowers not clustered, is Nootka Rose (R. nutkana), from Alaska to Utah, quite like our R. virginiana. Father Schoener crossed this with Paul Neyron, HP., and produced a plant with large single flowers, clustered, deep rose. This was put in the trade in 1930 as Schoener's Nutkana. It does not have a double flower, but J. H. Nicolas, by using this as a parent with HT. roses, created several double HT. sorts-Leonard Barron, Polar Bear, Mrs. Francis King and Shenandoah. But the HT. characters have hidden the original wild Nootka plant. They are really HT, in all ways. Another hybrid is Cantab (C. C. Hurst, 1927) produced in England by pollen of Red-Letter Day. HT., on R. nutkana. The flower is single, deep pink.

Prickly rose (R. acicularis) is native to all northern America, the twigs with

many stiff bristles. The flowers are solitary, dull rose in color-one of the earliest of species to bloom. F. L. Skinner (of Dropmore, Manitoba). maker of Betty Bland, has crossed this Prickly rose with the Rugosa rose and again by other garden roses. These were released in 1939, but seem not to be in the trade. Apparently they are Hybrid Rugosa in habit, with large clustered flowers in shades of pink. with repeating bloom. The names are George Will, Dorothy Fowler and Wasagaming, A different plant, with semi-double red flowers on a plant like the wild Prickly rose, but clustered, is Pike's Peak, from pollen of Hollywood, HT., on the wild plant. This was produced by N. C. Gunter, and put in the trade by Bobbink & Atkins in 1940. It is a very pleasing "half-wild" rose, very vigorous and hardy.

Lastly, our only native climber, the prairie rose (R. setigera), has become the parent of many climbing roses, and of late has several bush HT, sorts, particularly the work of M. H. Horvath. But both climbers and bush kinds have flowers and foliage of HT., for the three leaflets and corvmb of flowers of Prairie rose have become lost in the new forms. The Prairie parent appears only in vigor of growth and hardiness of plant. Recently, a seedling of Mrs. F. F. Prentiss (one of the best of the setigera climbers) is an exact duplicate of the wild prairie rose, in foliage, in habit of growth and date of bloom (late July), but the flowers are guite double. of many short petals, a double wild rose of very late bloom on a climbing plant. The doubling must have come from the male parent, the HT. rose, Lady Alice Stanley. This might be the beginning of hardy ramblers of very late bloom.

STEPHEN F. HAMBLIN.

A New Device for Layering

Layering of branches was done first by Nature in her own way. Man observed that where a branch contacted the soil or became accidentally covered with earth or leaves, the roots often broke forth, and a new plant resulted. He then proceeded to bend branches to the ground and cover them with soil. sometimes girdling or cutting into the branch at the buried point to stimulate root production. Often it was impracticable to bend a branch to the ground, and the practice of air-layering or marcottage resulted, in which soil or moss was held about the branch in mid-air. Many devices may be and have been used for holding the soil or moss in place such as a wrapping of gunnysacking, or split earthen pots, or boxes of bamboo. A device not known to have been used previously, was recently tried at the U.S. Plant Introduction Garden at Coconut Grove, Florida, where the use of sections of old inner tubes originated with E. W. Shaw.

The branch to be marcotted, first has a ring of bark removed, or instead of girdling, a diagonal upward cut is made into the branch and the cut held open by a very small pebble or other obstacle. Then a one-foot section of inner tube is placed over and about the cut portion and is tied below. The improvised "pot" is next filled with dampened sphagnum moss. The open top catches rainfall and permits easy watering. No evaporation occurs through the rubber side walls, and the drainage can be regulated by the tightness of the tie at the bottom.

For large marcottes, sections of automobile inner tubes have proved well adapted, particularly in the smaller sizes. For layering very small branches, bicycle tubes have been used. These small, thin-walled tubes, however, last

a shorter time and require much more frequent attention in watering.

The use of sections of inner tubes in layering is shown in the photographs.

T. B. McClelland.

Coconut Grove, Fla.

Daffodils at Swarthmore

A collection of 600 varieties of daffodils offers an exceptional opportunity to study them and make comparisons between many of the newer and older ones. Such a collection, comprising more than 20,000 bulbs, has been established by the Arthur Hoyt Scott Horticultural Foundation at Swarthmore College, Swarthmore, Pa., under the directorship of Mr. John C. Wister. There are three separate plantings. The first of 100 varieties and 10,000 bulbs, mainly of the older ones, is planted at the edge of the lawn among trees and perennials. The second, of 280 varieties and about 11,000 bulbs, is planted in raised Dutch beds and comprises most of the popular varieties handled by American seedsmen and dealers. Finally, there are about 300 novelties and over 1,000 bulbs in a coldframe, each variety plainly labeled with the name, class, and source of the bulbs.

When visited by the writer on May 7, 1940, the height of the flowering season had passed, but it presented a favorable period to observe and compare the late-midseason and late varieties.

The trumpet class was largely out of bloom but a few of the later varieties were in good condition. Lord of the Manor is a large yellow, of medium height, and excellent form. Bravo is tall, large, and of good form. Kimberley is outstanding because of its huge size and a big flaring rough trumpet; light lemon yellow. Sultan has a very



Bureau of Plant Industry

Marcotting Ficus pandurata

Fig. 1.—Close view of marcott Fig. 2.—Back View Fig. 3.—Use of inner tube

Fig. 4.—Marcotting technique on Megistostegium retusum

long tubular trumpet with a neat flaring brim. Although Tor was rated medium in size, it is one of the outstanding varieties among the yellows because of its polished ivory smoothness, rich color, and fine form. Hebron rated equally high in form and quality. Because of its smoothness, good form, and very large size, Youth would be rated much better if the stems were stretched a few inches.

Although classed as jonquil hybrids, Mr. Wister placed General Pershing and Numa Pompilius with the yellow trumpets. They meet the description of yellow trumpets, have one flower on a stem, are very tall, and of the deep rich yellow color of many of the jonquil hybrids.

Chastity rates high among the white trumpets; although it opens cream, it passes to white. It is large, tall, and a good one.

Dreadnaught, His Excellency, and Locarno were the most notable of the bicolor trumpets. They are valuable because of their late-blossoming period. Dreadnaught is a big yellow. His Excellency has a light-yellow trumpet; is large, tall, of good form, and long lasting. Locarno is very vigorous, but not as smooth as Silvanite, another light-colored one.

The Incomparabilis were mostly past their prime. Brotonne was outstanding among the yellows. It is a very large flower of fine form, has a canary-yellow Perianth and a spreading saturnine-red crown. Agra is one of the best and showiest. It is very large and regular with very broad overlapping creamy white perianth of great substance, and a large spreading crown of bright orange. Very vigorous and a free bloomer it is also a high-class exhibition flower. Palma has a large flat orange crown and broad white round petals.

St. Egwin always commands attention because of its height, large size, perfect form, and uniform clear soft yellow color. Bagdad is possibly a more striking Barrii because of the sharply defined broad scarlet band around the rim of the cup, and it is nearly if not quite as tall, large, and vigorous. Cordova, one of the newer varieties, makes, with the above, a fine trio in the group of yellow Barriis that contains too few really high-class varieties. It is also very large, smooth, and quite circular and has a shallow cup stained dark rich red.

There are so many good bicolor Barriis, mostly rather late bloomers, that it is difficult to select a few. Danger is of medium size, opens with a vellowish tint that soon passes to white, and has a dark vellow cup with a broad blood-red rim. Fleur is of good form and size and has a large, flattish, vellow cup. Mayflower is very tall, a Poeticus-Barrii hybrid, having broad glistening white petals and a yellow eye with red picotee. Peggy has very broad round petals and a small rich vellow cup. If Pride of Virginia had more substance, it would be a great flower but the petals are too floppy. It has the height, size, and color that make it a very attractive garden plant. Stamboul has an unusually interesting and attractive cup with overlapping frills, orange edged bright red. It is large and of excellent form. Therapia was, as always, outstanding. Although introduced in 1927, it has probably not been surpassed as a show flower.

Mr. Wister has a special fondness for white flowers and has brought together a very notable group of the large-crowned Leedsiis. Andes and Water Lily are very large (5 inches) informal flowers of Tenedos type. One of the three would be sufficient for most collections. Daisy Schaffer was outstanding because of its great size, shapely form, and gorgeous lemon frill that develops on the crown as the flower ages. It is long-lasting, tall, and vigorous. Carnlough and Dunlewey, two of Guy Wilson's originations, were notable for this high quality and smoothness. Carnlough has a soft-pink frilled crown that quickly fades to white; Dunlewey is a free, vigorous grower, but the stem is rather short. Pinkeen, another Wilson origination, is a medium-sized flower of fine form and quality that may have a pink crown in Ireland but the color does not develop under the warm sunny skies of eastern America. Gracious is a large longstanding flower, of good size, form, and substance. Silver Star, although a medium-sized flower is one of the best of the group-well proportioned, early, and long standing. Pucelle resembles St. Egwin in shape but is not so tall. It is a vigorous plant that produces a flower of distinct character and quality. Sublime is a pink-crowned flower of better form than Mrs. R. O. Backhouse but the color does not hold so well. It has pointed petals and is a decided addition to the "pink" group.

Nelly, because of its size, broad petals, and high quality, dominated the group of small-crowned Leedsiis.

No collection of daffodils would be complete without some of the smaller flowers. Acolyte and Shot Silk, Triandrus hybrids having broad petals and being vigorous and prolific seemed to outshine the other varieties. Aurelia, although bearing generally one flower to a stem, rather eclipsed the other jonquil hybrids in beauty of form and richness of color.

Kingcraft is a decided addition to the rather large group of cluster-flowered Poetaz although it produces only two flowers on a stem. It has broad round petals, a large flat yellow eye, and is very tall and vigorous. Geranium produces four flowers on a stem and has a large orange cup, whereas Irmelin is taller than most of the Poetaz and has an orange-red cup.

No Poet seemed to outshine its brothers and sisters, there being more similarity among the flowers of this group than among the others. Thelma appeared as good as any. It is tall, vigorous, and prolific.

Romagna is a striking double, a large flower having yellow and orange petals. Inglescombe, Holland's Glory, and Primrose Phoenix were much alike in size and form but presented a nice range in shade of the self-vellows.

EDWIN C. POWELL

Three Interesting Foreigners

Flower histories are often sad. Sc many beauties have had their day and gone, leaving little to tell of their charms. A picture in the Botanical Magazine, perhaps or in one of Jacquin's or Redouté's big tomes or a brief reference in the Kew Index. We know no more of the reasons they left the early gardens and greenhouses than we know why the Maya civilization failed or why the Khmers lost Angkor Wat. One or more of the same reasons in each case, probably, climate, enemies or disease. The people of Chitchen-Itzá and Angkor have gone but the flowers may live still, perhaps, in some old English gardens. We like to think SO.

The Brilliant Nerines

Many survive and overcome numerous vicissitudes of neglect and the crowding out by later arrivals or disappear for a time only to stage a strong return. Among this group we find the nerines which seem about to make a

speciacular bid for popularity in the United States. Anyone who has seen the lovely nerines in recent horticultural exhibitions will be glad to have them become abundant here, old timers that they are. They are flowers of beautiful and interesting forms and of exquisite colors, ranging from deep crimson-scarlet through cherry and salmon tones to white. They have moreover an unusual quality. The perianth segments glisten as if the entire surface were set with tiny mirrors giving a sparkling brilliant look to the flowers. By artificial light they seem to be frosted with fine gold dust. E. H. Wilson speaks of seeing acres of them in bloom in South Africa!

They have their own history. In the 16th or 17th century a ship came from Japan, stopping as they practically always did at the Cape of Good Hope for water and supplies. Among the cargo brought north was a shipment of nerines intended no doubt for English gardens. The ship was wrecked on the coast of the Channel Island, Guernsev. Washed ashore with other wreckage, the nerine bulbs lav unnoticed for a time, the sand covering them till a year or two later, the islanders were suddenly thrilled by the sight of the gorgeous flowers. The possibilities in their culture were seen and ever since then the so-called Guernsey Lily has been grown in large quantities and shipped to England. The Guernsey climate suits them perfectly. But alas, this lovely tale is fable, for no nerine grows in Japan.

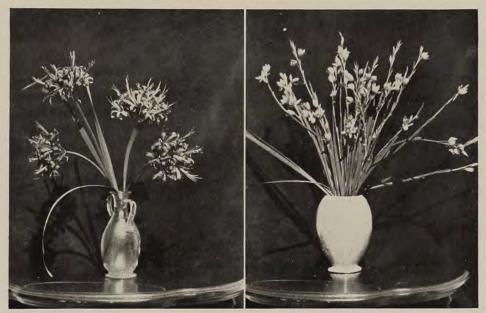
So far the nerines, though there have been a few fine collections of them, have been rather rare in America but they are not hard to grow. Only a small number of the South African plants are hardy in the northern states but many of them will do well in the south, flourish in California and will in the north

make splendid subjects for greenhouse and sunroom and as annuals or summer They deserve to be better bulbs. The principal things to reknown. member are that they need all the sunshine we can give them and that bulbs must be thoroughly ripened. Coming as most of them do from parts of South Africa where the rains fall abundantly at one season and then are followed by months of dry weather, the bulbs face conditions after blooming almost like those of our western deserts. them well and they will bloom for you.

Nerines belong to the family Amaryllidaceae and are of two types. that in which the stamens protrude stiffly and the one where they are declinate or drooping. In some the perianth segments are broad and flat, in others narrow and crisped or fluted. The two types are quite distinct but the difficulty comes when one tries to give a definite name to a particular flower, for they have been so crossed and recrossed that even the men who grow them and exhibit them cannot tell you just what they are. The stiffstamened one shown belongs to the type which includes N. sarniensis (the Guernsev Lily) and N. curvifolia with its varieties fothergilli and fothergilli major.

Can You Name This Flower?

This one with the long drooping stamens and the much recurved petals, though it was bought for a nerine and has many traits of the second type of the genus, which includes undulata, humilis, flexbosa, etc., but more probably a lycoris for it resembles very closely L. radiata. The two genera, Nerine and Lycoris, are nearly related and the names have been used back and forth. Lycoris radiata has indulged in a diversity of names, having been called at times, Nerine japonica, Rayed Lily Daffodil and Snowdrop Leaved



Sarah V. Coombs

Fig. 1.—Nerines
Fig. 2.—Schizostylis coccinea (Pink Kaffir Lily)

Amaryllis beside its probable true name of *Lycoris radiata*. It is a native of China and Japan. There is much confusion in the names of many of these old flowers and there are lifetimes of botanical work to be given to straigtening them out.

Bulbs of these groups are not a bit fussy. Indeed the South African flowers, among which we may for the moment include this other, if their very definite and simple needs are considered, are an amiable lot and should be grown far more than they are. It is so exciting for a flower show judge to come suddenly on a brand-new flower! These judges are a hard-working group and deserve some reward.

If you plant any of these bulbs, make the soil of good medium loam with sand enough to make it porous and add bone meal. Some gardener says: "A little

lime rubbish with it does very well." Most of them are fall-blooming-October or November-with leaves following the flowers. In warm climates they are to be put in a sunny spot where they may be dry and warm in summer for their ripening. In the north put three bulbs in a 5-inch pot and do not repot till bursting of the pot is threatened as they hate to be disturbed. Rub off the bulblets if necessary. Fresh earth may be added when growth is starting by replacing the top inch or two. The flower stalk grows quickly, followed by the leaves. When growth starts, in September or October probably, water carefully at first, then increase and give plenty of water till the leaves begin to turn yellow, perhaps in May. Give weak manure water occasionally and keep up the cultivation through the whole growing period, then withhold

water gradually. After the foliage has died down, the best plane for the pot is on its side on a greenhouse shelf in full sun all summer. A cold frame with the glass on gives the proper treatment also or a sunny window in the cellar, where the plants may be left and forgotten till September. The warmer they are kept, the surer they are to bloom. The only pest that seems to trouble them is mealy bug but they have a clean fine growth that often is quite free from any trouble. They like a cool greenhouse but do not need one and will grow and bloom in a sunny window. I say this advisedly.

The flowers grow, 4 to 30 in an umbel at the end of a tall scape and the leaves are strap-shaped, dark rich green. The flowers may be set among ferns or foliage plants which will fill in the bareness due to their own delayed leaves. They are strikingly beautiful and interesting with their glistening petals and long colored stamens. Through no fault of the dealers but simply because the group as a whole needs some straightening out, you may not always receive the exact kind you order, but they are all lovely so there will be little to regret in any case. The Kaffir Lily

Schizostylis coccinea. Kaffir or Fire Lily. Here we are on surer ground. This South African flower has been known to English gardeners for a long time but since the genus is a small one, with only two or perhaps three species, there is no great abundance of hybrids, which are interesting to the gardener but confusing to the botanist. The Kaffir Lily is found growing wild in many different parts of South Africa, eastern and central, Transvaal, Griqualand, Swaziland, etc., but practically always very near water, which gives an

idea for its cultivation. It belongs to the great Iris group, the Iridaceae. There are no true irises in South Africa but the *Schizostylis* is their first cousin. Its color is a gorgeous crimson and when it blooms, the veld looks as if it were on fire. The rainfall which starts it into bloom ends in May—the seasons are opposite to ours and the time corresponds to our autumn—after which rainy season the ground becomes as hard and baked as a brick and the plant becomes dormant till the rains come again.

The picture shown here is of the variety Mrs. Hegarty, the Pink Kaffir Though very generally considered a variety of the species coccinea, it may perhaps be a separate species since a flower, gathered at an altitude of 3,000 feet, was described by its finder as a "beautiful pink Hesperantha," the genus Hesparantha being a closely related, almost identical one. In any case the two Kaffir Lilies are much alike in everything but color and blooming time, the Mrs. Hegarty variety being a pure clear pink and blooming a month or two earlier than the scarlet one. The pretty flowers grow on long slender stalks and are fine for cutting. lasting a long time in water. The scarlet kaffir Lilv does not bloom till October or November so is useful in the north only as a potted or cold frame subject. In the south and on the west coast, it would be a garden plant. The pink one, blooming so much earlier. from August to October, can be grown outdoors in summer if planted early enough. Either crimson or pink, the Kaffir Lily is well worth a trial.

SARAH V. COOMBS

Scarsdale, N. Y.

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