American Rock Garden Society Bulletin

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AMERICAN ROCK GARDEN SOCIETY BULLETIN

Albert M. Sutton, Editor

VOL. 27 July, 1969 No. 3

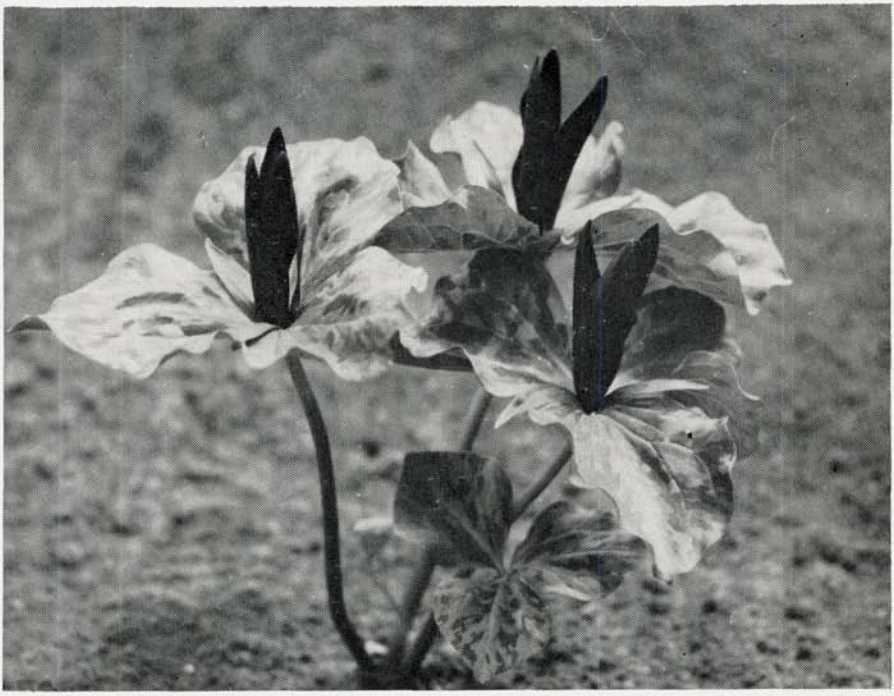
TRILLIUM CHLOROPETALUM GIGANTEUM

JAMES BAGGETT, *Corvallis, Oregon*

"Handsome" may be the best word to describe the red form of *Trillium chloropetalum* (Torrey) Howell, known in the nursery trade as *T. sessile rubrum*. Though it may not have the purity of *Trillium grandiflorum,* or the delicate beauty of *T. undulatum,* when grown in a favorable setting, this member of a distinguished genus is striking in both form and color. Its completely sessile flowers with large, dark red petals pointing upward over often strongly mottled, sessile leaves, are an asset in a selected spot in the rock garden, as well as among woodland plants.

The preceding comments were inspired by a stock of trilliums, well represented in my own garden, which originated in northwestern California. Consultation of about a dozen taxonomical works and wild flower books revealed a remarkable lack of agreement in the nomenclature of the group of trilliums to which this form belongs. For a rock gardener, the following simplification of the botanical literature seems adequate. On the Pacific Coast, from about Monterey, California, into Western Washington we have a complex of sessile-flowered trilliums included in one species which has been known as either *T. sessile,* or *T. chloropetalum.* The latter is now considered correct. Botanical variety names have been applied, depending on the viewpoint of a particular author, for variations in color and form of the petals, and perhaps plant size. One of the most commonly used varietal names is *giganteum,* which is the one which probably best fits the dark red form discussed here. Dark red in *T. chloropetalum* seems to be more common in California than farther north. White, or greenish white are the only flower colors to be found in this species near Corvallis and in most other sections of Oregon and Washington. In the eastern half of the United States, red seems to be the most common color in the similar species correctly known as *Trillium sessile* L. Other species with dark red, or similar colors occurring in the East include *T. cuneatum, T. recurvatum, T. decumbens, T. vaseyi, T. erectum,* and *T. ludovicianum.*

The availability of *Trillium chloropetalum* from a number of nurseries has largely been due to the efforts of Gilman Keasey of Corvallis, Oregon, who has grown them from seed in great quantities. Mr. Keasey, who markets



James Baggett

Trillium chloropetalum giganteum

his plants through regular wholesale and retail nurserymen, collected his original three plants in California in 1947. In a year or two he planted his first crop of seed and has continued each year since, building up a large stock from successive generations of seedlings. Trilliums require 5 to 6 years from seedling to flowering, but by 1968 his annual crop of flowering size plants had reached about 15,000. Adding variants of this and other species to his collection through the years, Mr. Keasey has done some hybridizing to develop new combinations of color, maturity, and form. Progeny from these crosses have not yet flowered in any quantity.

In the garden, *Trillium chloropetalum* is easy, adaptable, and responds to good culture by producing large, sturdy plants in colonies with as many as six stems in four or five years, and 15 to 20 or more in time. They will reach a height of 12 to 20 inches, depending somewhat on the amount of shade. Light to moderate shade, at least on the southwest exposure, is required for best results, but they will also tolerate fairly deep shade. Moderately good drainage with plenty of soil moisture during the growing season should be provided, and a good mulch will prevent crusting of the soil and make emergence of the leaves easier. Fertilizers, sensibly applied, will produce larger plants with finer leaf and flower color.

In discussing one variety of trillium in particular, it is not my intent to discredit the garden value of the many other fascinating members of the genus. On the contrary, my own objective is to grow as many different kinds as space will permit. All of them are interesting, most are beautiful, and any one of them is an asset to a plant lover's garden. *Trillium chloropetalum giganteum* should be in every collection.

DOWN FROM THE MOUNTAIN A BIT

LEONARD J. UTTAL, *Roanoke, Va.*

As they properly should, our Bulletin's pages are replete with exciting reports of mountain flora. Most of the time we are escorted way up the alpine slopes of the Rockies, or the dazzling high meadows of the Cascades. Frequently we grub with the writers for the very special alpine flora of New England and eastern Canada. While we don't get above timberline, never have we failed to be enthralled with the floral wealth of the high Appalachians when someone takes us high up in North Carolina or Tennessee. Nor is the exotic denied us. Without spending a nickel for a ticket, we have at times been escorted far afield in the Alps, the mountains of Japan, Asia, Africa, and Latin America, even eastern Europe, New Zealand and Australia.

The initial inspiration of the rock gardener is the alpine, of course, for that is the epitome of the rock garden. The rock gardener naturally wants to have at hand a reminder of the wonderful alpine environment he can never get enough of when he is free to travel.

Consequently, it would sometimes seem there are no rock plants anywhere else but on mountain screes and alpine meadows. Occasionally an article appears to remind us otherwise: that there are rock plants wherever there are rocks, and frequently very good ones. Even low plants grow in rockless regions, on plains, plateaus, savannahs, which obligingly adapt themselves well to a rock garden. I have written a couple of times on marvelous plants growing on the southeast Atlantic coastal plain. Others have written about plants from our deserts, our mesic woodlands, and many other sites of lower altitude around the world. Around Perth, Western Australia, occurs one of the greatest concentrations of wild flowers of unusual beauty in the world—a few hundred feet above sea level. Our own Claude Barr's assemblage of choice plants from altitudes of three to six thousand feet in the high plains contributed many fine plants of alpine orientation to gardens all over the world. It is the North American midsection of prairie, low plateau, and high plain I would like to write of at this time. Well aware that Claude Barr knows most of this country like the back of his hand and I have only passed through it, I do so with some trepidation for mistakes. I hope I get by!

Probably no part of the United States is more drastically altered from its original condition than its midsection. Where once the native grass waved like an endless sea, and sparkled with myriads of colorful wild flowers, as the sea sparkles from the sun, today we must cross a depressing monotony of corn, wheat, and range between the eastern and western mountains. If we are heading west for the Rockies, or east for the Appalachians, it is a 1600-1800 mile blistering fry-pan we must cross. But need it be? Here in the midlands, there are still relatively unspoiled sections of river bluff, preserved natural grasslands, and wild-life preserves; pitiful remnants of the vast original prairie to be sure, but still harboring many beautiful plants. It is worth diverting from the Interstate Highways to such places if you have the time and desire to break the monotony.

One place I am glad I diverted to last summer was in the Sand Hills of western Nebraska, the Crescent Lake National Wildlife Refuge in Garden County. This is harsh country, sparsely populated, devoted mostly to beef, and prairie hay. Trees are scarce. But there are hundreds of lakes, marshes, and on the refuge, remnants of short-grass prairie.

Visit these lakes in midsummer and you can hardly believe waterfowl are any less abundant today than they were in the days of Audubon and Wilson, even though you know better. The shores teem with plovers, sandpipers, avocets, and rails. The marshes and lakes are maternity wards for thousands of wild ducks and coots and grebes. But it is all an illusion. The breeding populations are concentrated on the preserves and must disperse over the vastness of two continents in the fall.

Omnipresent flowers of the dry hills which have found their way into gardens the world over include the common sunflower, *Helianthus annuus,* Gay-feather, *Liatris punctata,* and Snow-on-the-Mountain, *Euphorbia marginata.* Other showy midsummer plants are the prairie gentian, with great chunks of purple cups, unfortunately not amenable to cultivation, the fuzzy pink wands and silvery, compound, legume-type leaves of *Petalostemon villosus,* the bright, white *Gilia longiflora,* the pale straw-honey Blazing Star, *Mentzelia stricta,* the ghostly panicles of *Eriogonum effusum,* and the succulent, greenish clusters of *Abronia fragrans.* The state flower of Nebraska is a goldenrod, not specified, but it must be *Solidago missouriensis,* the most prevalent and showy species. Its dense panicles are brilliant gold, nod at the tips, and the foliage is an attractive blue-green. It is not aggressive, being a clumpy plant, not rampant. It frequently occurs in miniature size worth trying in the rock garden.

The Lupines are a difficult tribe to identify, but *Lupinus plattensis* offers no difficulty because it bears a conspicuous purple spot on its light lavender wings. Small white stars spread crab-like on the surface of the sand, *Euphorbia missurica.* The bush morning glory makes a great show of its silky, pink trumpets borne against the digitate, glaucous leaves. *Erigeron bellidiastrum,* an annual, and thus not a likely rock garden prospect, is nevertheless a very attractive white daisy-bearer, especially in mass. Evening primroses are plentiful. *Oenothera serrulata* is a dense flowering bushlet with primrose yellow flowers. *O. nuttallii* is more erect, with larger white flowers. The bark of the stems flake peculiarly, after the fashion of birch. This is a land *par excellence* for actinic composites, both in numbers of species and individuals. The most prominent genera include *Helianthus, Coreopsis, Rudbeckia, Echinacea, Ratibida, Helenium, Chrysopsis, Bahia, Grindelia, ad infinitum.* Most are weedy types, yet who can deny their millions of new mint gold dollars are not a welcome glitter in the vast dull green grass? Not all are weeds, and not all are yellow. There are a few choice things in this group, including some garden standards, such as *Echinacea purpurea.*

What I have listed here are a few midsummer plants, really only a few adaptable to rock gardens. Summer is a hard time in the Sand Hills. In the spring, flowers are more numerous and diverse, including many perennials usable in rock plantings. Claude Barr carries several in his seed catalog.

One cautionary note: the prairie *Aedes,* marsh mosquito! You had

better be prepared for him with repellant and respect him. He is a monster. I know well the vicious south Atlantic salt marsh mosquito. For my money, compared with the prairie mosquito, he takes a back seat. (No pun intended). The prairie mosquito is big and bites deep, if you let him. However, he is considerably slower, whines loudly, and if he is not too numerous, can be fended off. I found also, at least for me, he respected the spray repellant. Perhaps it occurred to him — why bother with this miserable little man with all that hefty cattle around?

Crossing the midlands? Bored stiff with the cornfields? You have already passed many signs diverting to state parks and federal preserves. Take one. See how things were when the buffalo roamed. You will enjoy the diversion, mosquitos aside.

A FEW NEW FORMS OF *TSUGA CANADENSIS*

JOEL W. SPINGARN, *Baldwin, New York*

In the year 1933, a gentleman named Charles F. Jenkins, of Germantown, Pa. enamoured with the genus *Tsuga* decided to disseminate information and create interest in this conifer and its variants by publishing an ambitious periodical entitled *The Hemlock Arboretum Bulletin.* Mr. Jenkins had established a comprehensive collection of hemlock variants and received many notable horticulturists to visit his arboretum. Many of the visitors added to the collection and during the fifteen years or so that Mr. Jenkins was active, the arboretum grew and much information relating to the genus *Tsuga* was published in the *Bulletin.*

The beginnings of a noteworthy event occurred when Mr. Jenkins, in Bulletin No. 19, dated July 1, 1937, laid down a challenge to his readers by suggesting that a college graduate in the field of botany, horticulture, biology, ecology, dendrology, landscape gardening, or some kindred science work on a thesis in preparation for his doctor's degree; the topic to be "Mutations of *Tsuga canadensis.*" Mr. Jenkins went on to say the need was great and the results could be an important contribution to scientific knowledge. The challenge was soon taken up by Mr. John C. Swartley who was enrolled at Cornell University for advanced study in ornamental horticulture. Mr. Swartley had been connected with the Morris Arboretum for about five years and had done some preliminary work sorting and relabeling some misnamed *Tsuga* forms at the Hemlock Arboretum. He was undoubtedly well qualified for the job as the resulting thesis entitled "Canadian Hemlock and its Variants," became the standard reference, and to my knowledge is the only comprehensive work done on the genus *Tsuga* in almost thirty years. Unfortunately, Mr. Swartley's thesis has never been published and it is presently not easily available. I was able to borrow a copy from Cornell University through my local library.

Since 1939, the year the hemlock thesis was completed, many new forms of *Tsuga* have appeared, many of these being only duplicate variants of forms already mentioned by Mr. Swartley, but occasionally a distinctly different form or a much improved duplicate variant appeared under the watchful eyes of collectors and in a number of cases these have been

sorted out, propagated and distributed to arboretums, botanical gardens, and private collectors. The following are a few forms of *Tsuga*, with brief descriptions, that I have encountered in my travels and, in most cases, added to my collection.

Tsuga canadensis 'Armistice' — My plant was obtained in 1959 from a nurseryman in Concord, Mass., under the name of 'Warner's Armistice.' It was then 15″ across. It now averages 20″ high and 30″ across in 28 years. In outline, it is a flat-topped globe with horizontally tiered branches and dark green, very compact shining leaves. Although this "name" has been published before, I mention it again because my plant appears to be a different form than the specimen in the Gotelli collection at the U.S. National Arboretum. The Gotelli plant is pyramidal in outline and although a fine form, is not distinct from many other existing hemlock variants. The plant in my collection, 'Armistice' or not, is one of the handsomest forms of *Tsuga* I have.

Tsuga canadensis 'Aurea Compacta' — This plant, in color, is similar to *T. can.* 'Aurea' (or more correctly, *T. Can.* 'Everett's Golden'). It probably originated by propagating the weaker growing side branchlets of this form. It is extremely slow-growing, rarely making more than an inch in one season. It is somewhat irregular in outline; younger plants attaining little height and mostly growing outward. An old plant may be a foot across, very compact, and fifteen or more years old. Some plants eventually throw up a leader and will probably become squat pyramids in outline.

Tsuga canadensis — Sport of 'Cole's Prostrate' — Some doubt exists that this form was raised from a mutant branch of *T. can.* 'Cole's Prostrate' but there is little doubt that the plant in my possession is a gem. The plant was one of three purchased from a nurseryman as a rooted cutting of *T. can.* 'Cole's Prostrate.' After a few years it became a very diminutive globose bush, somewhat resembling the form *T. can.* 'Horsford.' I questioned the nurseryman at a later date as to the possibility of mislabeling, but he insisted he had never propagated from the form *T. can.* 'Horsford.' My plant is now 12 years old and 13″ through and 6″ high.

Tsuga canadensis 'Curly' — This plant was brought into cultivation by Mr. Harold Epstein. While visiting a friend, Mr. Epstein found a distinct seedling with sickle-shaped leaves growing in his garden. Mr. Epstein took a few cuttings and raised some plants. The whereabouts of the parent plant is now unknown and its owner deceased. My plant, now six years old, is of irregular outline, 12″ high and 15″ across.

Tsuga canadensis — Dwarf upright form — This plant grows upward very slowly. It is almost fastigiate in outline and quite distinct. My plants, 24″ high and 11″ in width, are nine years old. They were purchased from a nurseryman in Aurora, Oregon, who has since changed the name to *Tsuga can.* 'Lewis." I obtained a plant of the latter from Mr. Carl Starker in 1960. He wrote that his plant originally was obtained from an ardent plantsman, Mr. Clarence McKay Lewis of New York. To add to the confusion, the true plant of *T. can.* 'Lewisii' appears to be different from the form, *T. can.* dwarf upright, not being fastigiate in outline.

Tsuga canadensis 'Aurea Compacta' — An even dwarfer form of the very slow-growing Everett's golden hemlock.

Tsuga canadensis 'Greenspray' — We are indebted to Mr. Henry Hohman for introducing this fine hemlock. The placement of leaves presents a texture that immediately distinguishes it from forms of similar habit. It is moderately rapid in growth, forming arching sprays all around the plant. My plant, obtained five years ago, is probably eight or nine years old and measures 20″ high and 3 feet across.

Tsuga canadensis — Sport of 'Jervis' — I have been unable to find any differences between this plant and the regular form of *T. can.* 'Jervis.' It is supposedly of more rapid growth, but my plant, now between twelve and fourteen years old, is 16″ high and 13″ across.

Tsuga canadensis 'Minuta Pendula' — This plant grows as rapidly, or nearly so, as the form *T. can.* 'Sargentii' from which it was probably derived as a seedling. The primary difference between the two is that apparently the form *T. can.* 'Minuta Pendula' is much lower growing and spreading. In my opinion, the varietal epithet "minuta pendula" as published in the Brooklyn Botanic Garden Handbook *Dwarf Conifers* Vol. 21, No. 1, was poorly chosen as it is misleading, the plant hardly being "minute." My parent plant was raised by Mr. Carl Starker. Mr. Starker wrote me in 1960 describing the plant to be 18″ tall and 3′ across. At the time the plant was unnamed. Since its distribution it has acquired three additional varietal names; 'Starker's Pendula,' 'West Coast Creeper,' and 'West Coast Spreader.' Conifer buffs are aware that *T. can.* 'Sargentii' comes true from seed and the seedling population shows varied degrees of genetic dwarfness and pen-

dulous habit. My collection includes two specimens grown from seed of *T. can.* 'Sargentii' that grow less than half the rate of the parent.

Tsuga canadensis 'Palomino' — This plant forms a very dwarf compact globose bushlet. The leaves are small and branches and branchlets very thin and flexible. The buds are hairy and resemble the buds of form *T. can.* 'Cinnamonea.' It may well be an improved and dwarfer duplicate variant of that form. The parent plant is owned by Mr. Paul Palomino of Long Island. It is now 21 years old and measures 13″ high and 21″ across.

Tsuga canadensis 'Pygmaea' — One of the most sought after and rarest of the hemlock gems. It forms a sub-globose miniature bushlet of exceedingly dense foliage, resembling the form *T. can.* 'Minuta.' The plant growing in my collection measures 6½″ wide by 4″ high, and is ten years old. I raised the plant from a single cutting generously supplied by Mr. William Gotelli. I have attempted to trace the origin of this form. Mr. Gotelli's plant was obtained from Mr. Henry Hohman of Kingsville Nursery, who raised the plant from a single scion supplied by Mr. Joseph Gable of Stewartstown, Pa., in 1941. I have been unable to contact Mr. Gable, so there the search ends, however, Mr. John C. Swartley wrote that the form *T. can.* 'Pygmaea' is similar to form *T. can.* 'Minuta,' the latter having slightly longer leaves. His inference, I believe, is that the form 'Pygmaea' is one of the seedlings of *T. can.* 'Minuta' collected at the site of the parent plant discovered in Charlotte, Vermont. Mr. Swartley also suggests that the growth rates are apparently the same, and I suppose this would be correct if one were to consider that the difference in growth rate is only a fraction of an inch, however upon actually taking measurements I found the form 'Minuta' grows ⅜″ on the shortest shoots and up to ¾″ on the longest shoots while the form 'Pygmaea' measures ⅛″ on the shortest shoots to ⅜″ on the longest shoots, so, relatively speaking, if we were to strike an average, the form 'Minuta' grows twice the rate of 'Pygmaea'! Both plants measured are well established and growing on the same site.

Tsuga canadensis — Dwarf pyramid form — A collected seedling about 15 to 18 years old. The average growth being one inch annually. It forms a squat pyramid of very dense, soft-textured foliage, 20″ across and 14″ high. It is best sited in partial shade and becomes an exceedingly handsome pygmy conifer.

Tsuga canadensis — A prostrate seedling — I reported this seedling in *American Horticulture Magazine* in 1965 as being intermediate between forms 'Sargentii' and 'Cole's Prostrate.' A distinguishing characteristic of this plant is the extremely aged appearance of the bark. It is not a good "doer," the tips frequently burning off and excessive loss of foliage presents an unhealthy appearance.

Tsuga canadensis 'Variegata Gentsch' — Viewed from a distance, this form appears to be a pure white globose bush. Its variegation being very intense in the fall. It is moderate in growth, a twelve year old plant attaining 18″ in height and three feet across. It was discovered by a nurseryman, Mr. Otto Gentsch of Long Island, growing amongst his small hemlocks. Mr. Gentsch does not know whether this plant originated as a seedling or a mu-

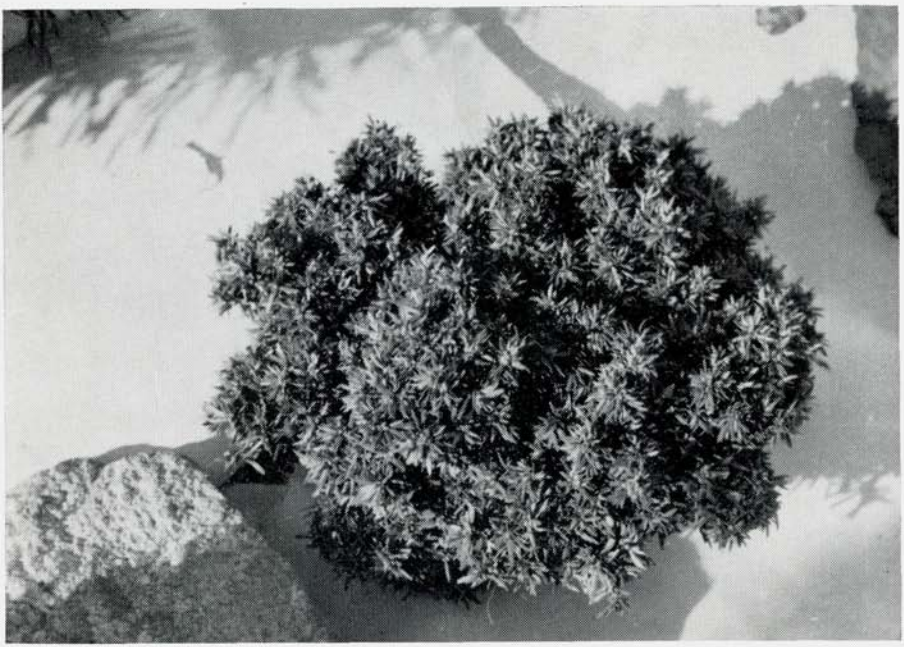
tated cutting as he used both methods of propagating.

Tsuga canadensis 'Verkade Witches'-broom' — A very distinct form derived from a witches'-broom by Verkade Nursery in Wayne, N. J. It somewhat resembles the form *T. can.* 'Bennett' but in a miniaturized version. The plant is horizontally tiered, flat-topped, and very symmetrical. It requires a somewhat shaded site. The average annual growth of an older plant is 2½". Younger plants start slowly. An eight year old plant is 6" high and 15" across.

The following three distinct forms were found by my good friend, Mr. John Verkade of Wayne, N. J., and have been registered with the Arnold Arboretum. The following descriptions were supplied by Mr. Verkade:

Tsuga canadensis 'Verkade's Petite' — This little gem was found as a seedling. It has an average annual growth of 1/16 to 1/8 inch. It has a cluster of tiny brown eyelets on each of its tiny branches and in the spring it is a mass of light green when the new growth takes place. 'Petite' must be planted in the shade as it cannot adjust to the summer sun, but it is very hardy and will not be harmed in minus ten degrees. The parent plant is now sixteen years old, 2" high and 3½" across, and is an irregular globe.

Tsuga canadensis 'Jacqueline Verkade' — This plant was found in our seedling beds and is also planted at Pompton Lakes, N. J. It has an average growth of one half to three quarters of an inch per year. It has a perfect



Tsuga canadensis 'Pygmaea'—6½" wide, 4" high, 10 years old. The rarest, dwarfest and most sought of the hemlock tribe.

conical form and is very dense with dark green foliage throughout the year. This plant is now five and one half inches tall and six inches wide at the base and is estimated to be ten years old. It will grow in full sunlight and will not burn in summer or winter.

Tsuga canadensis 'Verkade Recurva' — This form has a very irregular growth habit with an average growth of approximately two to three inches per year. The exotic parent plant is estimated to be 15 years old and is 16″ tall, 12″ wide at the base and is of pyramidal habit. It was found in a hemlock collector's nursery and given to us as a misformed plant that did not want to grow even after extra feeding and is now in our garden at Pompton Lakes, N. J. It is open-growing with recurved needles on its branches and does not resemble the genus *Tsuga canadensis.*

Since starting the foregoing, Mr. Don Smith of the Watnong Nursery, Morris Plains, N. J., wrote to me concerning a seedling hemlock growing in his nursery. He writes the following: "Our seedling was the size of my fist, seven years ago, when brought to us from New Hampshire by Bob Clark, from his mother's home there. It is now 14″ high by 12″ across, and is beginning to open a bit as the tips 'procumb' slightly. The most interesting time to view it is when new growth is beginning. It then seems to be covered with tiny green-white stars."

Don tells me of a group of interesting seedling *Tsuga* variants growing at the home of Mr. Ralph Bacon, Sparta, N. J., but as of this time, I have not had the opportunity to visit Mr. Bacon.

Tsuga canadensis 'Verkade Witches'-broom'—13″ across, 6″ high, 8 years old. It looks like a bird's nest. For partial shade.

MUSINGS OF A PLANT COLLECTOR

HAROLD F. COMBER, *Gresham, Oregon*

(Editor's Note) — A member from British Columbia, Susan B. Watson, sent in an article, evidently written some years ago, with an attached note on which was written, "Musings of a Plant Collector — Harold F. Comber." Further quest for more definite information concerning the article and the author brought only the response that Mr. Comber was very busy teaching and that he loves to fish in *all* weather. This is not exactly the information the editor desired. Nevertheless, the article appears below. Please see Omnium-Gatherum.

Then came the batches of seeds from China, the collections of George Forrest, Kingdon Ward, Rock, and others, and all the thrills of new and unknown species of Rhododenrons, Primulas, Lilies, Gentians and a miscellany of less familiar genera. Experienced growers made up peaty, sandy, acid composts for the former, especially well-drained soils of two kinds, acid and neutral for the Primulas and Gentians — half the seeds in one mixture and half in the other, and heavier composts for the trees and shrubs. Careful attention to the collector's notes minimized failures.

Then the daily watering, shading and special care for those germinating. Covering sheets of glass were wiped and turned each day. The slightest signs of mould were removed. Where damping off started, various mild fungicides were used, almost invariably with detrimental results to something. Even a slight check or hardening of some of the tiny seedlings resulted in considerable slowing down of later growth to a point where the plant became "difficult."

Nothing succeeds like success, and where a skillful cultivator, by unremitting attention could maintain steady and even rapid healthy growth it seemed nothing less than a miracle to others.

Tiny Rhododendron seedlings benefit by being moved in one half inch squares very early in life and almost as soon as they show renewed activity they may be pricked out singly an inch or two apart. Always a healthy, active growing plant is easy, and a stunted, hardened one difficult. The former rapidly responds to encouragement, the latter can't take it.

There is nothing harder to grow than a potentially large plant in a small pot. Try keeping a Rhubarb seedling in a six inch pot for a year, and yet many of the seeds sent home were of this class. Lacking an early planting out, or potting on, they lingered and died as stunted plants in cold frames. Annuals, too, were often lost before their potentialities were even guessed.

It took men of experience, with considerable knowledge of plant life and behavior, to forecast or estimate what each new plant required and that at a time when his resources were strained by the influx of more and more seeds.

Inevitably some situations favored one class of plants more than others, and so the burden was spread, among different growers, one excelling in this,

the other in that. For the commercial grower it was a nightmare, few buyers being attracted by unknown species or even genera, yet when a seed number had been flowered and found good, all wanted it.

Shrubs had to be grown for years before they became saleable, and then there was great competition for the best form of each, usually the A.M. or F.C.C. (R.H.S.) form being in greatest demand, and having to be propagated afresh from one plant! Later, other clones clearly demonstrated superiority in various ways and gradually became popularised. All this took time and effort by the keenest men and considerable risk in gambling on the better varieties. The demand for quick multiplication fostered new methods of striking cuttings; the use of hormones; special shading and lighting, and mist propagation were gradually developed.

From the old, well-known standard items of trade the nurseryman won his bread and butter; from the flowering of the new plants the excitement and inspiration that kept up his interest and that of his friends and customers. Few ever regretted the excursion into new plants, but all came to realize that the same amount of enthusiasm, time and effort spent on the standard items would have made them wealthy.

And so, after having sifted the richest hardy floras of the world, nurserymen are offering more and more of fewer varieties, and only those which nobody can fail to grow.

Yet those who lived, handled, and admired those new plants during the years 1910-1950, even though vicariously, have ineffaceable memories of beautiful living gems which present generations are only likely to see in books.

One recalls exquisite Primulas, and Omphalogrammas, brilliant Gentians of many types, rare Cremanthodiums, high alpine Delphiniums three inches high with two-inch flowers, a host of both delicate and stately Meconopses, some of which happily are still with us, but many will not be seen again until western China is once more open to plant collectors.

* * * * *

ERYTHRONIUM INFORMATION NEEDED — Dr. Theodore Niehaus, Dept. of Biology, University of San Francisco, San Francisco, Calif. 94117, is working on an erythronium monograph and is needful of any information and collecting help concerning the rarer species, or the incident of variation in certain localities due to hybridization, etc. This erythronium monograph is proposed to be exhaustive as to Western species with a review of other populations as material can be acquired. This is your chance to help in a good work.

* * * * *

CHIMAPHILA MACULATA—Who grows this plant of the *Pyrolaceae* successfully in their garden? Mrs. Thomas Stuart, Millglen, Baledmund Rd., Pitlochry, Perthshire, Scotland, has tried several times to establish this plant in her garden without success. She has tried seeds and wants to try again. Who can give Mrs. Stuart the benefit of their own successful experiences with this somewhat difficult plant? Write to her direct, or to the editor, or both. Perhaps others might benefit from your directions if they were published in the *Bulletin*.

VIOLETS FOR THE SOUTHEAST

DORETTA KLABER, *Quakertown, Pennsylvania*

In the January *Bulletin,* Anna Sheets complained that "nobody ever" writes in our publication about plants for the southeastern United States. Of course, our knowledgeable and noted member from North Carolina, Elizabeth Lawrence, would be the one to answer this. I have never grown plants further south than Washington, D. C., but recently I finished writing a book on the wild violets of the United States, drawing them from life in color, and I did learn a lot about those that grow in the different sections of the country; most of those that can be grown in the southeast are shade lovers.

Some of the violets I speak of below may, in their native haunts, prove to be among the spreaders that Mrs. Sheets has to remove from her wild garden because they did "too well." I have tried to omit those that probably belong in this category.

Of the blue typical violet (those which rise on single stalks from their base) native to the southeastern part of the country, (though most will grow elsewhere), we have *Viola floridana, V. lovelliana, V. esculenta, V. villosa,* and *V. hirsutula.* Belonging to the cut-leaved group there are *Viola septemloba, V. brittoniana,* and *V. egglestonii.* In the stemmed group, where leaves and flowers branch from a central stem, there is *Viola adunca* with its many forms, also the closely related *V. appalachiensis,* the lovely *V. walteri,* and *V. rostrata.*

Viola floridana and *V. esculenta* are wet ground plants, but would, no doubt, "do" in a wooded areas with sufficient well-drained moisture. *V. floridana* is a graceful plant with large lavender flowers seeming ready to fly, while *V. esculenta* has leaves of various shapes, sometimes lobed, assuming warm tints in autumn. *Viola villosa* and *V. hirsutula* are both woodland plants, the former densely woolly, the rusty hairs combined with the green leaves giving richness to its appearance, while small but delicate-looking violets nestle among them. This is probably a spreader in the sandy soil it prefers, but would be worth an experiment.

Viola hirsutula, in some forms, has a most interesting pattern and color of leaves, reminiscent of the cyclamen, though, of course, its leaves are hairy on the upper surface, not smooth or glossy. The backs or the leaves are smooth and frequently purple in color, especially in early spring. If you can secure the patterned form, it is worth growing for its foliage alone.

Of the cut-leaved group, *Viola septemloba* and *V. brittoniana* are outstanding for both foliage and fine flowers, while the rare *V. egglestonii,* found in only one section of Tennessee, is fascinating in varied leaf form and beautiful flowers. It was sent to me from a sunny position, but planted in a semi-shaded frame it lived over the winter and bloomed in spring.

The stemmed group has a wonderful series of violets, most of them low and spreading moderately. Dr. Wherry described *V. appalachiensis* in a recent *Bulletin,* while *V. walteri* (another of Dr. Wherry's favorites) has foliage that sparkles in the woods. It has pale gray-blue flowers. *Viola rostrata,* illus-

trated, is one of the most distinctive violets with its long spurs, and lavender, white, or sometimes rosy coloring. In my woods, it spreads moderately but never becomes a nuisance.

PLANTS TO KNOW AND GROW

SOME SAPONARIAS

Everyone knows *Saponaria ocymoides* which is common on the lower European Alps, and in gardens, too. It is quite attractive if you have room for it, but it is rather a scrambler.

There is a cultivar, *S. ocymoides* 'Rubra Compacta' which is more compact and restrained and has deep red flowers. I have not found it a "very good doer" however, possibly my fault.

Some other members of the genus are not so well known, though possibly more desirable. *S. caespitosa,* for example, which comes from the Pyrenees, has a tuft of narrow, fleshy leaves about four or five inches long and sprays of bright pink flowers. It is an attractive plant, but not too easy to keep. A hybrid, of which *S. caespitosa* is one parent and *S. pumila* the other, is *S.* 'Olivana' which is a much easier plant to please, and most attractive with its freely produced bright pink flowers.

S. pumila (Syn. *S. pumilio*) I have grown and lost. It comes from the Eastern Alps. I now stick to the hybrid, which I think is just as attractive and certainly easier to satisfy.

Saponaria pulvinaris, a native of Anatolia and Lebanon, forms a tuffet of an inch or so in height carrying bright rose flowers on short stems. It is not too difficult in scree which seems to suit all these saponarias.

Saponaria 'Bressingham Hybrid' is rather like *S. ocymoides,* but it is a more compact grower, and the flowers are a brighter pink.

Maj. Gen. D. M. Murray-Lyon

SCOLIOPUS BIGELOVII

For several years now, a strange flower has been appearing in our garden. It starts blooming in February, and is still in bloom when the early erythroniums and trilliums start to flower nearby. When I first saw it, I looked at it in astonishment. It is a brownish purple colour with tiny white lines; the parts of the flower are in three's like a trillium and the leaves (in shape and mottling) are like those of an erythronium. I was sure there had been some hanky-panky going on between the two, as it certainly looked like a child of both of them.

For a long time I pestered one and all to help me give the little orphan a name, but without success. Finally, while browsing through one of the old copies of the A.G.S. *Bulletin* (Vol. 29, p. 188), I found a short note written by that great gardener in Portland, Mrs. A. C. U. Berry, which described it to a "T." At last I could legitimize it by giving it a proper name — *Scoliopus bigelovii.* My relief was genuine! It has also been called less complimentary names such as "Oregon Fetid Adder's Tongue" and "Slink Pod," or was it "Stink Pod"? In any case, the rather disagreeable odor is

scarcely noticed outdoors, but if it is potted up and brought indoors, it can be a force to be reckoned with, believe me.

After I had identified the plant, another question arose — wherever had it come from? A little thinking answered that one; for it had come up between the roots of *Rhododendron occidentale,* which Alleyne Cook and I collected eight or ten years ago in the Siskiyou Mountains of Southern Oregon. It had apparently grown there unnoticed until I was startled that morning by seeing its odd flower.

Scoliopus bigelovii (which seems to be the only species, at least in the West) is a member of the lily family, and likes an acid leafy soil in a damp, rather shady situation. It is quite shallow rooted. It has increased slightly; two or three volunteer plants have appeared at a little distance from the parent plant.

It seems to be fairly hardy and came through our recent severe winter without damage, except that the whole plant seems perhaps a little dwarfer than usual. It has made a nice little clump of plants, which are blooming well this spring.

Iva Angerman

(Editor's Note) — Mrs. Angerman's delightful story of *Scoliopus* in her garden appeared in the April publication of the Alpine Garden Club of British Columbia, and is used in the ARGS *Bulletin* with permission. It seems appropriate to add my own experience with this quaint plant which appears never to vie with other early spring flowers for notice. We have had this plant in our garden for many years, it having originally been brought from the redwood forests of Northern California. It has bloomed for us each year, first in our Seattle garden and then in a woodsy site in Port Townsend to which we moved it several years ago. It withstood the move without a whimper.

Our experience tallies with Mrs. Angerman's in every particular. However a bit of research reveals additional information that may be of interest. Abrams in *Illustrated Flora of the Pacific States* lists two species: *Scoliopus bigelovii* Torr. (California Fetid Adder's-tongue) — habitat moist wooded slopes, especially among redwoods — Humid Transition Zone, Humboldt County to the Santa Clara Mts., California, and *S. hallii* S. Wats. (Oregon Fetid Adder's-tongue) — habitat on moist mossy banks along mountain streams — Humid Transition Zone, western Oregon. The distinction in the key is the relative lengths of the perianth segments (in *S. bigelovii* 15 mm long to 8 mm in *S. hallii*), and the stigmas (in *S. bigelovii* 5 mm and in *S. hallii* but 2 mm). The full description shows *S. hallii* a bit smaller in all its parts.

Reference to Peck's *Manual of the Higher Plants in Oregon* reveals only one species growing in Oregon and that is *S. hallii.* Because of the area from which Mrs. Angerman's plant was collected and with due respect for Abrams and Peck, it would appear that her plant is *S. hallii.* Regardless, I agree that either species is worth growing — odd, faithful, early, and once established they need no care. Since these plants are not visible for a good part of the year their location in the garden should be marked to avoid accidental damage.

AMERICAN FRITILLARIAS

LAURA JEZIK, *Seattle, Washington*

Fritillaria is a large genus whose center is in the Mediterranean region of Europe and the Middle East, from which it extends through Asia to China, Siberia, and Japan. In the Western Hemisphere, North America has perhaps twenty species.

The genus is unusually difficult systematically because the species seem to intergrade in several instances. Many species are in a state of flux. The ardent splitter will be able to find and name perhaps three times twenty American species, subspecies, and varieties, and the lumper will find it difficult to support twenty specific names. Some of us regret the loss of some of the old names because a number have been narrow endemic forms, quite distinct, from the horticultural point of view, and quite worth collecting and growing, despite the fact that they are not botanically distinct.

Therefore, these beautiful members of the *Liliaceae* are made to order for those of us who are attracted by challenge. There is the challenge of their cultivation, which requires skill and knowledge, and there is the challenge to the plant hunter-student because they are difficult to find or acquire, to study, and to classify; they present never ending problems. As we go along from year to year, we find that what we knew last year isn't true this year. To quote my friend, Paul Furse, ". . . when one is trying to work on a problem like Fritillaries which has many variables, a lack of reliable material, and an infinty of errors served up as facts . . ." one hesitates to write about them. I feel like a philosopher who knows less and less about more and more until finally he knows nothing about everything. But, I will attempt to pass on some of the things I have learned about the American species.

All American Fritillaries are western, a few are widespread through several of the states. All but two of them occur in California, and eleven to seventeen of them (depending on whether you lump or split) are California endemics. This concentration in California lends immediacy to the problem of the preservation of the California flora which is in danger in many areas of that state.

Whereas we in Washington are accustomed to great areas of National Forest land and wild areas, where there are miles and miles of secondary and tertiary roads branching off into the wilds, with great, relatively undisturbed tracts, and a nearly intact flora in many areas, these conditions do not prevail in California. The greater part of that state is settled, grazed, fenced, and farmed. Where once a narrow endemic was described as being so plentiful as to color vast stretches of its one or two county home, now it is difficult to find any habitat within these counties where the plant can survive. As for example, *Fritillaria liliacea* is endemic in the Bay region. It occurred in the seaward hills of San Francisco (residential now), and in Marin County, north of the Bay. That county is becoming more settled, and its rural areas are fenced and grazed. There is one undisturbed wild area left. The Fritillary persists in a few colonies, but the bulk of its limited territory is now inhospitable to it. It may soon happen that these plants

will be known only in cultivation. This has happened before to other species, and there is little to stop it happening again.

In alphabetical order, the species are as follows:

Fritillaria adamantina Peck — An endemic from southern Oregon. It is seldom seen, and has never been in cultivation. Bulb broad, strongly depressed, with several oblong, fleshy scales and numerous rice grains; stems to 2′ tall, naked lower one third, then scattered and whorled narrow lanceolate leaves above. Flowers six to twelve, bowl-shaped, nodding, perianth segments oblanceolate, obtuse, tips not recurved, pale red mottled with deep purple. Gland poorly developed, style cleft two thirds of the length; capsule obovoid, distinctly winged.

Peck relates this to *F. atropurpurea,* from which it differs in having larger, more salverform flowers, and a broader bulb. Other writers relate it to everything from *F. recurva* to *F. brandegei,* from which its deeply cleft style separates it, and also to *F. lanceolata* and finally *F. micrantha.*

Fritillaria agrestis Greene — One of the disagreeably scented species, falling among those with predominantly basal leaves. It is endemic to the interior valleys of California, the Central Sacramento Valley, and interior foothills. Bulb deep seated with several large, fleshy scales; leaves broad, alternate, profuse; stems 12″ tall with one to eight flowers, greenish yellow with green veins outside, purplish-brown within (varies to a much darker form); gland continues as a central green vein; style cleft half its length; capsule quadrate, 17 to 20 mm long. This species is barely in cultivation in England and here. There is much interest in cultivating it to learn of its possible variation.

Fritillaria atropurpurea Nutt. — The most widely distributed American species, having been recorded from ten of our western states. A plant of medium to high elevations in the mountains. Bulb narrow, few large scales and rice grains; stem 6″ to 2′ tall, with scattered linear leaves. One to four campanulate bells; perianth segments rhombic-lanceolate 1.5-2 cm long, color brown to purple with yellow and white mottling; style cleft more than one half its length; capsule obovoid, distinctly winged, lacking horny processes at the angles of its wings. Like most high altitude species, this one is not at ease in cultivation. It is of interest because of its relationship to other species.

Fritillaria biflora Lindl. — A California endemic with a broad distribution from San Diego Co. north into San Mateo Co., and in Mendocino and Napa Counties. Bulb of a few fleshy flakes; stems 6 to 18″ tall; leaves basal with a few scattered above; one to seven malodorous, semi-nodding bells, deep purple-brown, veined red and green. Perianth 1″ long and as wide. Nectary a linear green band; stigma trifid, style cleft one half to two thirds its length; capsule 15-25 mm long, not winged. This is grown in England, being considered one of the strongest growing American species there. It does well in pots and frames, and there are at least two forms in cultivation. It comes readily from seed and can bloom within four years.

Fritillaria brandegei Eastwood — A California endemic, growing above 5,000 feet in a range of the southern Sierra Nevada. Bulb with rice grains; plants one to three feet tall; leaves linear scattered on the upper two thirds

of the stem. Flowers four to twelve nodding bells, perianth star-shaped, color varying from pink to purplish all the way to green, with a small, black-purple subdeltoid gland; stigma entire; capsule winged, truncate. This is not at ease in cultivation yet, but is being grown from seed both in England and here. It has flowered once or twice in cultivation here in recent years.

Fritillaria camtschatcensis (L.) Ker-Gawl—This is the only species we share with Asia. It occurs in Japan, the Kamchatka Peninsula, through Alaska, into Washington, and is reported from western Oregon. It frequents mucky places which dry up in the summer, which is unique among American Fritillaries. Bulb, central cone surrounded by small bulblets; stems to 15″ tall with many whorls of broadly lanceolate leaves. Flowers one to several nodding bells at the summit, deep-purple without mottling; nectary pitted; stigma trifid. The deepest color of any Fritillary, this is also more moisture demanding than other species. It grows easily in the open ground in our climate. The Asian version has been in cultivation in England for many years.

Fritillaria coccinea Greene (*F. recurva* var. *coccinea*) — Endemic form from Mendocino and Napa Counties, California, and perhaps the western slopes of the Cascades and Sierra Nevada, this is one of the Recurva types which has been retained as a variety. It differs from the species in having non-recurved perianth segments, with a darker interior.

Fritillaria falcata Jepson (*F. atropurpurea* var. *falcata*) — Narrow endemic, growing in serpentine in the inner south Coast Range of California, southeast of San Francisco. The extreme angle of its home slopes protects it from the cows that dominate its range, but not from the deer. (Both of these animals find all Fritillaries a very fine dessert). Bulb several fleshy scales.

This dwarf has stems from two to three inches tall. Leaves folded, falcate, broadly linear, glaucous; flowers one to four semi-erect bells 1″ long and 1½″ wide; color greenish white with brown-purple flecks, or yellow with brown flecks; perianth segments tipped with pinkish terminal hairs; anthers either vermilion red or yellow, both anther types appearing in the same colony. Nectary slight, yellow with brown spots, elongated; stigma trifid and protruding; capsules 2 cm long, acutely angled with horn-like processes at the top and the base of the angle. This attractive species has been newly introduced into England, where several growers are bringing it on from seed. It is being tried in California, too. It promises to be one of the better species in cultivation, if it can be tamed.

Fritillaria gentneri Gilkey — Endemic to southern Jackson and Josephine Counties in Oregon, this is another of the Recurva group, differing in having non-recurving perianth segments, and a larger and more widely winged capsule. It is larger than *F. recurva,* much stouter, and the perianth color is in the blue family of reds, whereas that of *F. recurva* is yellow-red. These last details will probably not have value taxonomically, but the plant is quite valuable horticulturally. It promises to be a good doer, if it becomes civilized. This has been recently introduced into England, where a few growers are bringing it on for study.

Fritillaria glauca Greene — This grows in serpentine in the Siskiyou Mountains and into California in the north Coast Range, sometimes growing near

Laura Jezik

Lower—*Fritillaria falcata*—Upper—*F. glauca*

F. purdyi. Bulb a few large scales; stem to 6″ tall; leaves glaucous, falcate, predominantly basal, with a few scattered cauline leaflets; flowers one to four, yellow (to green and chocolate), semi-pendant, salver-shaped, flecked and striped with reds and browns. Nectary broad and shallow; filaments dilated toward base; style cleft nearly one half its length; capsules 2 cm long, broadly winged. This has been grown in England for some time with a fair success. It is beautiful enough to be worth any effort, but demands perfect winter drainage.

Fritillaria lanceolata Pursh. — This is among the most variable species, into which has been sunk the following: *F. mutica* Lindl.; var. *floribunda* Benth.; var. *gracilis* Wats.; var. *tristulis* Grant; *F. viridea* Kellogg; *F. esculenta* Nutt.; *F. mutica* var. *gracilis* (Wats.) Jeps.; F. *ojaiensis* Davidson and *F. eximia* Eastwood.

This Fritillary is found in dry prairies on both sides of the mountains from British Columbia to California. It has the third greatest distribution. Bulb a few scales with rice grains; stems vary from dwarfs 4 to 6″ tall, all the way to giants 4′ tall, stems naked below, linear lanceolate scattered leaves above; flowers one to eighteen, half nodding, 1″ long by 1½″ wide. The color varies from clear unmottled yellow (very rare) to clear unmottled purple (less rare), and into infinite variations of the tan to purple order with purple, brown, or yellow mottlings. Nectary lanceolate. (The glands of all *F. lanceolata* specimens I have seen have been green to yellow-green, but I wouldn't feel I had the authority to say that this was usual). Stamens one half the length of the perianth segments; anthers 2 mm long (I've seen plants in Napa Co. with both red and yellow anthers); stigma trifid; style exceeding stamens, distinct above. Capsule broadly ovoid, truncate at each end, 2 cm high, broadly winged on the angles. This species naturalizes well in the Northwest, both in dry shade and in dry sun, and does well in plunged pots. The English do it well.

Fritillaria liliacea Lindl. — Endemic to the San Francisco Bay area, this species is easy in cultivation in England and here. Bulb a few rounded scales; stems 9″ tall; leaves mostly basal, ovate to linear; flowers one to several semi-pendant salver-shaped bells, 1″ wide and as long; the perianth segments having apical tufts of short white hairs. The color is creamy white with faint green streaks, varying to yellow, or with variable amounts of purple spotting in the throat, or purple netting or streaks. Nectary slight, green with purple dots; stamens one half the length of the perianth segments; stigma trifid; style cleft half way. Capsules 12-15 mm long, stipitate, obtusely angled.

Coming from the cool and misty Bay region, choosing clay and basalt outcrops, this is among the easiest to cultivate and usually is the first Fritillary to bloom in any large collection of species. Sweetly fragrant.

Fritillaria micrantha Heller — This is the name under which we are now instructed to lump *F. multiflora* Kell. and *F. parviflora* Torr. These are all small-flowered and do not possess astonishing beauty, certainly not enough to repay us for the fuss about nomenclature when they are discussed.

Bulb of few scales with numerous rice grains; stem one to three feet; leaves linear, scattered above; perianth segments 12-20 mm long, especially white-tufted; color greenish with maroon flecks to pale red-tan with purple flecks; nectary distinct, triangular on the lower third of the perianth segment; anthers either red or yellow; style cleft one third to two thirds its length. Capsules broadly winged, slightly wider than long. From the Sierra Nevada in Plumas and Tulare Counties, California. They are cultivated, probably for study.

Fritillaria mutica Lindl. — See *F. lanceolata*. This California form is distinct in appearance, with acuminate perianth segments and salver-formed flowers. The English have this in several color variations. It is valuable to the collector.

Fritillaria ojaiensis Davidson — See *F. lanceolata*. This is worth mentioning only because it is endemic to the Ojai Valley in Southern California, and seems to be the southern limit of *F. lanceolata*. It was given specific rank

because no one had realized that *F. lanceolata* went that far south.

Fritillaria phaeanthera East. — Unfortunately, this species gets involved in the *F. micrantha* muddle, but differs in having an indistinct gland, geographical separation, preferring different altitudes, and has a reddish flower. Plants I have seen are flushed reddish throughout. Bulb of thick scales and many rice grains; stems 10 to 15″ tall; leaves scattered above; flowers four or more, narrow bell-shaped; perianth segments slightly to sharply recurved, 1 to 1.5 cm long; color tannish to reddish with faint checkering of a darker color, tips apically white tufted. Nectary indistinct; stamens 7-8 mm long; capsules truncate, winged. Newly introduced, it is doing well in England, and has been flowered in the Northwest.

Fritillaria pinetorum Davidson — Generally related to *F. atropurpurea,* it is a high elevation plant from pine woods, not at ease in cultivation anywhere. Bulb 1 to 2 cm thick with many rice grains; stems glaucous; leaves linear, scattered; gland indefinite; style cleft to near the base; capsules 12 to 15 mm long, angled with short horn-like processes at the base and summit of the angles.

Fritillaria pluriflora Baker — This is the "Adobe Lily" or "Pink Fritillary." Limited to a small part of its former range in the foothills of the Sacramento Valley, and reported from Oregon, it is now found in a few colonies. It is one of the really beautiful species.

Bulb yellowish, of several large scales; stem 1′ tall; leaves basal with undulant margins, a few linear ones scattered above. Flowers six or more (up to twenty-one), bright pink bells, 1½″ long and 1¼″ wide, the color varying into lavender-pink and white; gland continuous as a green vein; stamens half as long as the perianth segments; style entire exceeding stamens; stigma three-lobed. Capsules truncate, obtusely angled, equally long and broad. This beauty is in cultivation in England. It tends to go over fast, as do many plants from the Sacramento Valley.

Fritillaria pudica (Pursh) Spreng. — The first described American Fritillary, this has the second greatest range. It is about the least variable of the American species, but in 1919 it was made to labor under six different specific names. It has minor variations having either brownish or greenish blotches at the base of the petals. In England, both diploid and tetraploid forms are cultivated, but that is about the limit of its variations.

Bulb with a few large scales and many rice grains; leaves linear, largely basal; stems 3 to 5″ tall; flowers usually solitary, but sometimes two or more, large and showy, color yellow, sometimes aging reddish. Perianth segments lanceolate to oblanceolate; gland slight, green; stamens one half length of the perianth segments; stigma entire and knobbed. Reputed to be ungrowable, I find that certain lowland plants from a rich prairie land are happily naturalized in a hot scree. The English have had it for years, growing it under glass. They do not trust it out of doors. It is fantastically hardy, withstanding temperatures 40 degrees below zero.

Fritillaria purdyi East. — Named in honor of Carl Purdy, the great Fritillary enthusiast and collector of California's native plants, who was not above romanticizing this plant. In one of his last catalogs, he described it as hav-

ing been found once, and then the location could not be found again, making it impossibe to collect it again. I have been to two of its stations, and the discomfort and hardship involved make me want to forget both of them, too. A narrow endemic, this California species chooses to grow on rocky ledges at moderate to high elevations. There it behaves in the classic manner of uncollectable plants. It has a bulb of loose scales buried at least fourteen inches under great monolithic slabs cemented together by a gray version of adobe, equally undiggable.

From this bulb the finest of thread stems winds its way to the surface, where rest rounded basal leaves. Above ground, it is comparatively stout. Bulb of one or two large and fleshy scales; leaves basal, opposite, approximate in two to three pairs; stems 6″; flowers one to several, wide bell-shaped; outer perianth segments obovate, inner oblanceolate; color varying from creamy yellows, to white and pale pink, into darker reds, all streaked and flecked with reds and browns; nectary slight; stamens one half length of the perianth segments; style surpassing stamens, connate to the middle; capsules obtusely angled, abruptly tapering at the base, 15 mm long.

This is one of the most beautiful species, and it is fairly plentiful in a few isolated colonies. It should be a good species in cultivation. The English grew it before the war, but lost it to the forced neglect at that time. It has been reintroduced recently and is doing well again. It is reputed to be short-lived.

Fritillaria recurva Benth. — A native of southern Oregon and many areas in northern California, this is abundant in some areas.

Bulb with few large and many small scales, with many rice grains; stems slender, 10 to 24″ tall; leaves linear, somewhat glaucous, scattered and whorled on upper two thirds; flowers few to several, 1½″ long and 1″ wide; perianth segments oblanceolate, strongly recurved at the tips, deep scarlet, flushed orange within, scarlet without, spotted and checkered with white and yellow. Nectary 6 mm long, slightly depressed; style three cleft, nearly equaling the perianth segments; capsules winged.

Fritillaria recurva is listed among the "woodland" Fritillaries and misunderstanding of what is meant by this term is a cause of most of the failure with this and other Fritillaries in cultivation. This is not "woods" as we in the cool, maritime Northwest understand it. These plants grow in deep, dry clays among scrub (predominantly various *Arctostaphyllos* species) and high up on banks. The situations offer great extremes of temperature, sometimes well over a hundred degrees in the dry summer and near zero in the cold, dry winters. Think of a shady desert and you will come close to the ideal conditions. Many of them grow in full sun. This plant is not grown well either in England or here outside of its home territory. Scree would be called for with restrictions of water all summer and most of the winter.

Fritillaria roderickii Knight — This is a new species near the Biflora Agrestis aggregate. Bulb of few scales, but having some rice grains. Leaves mostly basal; perianth segments creamy green on outer third, the inner surface having raised veins; filaments in one, not two ranks, equal in length; capsule bowl-shaped. This is a delight to everyone. Beautiful, it is easy to grow and reaches flowering size early from seed and isn't easily confused

Laura Jezik

Lower—*Fritillaria purdyi*—Upper—*F. atropurpurea*

with the others. This was described in 1967 and named in honor of Wayne Roderick, a Fritillary enthusiast from California.

Fritillaria striata East.—Abundant in several small colonies in a very restricted area of a southern spur of the Sierra Nevada of California. It is very beautiful and very fragrant with the scent of some narcissus and hyacinths.

Bulb of thick scales; stems 10 to 15″ tall; leaves basal and on lower half of plant; flowers two to several, white to pink and mauve, striped with red; perianth segments usually recurved. Nectary obscure, linear style three-parted at the tip, equal or shorter than the stamens; capsules quadrant, 2 cm long, not winged.

This species has a romantic history, having been brought to a wildflower competition staged by school children in Bakersfield, California, by a child who had no clear memory of where it had been found. The judging was being done by Alan Galloway, who set out to find it, and find it he did, growing in clay on a north slope in an area where the climate is hot and arid, with adequate spring moisture. He commented upon the delicious fragrance which filled the air. Introduced into England in recent years, it is doing well there from seed. It is growing now in at least two gardens in California. It, *F. liliacea, F. biflora,* and *F. agrestis* seem to compete to be the first to bloom in cultivation.

Fritillaria tristulis Grant (in Jepson) — The sinking of this variety of *F. lanceolata* lost us one of the finest of the dwarf forms. It is very narrowly endemic, coming from one sea bluff area in California. It is 4 to 6″ tall and is reported to have a triangular nectary rather than the linear lanceolate gland of *F. lanceolata.* The English grow this.

Fritillaria viridea Kellogg — This endemic form is included because it is in the literature. From the San Carlos Range, California, this is too close to the Micrantha group. Beetle, however, places it under the Lanceolata group.

The only truly "safe" species for garden use are *FF. camtschatcensis, glauca, purdyi, pluriflora, striata,* and *pudica,* with perhaps the cautious addition of *recurva.* All Fritillaries are reputed to grow in scattered groups or singly. I have found, however, that nearly every species will be found in great abundance somewhere in its range. I have seen *F. pudica* coloring an entire meadow, and *F. recurva* doing the same. They tend, I think, to be very abundant locally, even though having only one or two known stations. So that various species may be extremely rare, but still one station, at least, will have several hundred plants. All colonies I have seen seem to be thriving. It would seem that the plants could maintain themselves if their small locations could be protected. Those which place their bulbs too deep for the plow to disturb, or which grow on slopes too steep for their predators, seem to have a chance of maintaining themselves.

The cultivation of Fritillaries requires careful study and thought. While many wild plants will endeavor to adapt themselves to conditions which are less than ideal, the Fritillary will do nothing of the kind. Conditions have to be to their liking or they won't play the game. All of them, except *F. camtschatcensis,* choose very stiff soils in dry areas with adequate spring moisture and little or none thereafter. These soils bake brick hard

and cannot be broken without a pick in summer. The bulbs like a summer baking encased in their adobe or clay bricks, but baking can be over-done in the garden, even in our damp climate. Many growers experiment a bit trying to find the best approximation of the ideal conditions, but the best growers stick to the tried and true formulas. Usually the soil is light and rich with leaf mould and good, rotten turf loam. Some give weak fertilization during the growing time. The real necessity is summer dryness and control of winter moisture. These plants are generally hardy, some coming from extremely harsh climates. Many will naturalize under the right conditions. The rare ones should not be attempted outside of frames.

The center of Fritillary interest has been in England for a long time. Some European and Asian species were grown there as early as 1570. The American species have also been cultivated there more than here, and the greatest amount of information about them is in England. We are now, however, developing a loosely knit group of enthusiasts here, and this should not only increase our knowledge and solve some of the problems, but also make it possible to increase some of the rare ones to a point where they can be distributed. They come from seed quite satisfactorily, and no Fritillary enthusiast thinks anything of waiting five or ten years for one to bloom from seed.

We now have a need for enthusiasts in areas where these plants can be grown outside all season long. Those of us who live in climates hostile to them, can manage to keep them alive and growing, but we could do better with a drier climate.

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DIVIDING *LEWISIA TWEEDYI* — Mrs. Inge Bartho of Center Conway, New Hampshire, tells of her experience in dividing *Lewisia tweedyi* as follows: "Dividing *Lewisia tweedyi* is not as difficult as most people think. No one could have been more scared than I the first time I tried. But just do as I did and keep a watchful eye on things. In September, take the plant carefully out of the ground and wash the roots very clean. Cut the root so that each crown gets as much as possible, but so that all get a fair share. Dust the root pieces heavily in "Rootone." Take peat moss pots, fill them with a mixture of a little loam and much sand and have it moist. Make a good-sized hole in each pot and set a crown in each. Press the soil well around the attached piece of root and put the pots in a light but shaded place for two or three weeks. After that watch that the pots stay moist, but not wet and set them out where you want them to grow, pots and all. *Lewisia tweedyi* does not need to sit vertically between rocks since they love a flat surface, too. It seems that all exposures are all right as long as no strong midday sun reaches them. Mine stay in many different places, all get sun, but not between 1 and 3 o'clock. The red leaf margins remained on those plants that got the most sunshine; the others faded lightly, but all the leaves kept their stiff and erect bearing and were only half as long as those I have seen in other gardens."

BOOKS FOR GARDENERS

(Editor's Note) — From time to time lists of books of interest to gardeners will appear in the *Bulletin*. The following list is one presented to those attending the ARGS Study Week End early in 1969 at Atlantic City, New Jersey. The list was headed "American Native Plants."

Abrams, Leroy — *Illustrated Flora of the Pacific States* — 4 volumes — Stanford University Press — 1951

Ames, Oakes — *An Enumerating of the Orchids of the United States and Canada* — Boston — 1924

Armstrong, Margaret — *Fieldbook of Western Wild Flowers* — New York — 1915 (list of recommended plants by states — Claude Barr recommends plants from South Dakota)

Bailey, L. H. — *Manual of Cultivated Plants* — Revised 1949 — MacMillan

Bailey, L. H. — *The Standard Cyclopedia of Horticulture* — 3 volumes — MacMillan — 1937

Bergen, J. Y. — *Key and Flora, Northern* and *Central States* — Boston — 1901

Britton, N. L. & Brown — *Illustrated Flora of the United States, Canada*— 3 volumes — New York — 1913

Clements, Edith S. — *Flowers of Coast and Sierra* — 1928

Clements, Edith S. — *Flowers of Mountain and Plain* — 1926

Clements, Frederick E. & E. S. — *Rocky Mountain Flowers* — Third Edition — New York — 1963

Eaton, Amos — *Manual of Botany for North America* (about 500 species from Oregon and Arctic) — 1836

Elliott, Roy — *The Genus Lewisia* — 1966

Gabrielson, Ira M. — *Western American Alpines* — 1932

Gibson, W. H. — *Our Native Orchids* — (Northeast) — 1905

Gleason, Henry A.—*The New Britton and Brown Illustrated Flora of North East United States and Adjacent Canada* — New York Botanical Garden — 1952

Gray, Asa — *Gray's Manual of Botany of Northern U. S.* — 8th Edition by M. L. Fernald — 1950

Harned, Joseph E. — *Wild Flowers of the Alleghanies* — Maryland — 1963

Harshberger, J. W. —*Vegetation of the New Jersey Pine Barrens* — 1916

Henshaw, Julia W. — *Mountain Wild Flowers of Canada* — 1906

Henshaw, Julia W. — *Wild Flowers of the North American Mountains* — 1917

Hitchcock, Cronquist, Ownbey and Thompson — *Vascular Plants of the Pacific Northwest* — 1959

House, Homer — *Wild Flowers* — 1935

Hull, Helen S. — *Wild Flowers for Your Garden* — 1952

Keck and Munz — *California Flora* — 1959

Lemmon, R. N. and Johnson, C. C. — *Wild Flowers of North America* — 1961

McCully, Anderson — *American Alpines in the Garden* — 1931

Meehan, Thomas — *The Native Flowers and Ferns of the United States* — 4 volumes — Boston — 1878
Munz, Philip A. — *California Desert Wildflowers* — 1962
Munz, Philip A. — *California Mountain Wildflowers* — 1962
Munz, Philip A. — *California Spring Wildflowers* — 1962
Peattie, Donald C. — *Flora of the Indiana Dunes* — Chicago — 1930
Peck, Morton — *Manual of the Higher Plants of Oregon* — 1941
Penman — *Manual of Plants of Colorado* — 1954
Pennell, Francis W. — *Scrophulariaceae of the Central Rocky Mountain States* — Smithsonian — 1920
Pennell, Francis W. — *Scrophulariaceae of Eastern Temperate North America* — Academy of Natural Sciences — 1935
Piper, Charles V. & Beattie, R. Kent — *Flora of the Northwest Coast* — 1915
Preece, W. H. A. — *North American Rock Plants* — 1937
Rickett, H. W. — *New Field Book of American Wildflowers* — 10 volumes when completed 1968
Rydberg, Per Axel — *Flora of the Prairies and Plants of Central North America* — New York Botanical Garden — 1932
Rydberg, Per Axel — *Flora of the Rocky Mountains and Adjacent Plains* — New York Botanical Garden — 1922
Symonds — Jeune, B. H. B. — *Phlox — A Flower Monograph* — London — 1953
Taylor, Kathryn S. & Hamblin, Stephen — *Handbook of Wild Flower Cultivation* — 1963
Tidestrom, Ivar — *Flora of Utah and Nevada* — Smithsonian — 1925
Van Rensselaer, M. & McMinn — *Ceanothus* — Santa Barbara, California — 1942
Walcott, Mary Vaux — *North American Wild Flowers* — 5 volumes — (Notes by E. T. Wherry) — 1929
Wherry, Edgar T. — *The Genus Phlox* — 1955
Wherry, Edgar T. — *Wild Flower Guide* — 1948
Wiggins, I. L. — *Flora of the Alaskan Arctic Slope* — 1962
Willis, Oliver R. — *Catalogue of Plants Growing Without Cultivation in the State of New Jersey* (specific description of all violets growing there) — 1875

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AN ALBINO FORM OF *PHLOX STOLONIFERA* — Mr. Harold Epstein, known to all, writes, "I am particularly enthused this week with having finally come up with a fine albino form of *Phlox stolonifera*. Dr. Wherry as well as I have for more than a score of years been trying to uncover this form and it has really been elusive. Many plants sent in from the wild as 'white' all had some color in them and up to now none were really albinos. I only have a few small plants of it, now in bloom in my cool house, but it will not take too long to increase it for broad circulation. I think it is about the last of the phlox species to produce an albino. My plant was recently collected in Tennessee in an area where it is native and where this form stood out like a jewel — a large perfect flower with yellow stamens."

FOUR TRILLIUMS – SO DIFFERENT!

A. M. S.

The genus *Trillium* has many admirers, of which I am one. My earliest memories concerning flowers are associated with *Trillium ovatum* (Wood Lilies they were called by my parents). They grew along the edges of the mouldering skidroads, mute remains of earlier logging operations, and in the deep woods bordering what was then called Chamber's Prairie, some six miles southeast of Olympia, Washington's capital. There I beheld my first Wood Lily and was childishly thrilled. I wanted to pick it and take it home, but my wise grandfather, who was with me, persuaded me that it was better to leave it where it was for it would not last long if picked. He told me that I could return to see it for many days to come and that perhaps after a while it would turn to a lovely rose, or even to purple. So I learned my first lesson in conservation. Our native wild flowers associated with those early years at the turn of the century were *Viola adunca,* called Prairie Violets by my parents, and Ladyslippers, *Calypso bulbosa.*

There are four trilliums recorded by Abrams in his *Illustrated Flora of the Pacific Coast,* and I have found all of them. To me, it is most interesting to note that the four species are so different, one from another. To distinguish the species of a trillium met with in the wilds of either Oregon or Washington, all that is necessary is to find the answers to these questions: does it have both petioles and peduncles, or neither, or does it have one without the other, or vice versa? To be more explicit: *Trillium chloropetalum,* a species discussed and pictured in this issue, has neither petiole nor peduncle. The blossom and the leaves sit tightly at the top of the stem. Only once have I found this species and that was in May, 1934. It was found in a piece of old woods near the Nisqually River in Western Washington, not far from the southern limits of Fort Lewis. Abrams states that "it has been collected at Roy, Washington," and Roy is not many miles from where I found it. The woods is still there, but now bisected by the main north and south highway. When I last looked there, I could find no sign of *Trillium chloropetalum.* This one that I saw years ago had a creamy white flower and the leaves were faintly mottled.

Trillium rivale, the miniature beauty of the genus in the Northwest, has both petiole and peduncle. Its home range is, according to Abrams, "Coast Ranges and the Siskiyou Mts. of Oregon and adjacent California, growing on stream banks." Seems a good reason for its specific name. I found it first late in June, 1955 not too far from Cave Junction, Oregon, but not on a stream bank; just the opposite. A dozen or so plants were flowering in all their elfin beauty at least two hundred feet higher than the nearest stream bank and so far away from the water that the sounds of its passage could not be heard even in the stillness of that sunny wilderness day. They seemed perfectly happy in bone dry, rocky soil in full sun. Companion plants were *Juniperus communis jackii, Rosa spithamaea, Quercus vaccinifolia* and *Lithocarpus densiflora echinoides.* Two of these trilliums, transplanted in our garden at Seattle, bloomed well for three years and then succumbed to the horrible slug.

The third trillium, *T. petiolatum,* as its name implies, is a petioled trillium. As a plant, it is most striking, but lacks elegance. The leaves overpower the blossom which sits inconspicuously atop the stem without peduncle and above it fan out the three almost round leaves on stout petioles two or more inches long. I have found this species in two locations — far apart. In early May, 1934, on the outskirts of Walla Walla, in southeastern Washington, I was fortunate enough to find a fairly large, level area, perhaps a hundred acres in all, that had never felt the cutting edge of a plow, nor was there any evidence that it had been grazed. Seemingly, it had been left undisturbed in all the years elapsing since the first white settlers moved into the area. I happened to drive past this place in the early evening and was surprised to see people wandering aimlessly about with their eyes to the ground. I investigated and soon was enchanted by the number and variety of wild flowers scattered thickly over the whole area. It was a springtime show place for the people of Walla Walla. One can only imagine what that vast Inland Empire area must have looked like in some former spring a hundred and fifty years ago. Lewis and Clark passed through this area in the very early eighteen hundreds. We can but envy them.

Being just a starter in matters botanical at that time, I did not know the names of many of the fine plants I saw that evening, and because I have never been there since, I am not sure enough of what I saw to enumerate them. Before leaving the area and just before it became too dark to see clearly, I climbed a small hill at the edge of the level ground and there in the sparse woods was barely able to discern a plant which could have been nothing but *Trillium petiolatum.* Many years later, in 1955, I again found this trillium in the shrubby thickets along the banks of the Wenatchee River in Eastern Washington. Last year, I looked there again and found only a few stems and leaves, but no blossoms. Perhaps the shade is getting too heavy.

The trillium with peduncle and no petiole is our widespread *Trillium ovatum* — my childhood "Wood Lily." Its single flower sits well above the leaves which are clustered about the tip of the stem without benefit of petioles. These elegant trilliums are, by far, more numerous than any of the other three species. They range in both the Transition and the Canadian Zones from British Columbia to Montana and south through Washington, Oregon and into the northern part of California. They grace many gardens, wild, shade, and woodland, and are of easy culture. One should read what Mr. Leonard Wiley, of Portland, Oregon has to say about these trilliums in his grand book, *Rare Wild Flowers of North America.* Cultural directions will be found there.

My only criticism of *T. ovatum* is that, if happy and left too long in one spot, especially if in too sunny a situation, they tend to increase to form a solid clump of many stems and blossoms. They lose the grace that is one of the many charms of this trillium growing alone, or with no more than three flowering stalks. They can and should be divided whenever they start to clump. There may be those who disagree with me about this.

Trillium ovatum is quite variable. Many gardeners who collect are forever on the lookout for *T. ovatum* specimens that have forsaken their lovely triadic heritage. In two widely separated locations I have found plants in

which four replaced three as far as leaves, petals, and sepals are concerned. One was in the middle of an abandoned trail, shaded lightly by half-grown specimens of *Alnus sinuata,* a streamside alder, bordering a marshy place along which the trail ran. This was in Eastern Washington within a mile of a sharp upthrust of the Cascade Mountains. The other was found in Western Washington at about the same elevation, but in deeper shade. Both plants were left undisturbed. Let those who will, rejoice in the mutant trilliums, but to me a trillium ceases to be a trillium when all fluffed up with superfluous petals, be they four or forty.

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MOLES! - MOLES!! - MOLES!!! - Richard Langfelder writes with great optimism on this subject. "You can get rid of moles," he writes, "if you put the hose at the highest point of the mole run and let the water run until the run is full. The moles will come out and all you have to do is have a shovel handy." The editor has tried this, as well as a dozen, or more, other recommended methods—all ending in failure. The editor's two acres of wooded, not quite level ground, riddled with mole runs, some in use and others seemingly abandoned, is a lot of ground to cover. What seems to work on small areas does not seem to work on larger ones. Mr. Langfelder's water cure has been tried. We let the hose run from the highest point where mole activity was evident. The run took the full force of the water easily, so we knew we had a good, open run. Where the water went we knew not for it never reappeared on our property. No moles were sighted and the shovel was not needed. We have tried traps, pop bottles, poison, bombs, a variety of so-called mole plants, hair stuffed into the runs, the same with rags soaked in stove oil, miner's carbide, exhaust gas from the car—oh! anything anyone told us might work. Always failure. We won several limited area battles, but the moles are winning the war. It is very evident that they are smarter than the editor. Wherever we plant something, there the moles rush (after we have gone) for they love newly disturbed soil, especially if it has been moistened.

Beneath a thin layer of topsoil and forest duff, our soil is quite sandy and does not support an appreciable amount of insect life, nor are earthworms often seen. One wonders what moles can find in such soil, yet they must have food to their liking in abundance to thrive and persist as they do in our ground. Constant vigilance is necessary to assure our plants half a chance to survive. Whenever a plant is seen to be at all unhappy, in part or in whole, the editor's wife drops to her knees and starts prodding the ground close to the base of the plant and nearly always her rubber-gloved hand plunges into a newly made mole run, sometines up to her elbow. There is air in these runs and air and feeder roots are not compatible, so the plant languishes. The run, where it is in contact with the plant is immediately filled with soil, rocks, fir cones, and whatever comes handy. Next day the plant has recovered. The day after there is another mole attack. On and on it goes. As in any war where the enemy has gone underground, one can expect a long and costly struggle, and of success one may never be sure. Others must surely have mole trouble and perhaps some have found the solution. Is there hope? Help!

AMERICAN PLANTS IN HORTICULTURE

BERNARD HARKNESS, *Geneva, N. Y.*

Any study of the art of gardening in England usually resolves into a record of the see-saw between formality and informality. These swings of public mood and taste were accompanied by all the bitterness of partisanship. One can still enjoy the literary barbs of the early eighteenth century when Alexander Pope and Joseph Addison were in the forefront of the fray. In a recent *Gardeners' Chronicle* series on the various outside influences on British gardens, John Street writes that the first introduction of plants to England from America were so predominantly acid soil plants that they became known as "American plants" and special "American nurseries" were established for their propagation.

The next surge of anti-formalism in the late nineteenth century is still close enough to our time for some of us to have been caught up in phases of its decline. The surveys and biographical studies of its leaders are just now appearing in works on William Robinson, Gertrude Jekyll, Ellen Willmott and similar leaders in this century: O. C. Simons, Jens Jensen, and Mrs. Francis King.

From M'Mahon on, American garden writers have extolled the virtues of American plants. In 1846 when Andrew Jackson Downing began publishing *The Horticulturist,* Joseph Breck, of Boston, wrote for it "A Chapter on Phloxes" and began with the now familiar theme, "It is a singular fact that many of our most beautiful indigenous plants are first known and cultivated in England; and that to English botanists and collectors of plants, we are in many cases indebted for our knowledge of their existence. With few exceptions, this has been the case with the very desirable and ornamental family of Phloxes, a genus exclusively North American; yet until within a few years, we have been looking to the mother country, and receiving from her florists, new species and varieties to adorn our gardens."

In the next decade and with a new editor, J. J. Smith of Philadelphia, "Some Neglected Natives," in this instance, Dutchman's Breeches, *Dicentra cucullaria*; Squirrel Corn, *Dicentra canadensis*; and Allegheny Vine, *Adlumia fungosa,* were being discussed in the *Horticulturist.* In 1865, the magazine had moved to New York City and from Poughkeepsie, C. N. Bement contributed an article, "Native Plants—Their Cultivation," in which the thought is the same though the style is becoming more florid: "To those interested in horticulture, we would recommend for the advancement of their gardens, one great and inexhaustible storehouse of beauty, viz: the woods and fields with their wealth of uncultivated blossoms. It is in the power of almost every one to draw from this source, and such is the perversity of our nature, perhaps on this very account, the opportunity is neglected." Recommended were Butterfly - weed, *Asclepias tuberosa, Liatris* ssp., Cardinal - flower, *Lobelia cardinalis,* and others.

The period, 1888-97, of Charles Sprague Sargent's *Garden and Forest,* marks one of the peaks, certainly, of American horticulture; at least, I can

think of no other time when more horticultural information was being made available in books and periodicals. Among the many contributors to *Garden and Forest* who wrote of native plants was Danske Dandridge of Shepherdstown, West Virginia. Her observations on the Appalachian flora have spurred me to grasp every opportunity to visit the West Virginia woodlands.

Illuminating, also, is the record, decade by decade, of the American Horticultural Society. At its start in the early 1920's, Mrs. Fannie Heath of Grand Forks, North Dakota, was a first vice-president. Let us sample the spring issue of its magazine at the beginning of each decade. In April, 1930 Mrs. Heath was contributing a section of the continued story of Theodore Roosevelt's Chimney Butte Ranch cabin removed to the State Capitol grounds and surrounded with a native plant garden. In the same issue, Dr. Wherry had a picture and the story of Oconee-bells, *Shortia galacifolia,* in his series under the heading of "Neglected Natives"; a series which introduced me and, doubtless, many others to Mountain Pachysandra, *Pachysandra procumbens,* Arum Heartleaf, *Asarum arifolium,* and Field Rosegentian, *Sabatia angularis.* Carl Purdy's article on Erythroniums, an early assessment of Lewisias by Mrs. De Bevoise, and D. M. Andrew's account of two Rocky Mountain Mertensias are only a few such in succeeding issues that reflected interest in native plants. This is the decade in which the American Rock Garden Society was founded. Right on down to the Study Week End of February, 1969 our own Society has given due consideration to American plants.

I have mentioned a decline in emphasis on native plants in the larger horticultural spectrum. Supporting this thesis is evidence from following through the rest of the sampled issues of the *National,* (now) *American Horticultural Magazine.* April—1940; native western phlox are discussed briefly by F. L. Skinner and two native shrubs are written up. April—1950; shrubs from the Colorado Rockies are featured in the second part of a survey by Mrs. Marriage, and there are short notes on a few Florida natives. In the issue for April, 1960 no American plants are mentioned. No criticism of the American Horticultural Society or its magazine is intended as it has used, no doubt, all or most of the material offered to it. Indeed, in its special issue of January, 1951, devoted entirely to Penstemons, it greatly helped make penstemons better known to the gardeners of this country, as Mr. Bennett has noted.

Again, now as forestry, agriculture, and mining have subdued and altered, wrecked in some instances, the face of the land, there seems to be a reaction. Remote wilderness areas, tiny bits of original flora, abandoned railroad rights-of-way, unique plant areas; all these are foci for groups promoting local, state, and even national action for their preservation. In my youth, I was fortunate in living in the village of Moravia, in Cayuga County, New York, where lived Dr. Charles Atwood, one of the last of the old school of physicians *cum* botanists who worked industriously in both fields, but whose contributions to the botanical records of this country will always be remembered. In one of the hanging valleys that the last glacier scoured out in the Finger Lakes region, Dr. Atwood showed me the lone erratic boulder of limestone covered with Walking-fern, *Camptosorus rhizophyllus,* the tributary glen which he named Dalibarda Falls, and other treasures

of the area now preserved, in great part due to his interest and efforts, as Fillmore Glen State Park.

Native plants provide an ever fascinating hunt that may lead one far afield, though the nearby woodlands never yield all their secrets even to the most persistent searchers. In addition to the large number of species, Nature, always experimenting, is productive of many minor variations. Year by year, more and more are discovered; many such, where petals are multiplied, or petal color changed, are of interest to the gardener. A goodly number of plantsmen roaming the fields and woods find variants and record their finds in botanical journals. Depending upon the preference of the author, these appear as formae, subspecies, or recently as cultivars. When the continued life of any one of these variants is dependent upon garden culture, to give it a cultivar name under the rules for plants that arose in cultivation, seems not unreasonable. To some botanists such variants seem trivial, but not so to Professor Fernald. His eighth edition of Gray's *Manual of Botany* is a most valuable record of such reports up to its publication date of 1950. From it, for instance, we learn that the common variation in Bloodroot, *Sanguinaria canadensis,* is a difference in the lobing of the leaf which carries little or no significance in its garden use. More interesting is a pink-petaled form, f. *colbyorum,* named in 1933 for its discoverer, a Mr. Colby. Pink Bloodroot seems not yet to have reached our gardens, but the double form, f. *multiplex,* is fairly widely grown.

Most of the people working on the floras of smaller areas take pride in recording not only the species but also all of the local variants. These records are most useful when seed collecting time comes around. The trip made last October in Missouri was the most elaborately planned of any I have ever made. As a result more wild plants and ecological areas were seen than I would have thought possible in a ten-day trip. First, plant lists were compiled from Steyermark's *Flora of Missouri.* Then the cited geographical locations were sorted out and a rough plan made to enter the state at the northwestern corner, then, with sorties eastward, go generally south to the extreme southwestern corner from which the Ozark region counties were traversed eastward. From the last uplands, we dropped down into cotton-growing country and out of the state at the eastern mid-section. For the help needed in the areas between the usual road maps, we secured the U. S. Geological Survey quadrangles wherever some unique or rare stand was indicated in the *Flora.* These were most helpful as when we were tracking down the single known stand in Missouri of one of the rarest shrubs in the United States, the Pondberry. *Lindera melissaefolium,* a diminutive Spice-bush. Dr. Steyermark had remarked that school children used the bright red fruits in hollowed out elderberry stems for popguns. In 1968, on the corner, just across the line from Arkansas, hardly any indication of the schoolhouse remained; the road east had been unused for many years, but a half mile along it there were clumps of Pondberry which yielded eleven fruits.

Two examples, one a failure, one a success, will give you an idea of our day's work. In Springfield, Missouri's capitol city, we found the motel chain that we were utilizing where possible had changed to an unfamiliar pattern of ten stories, and we had to drag rather scrubby collecting gear through a flossy lobby to an elevator. Next morning's schedule was to find

the 12th hole on the municipal golf course a few hundred yards from which there had been collected in 1951 *Podophyllum peltatum* f. *deamii,* the maroon-purple fruited form of Mayapple. This site in October of 1968 proved to be a pasture well populated with somewhat unfriendly appearing cattle. What Mayapples remained there by this time were trampled into the ground. This present failure might be qualified by the hope that, since the acrid foliage of Mayapple is not eaten by cattle, the roots may still be there. Dr. Steyermark states that this form is also distinguished by having the stem, leaf-stalk and flower stalk flecked with lavender, and the tip of the rhizome bud a dark wine-purple color. Charles C. Deam, whose name is associated with this plant, was the beloved State Botanist of Indiana, one of the four states in which the form has been discovered.

Several days and adventures later, we were in Ozark County where Steyermark located *Clematis fremontii* var. *riehlii* on the north side of Road BB, 3½ miles from Dora. After some hunting, we pulled into the Highway Dept. service yard where we learned that BB had become a numbered highway. Then we soon located the limestone glade where the dried stems and foliage of our variety of Fremont's Leather Flower were not yet severed from their rootstalk to blow away as a tumbleweed.

On returning home I found Ralph Erickson's paper, "The *Clematis fremontii* var. *riehlii* Population in the Ozarks," a revision of a PhD dissertation published in the *Annals of the Missouri Botanic Garden* in 1945 and included in the recent book, *Papers on Plant Systematics,* selected by Robert Ornduff. Dr. Erickson chose this plant for the purpose of testing a theory of the mechanism of evolutionary change in a small population divided into small isolated colonies. This required knowledge of its reproductive pattern and a survey of the existing plants and their distribution then and in some future re-investigation. Their ecological niche is in red cedar glades of thin soil cover, slightly acid and fairly high in organic matter over dolomitic limestone outcrops with environmental extremes of saturation to the point of seepage in spring and fall and desiccation during the summer months. Dr. Erickson planted 600 seeds under greenhouse conditions; only three germinated. The estimated number of plants in the 400 square mile area of its occurrence is 1,500,000. I brought home one small seedling only to see how well it can adapt to cultivation in upper New York State. Thus success with Leather Flower was also qualified by finding no seeds and by some doubts about accommodating it in the garden.

State and local floras are an important ally to the rock gardener investigating the plants he can use in the garden. The list compiled for the Atlantic City Study Week End and the display of books was a much appreciated feature. To summarize very briefly, Missouri, Kansas, West Virginia and the Carolinas have complete, illustrated floras. Under way, with some parts published, are similar works for Ohio, Illinois and Montana. The great opus of regional floras illustrated in color coming from the New York Botanical Garden will undoubtedly stimulate more pocket-sized treatments of selected small areas.

* * * * *

OMNIUM-GATHERUM

There is a peninsula in Northeastern Siberia which on the National Geographic maps appears as "Kamchatka." Several genera known in our gardens here in the United States, and elsewhere, have species so named as to indicate that they are from this peninsula, or of it. The proper spelling of this species name is puzzling. Authorities and authors of horticultural works do not agree. Seemingly, they agree only on one thing and that is that never must the geographical spelling of the peninsula's name be used. The use of "kamchatka plus appropriate ending" as a species name seems to be taboo. Following are a few examples gleaned from the books at the editor's disposal:

Fritillaria for instance — *F. camtschatcensis*: this spelling is used by Abrams in his *Illustrated Flora of the Pacific States* and by Piper in *Flora of Washington*. Piper seems really confused. Under this plant name appears this confusion in spelling: Type locality — Habitat in Canada, Camschatca; Range — Alaska to Washington, Kamchatka. Abrams is content to say, ". . . also on the Asiatic coast of Kamchatka."

Fritillaria again — *F. camschatcensis*: this spelling is used by several, including Griffith in *Collins Guide to Alpines*; Foster in *Rock Gardening*; Elliott in *Alpine Gardening*; the seed lists of the Alpine Garden Society, the Scottish Rock Garden Club, and the ARGS. However, in the SRGC seed list of 1967-68 the spelling is *"camchatcensis."*

Rhododendrons fare better. It seems always to be *R. camtschaticum*. One wonders why the "t" as the fourth letter is used in the case of the rhododendrons when so many authors omit it where fritillarias are concerned.

Now comes the lowly, but much used, skunk cabbage — *Lysichitum* and sometimes *Lysichiton*. The name of the Asiatic species grown in our gardens is almost always as follows: *L.* (*itum* or *iton*) *camtschatense* (there is the questionable "t" again) except for Abrams who uses *Lysichiton camtschatensis* (no "c" in the ending as in the fritillaria species — *F. . . . tcensis* — *L. . . . tensis*). Until recently this name, however spelled, referred to the American (yellow-flowered) species as well as to the Asiatic (white-flowered) species. Now, the American species is known as *L. americanum*.

Perhaps you are wondering what this is all about — a lot of smoke but not much fire! In an endeavor to use proper spelling of botanical names in the *Bulletin*, the editor must use a lot of time in checking the spelling used by contributors. He must be sure of his ground when making corrections. To be sure, he must search out the names of the plants in the authoritative works that are available to him. When authorities disagree among themselves in the matter of spelling, the editor has a problem. This is a problem of less magnitude, however, than the problem of correct and up-to-date botanical nomenclature, ever shifting and difficult to keep up with, but for the moment correct spelling is the problem. Shall *Fritillaria camtschatcensis* be used in the *Bulletin*, or shall it be *F. camschatcensis*? That is the problem to a "t." Also where is the inconsistency of so many authors using *F. camschatcensis* when they use *Rhododendron camtschaticum* (the ending is not in

question) but the use of the "t" in the species name of one genus and the non-use of it in another lacks logic, and remember, all these different spellings indicate that the plants come from, or are of, Kamchatka.

Fourth International Rock Garden Plant Conference — The Scottish Rock Garden Club and the Alpine Garden Society intend to hold the Fourth International Conference in April, 1971 at Harrogate, the Conference Show being staged at the Harrogate Spring Show.

It is proposed that the Conference should run from Wednesday, 21st April to Sunday, 25th April. There will be a comprehensive programme of lectures and discussions covering all aspects of rock gardening and rock garden plants, the speakers being drawn from both home and overseas.

It is hoped that both pre-Conference and post-Conference Tours can be arranged so that those before the Conference will end at Harrogate on the opening day, and those after the Conference will start after the close. These, it is hoped, will visit notable gardens both in England and Scotland, and, possibly, may also be organised for European countries as well.

Fuller details will be announced later, especially for intending overseas visitors.

Publication of the above notice was requested by Dr. Henry Tod, Publicity Officer for the Scottish Rock Garden Club.

The Annual Meeting of the American Rock Garden Society is to be (has been) held at North Conway, New Hampshire, on June 13-15, 1969 under the auspices of the New England Region, Mrs. Ingeborg Bartho, Regional Chairman. It is not possible to tell you what happened there in this issue. You must rely on the July *Bulletin Board*, accompanying this *Bulletin,* for details. The October *Bulletin* will tell you about the awards made at the meeting; awards similar to those of the past several years as well as a new award to be known as The Marcel Le Piniec Award, presented for the first time this year. In the words of Mr. H. Lincoln Foster, "This award is to be given annually to a person who as a nurseryman, propagator, hybridizer, or plant explorer is currently and actively engaged in extending and enriching the plant material available to American Rock Gardeners."

HAROLD F. COMBER — Having decided to use Mr. Harold F. Comber's short article in the July *Bulletin*, prefaced by an Editor's Note, the editor was wholly unprepared for the sad news of Mr. Comber's death.

Mr. Comber died on Wednesday, April 23, 1969, at his home in Gresham, Oregon. At 71, he was still active in horticultural affairs, being especially active where lilies were concerned. Mr. Comber was born in England and studied horticulture at the Royal Botanic Garden in Edinburgh, Scotland. In the 1920's and 30's he led several expeditions into Chile, Argentina, even to Tasmania in search of new plants. A new genus, *Combera,* was named for him and many new species bear his name.

His work with lilies, both in the field and in literature, made him world famous. He was a fellow of the Linnean Society of London, a fellow of the Royal Horticultural Society, and a member of the Lily Society of America. Though he was not a member of the American Rock Garden Society, our members are, nevertheless, greatly indebted to him for a lifetime given to horticultural pursuits, the benefits of which are felt in gardens the world over.

There are those horticulturists who rank Harold Comber with such stalwart plant explorers as Wilson, Forrest, and Kingdon Ward. Why then is he not better known? Perhaps he was too busy with too many enthralling horticultural matters to "blow his own horn," as one person expressed it.

When not exploring in far places for new plants, Mr. Comber devoted himself to the spreading of horticultural knowledge, much of which may be attributed to his own widespread efforts. As gardeners, we mourn his passing, and know a feeling of regret that such a dedicated man could not have been spared to carry on his activities for some years to come.

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WANTED:—About 10 divisions each of the three forms of *Iris gracilipes* (typical, double, and white), 10 divisions each of *Iris setosa hookeri* and *Iris tenax* 'Gormanii' (soft yellow) in exchange for like quantities of *Iris* 'Ami-royale', *Iris innominata* 'Rogue', *Iris tenax klamathensis, Iris douglasiana* 'Agnes James', *Iris japonica* 'Ledger's Variety', or 10 plants each of *Primula polyantha* 'Gold Laced' (the Hawkes Trophy winner at the 1969 National Primrose Show), *Hosta decorata,* or *Carmichaelia enysii.* THE WILD GARDEN, 8243 N.E. 119th, Kirkland, Wash. 98033.

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