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Falls Village, Connecticut

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The Elusive Shortia

H. Lincoln Foster
Falls Village, Connecticut

When Timmy and I heard, back in 1968 at the Winter Study Weekend East, that a large portion of the type site for Oconee Bells (*Shortia galacifolia*) in Pickens and Oconee counties of South Carolina was soon to be flooded by dams already under construction by the Duke Power Company, we determined to make an excursion there at blooming season. Frederick Case, a highly competent student and photographer of American wildflowers, who gave us the news of the power project also kindly supplied us with the name of an employee of the power company who could guide us in our search of the plants: Charles Moore, in the Brevard, N.C. office of the Duke Power Co.

I wrote to Mr. Moore in January of the next year telling him of my interest in this beautiful plant and asked questions about its distribution, rarity, and possible color variations. In the letter I also included a hint that I hoped sometime to be able to visit Shortia Country at the flowering season. Mr. Moore was prompt in his reply and rose nicely to my thinly veiled bait, "Why don't you come down to North Carolina and let me give you a conducted tour. The middle of March is a sure time to see the display."

In his letter he also gave me references to a series of articles about *Shortia galacifolia* by Dr. P.A. Davies of the University of Louisville, which had appeared in botanical journals.

Mr. Moore had provided much information and assistance to Dr. Davis, based on his many years of amateur plant hunting, collecting, and observation in the Blue Ridge and Smoky Mountains.

In preparation for our projected foray into the home country of Oconee Bells, I followed up, in the Library of the New York Botanical Garden, Mr. Moore's references, and others turned up in the course of my reading. I found a considerable, and to me fascinating, history of this single American species.

Shortia galacifolia was first collected by Andre Michaux, the French collector and botanist, who, during the latter part of the 18th Century, had spent eleven years in the United States exploring for plants to grace the gardens of France. This was the great era of botanical exploration in the new country.

Shortia galacifolia, however, was not dispatched by Michaux as living plant material, partly, perhaps, because Michaux did not himself see the plant in bloom to recognize its charm. As a sound botanist, however, he gathered the best material available of all plants for his herbarium. This material was carefully pressed and placed in Michaux's cabinets. Among a group labeled *Plantae Incognitae* was a sheet of a single shoot of the plant with five mature leaves, three juvenile leaves, a portion of the rhizome with a few hair-roots, and two flowering stems without petals. These stems showed the five sepals and small leafy bracts beneath and a remaining pistil with elongated curved style. The label accompanying this specimen read: "Hautes montagnes de Caroline. Un pyrola spec. Un genus novum?"

There is still some question as to

just where and on which trip he collected the particular specimens that became part of his herbarium.

What we are sure of is that Asa Gray on a trip to Europe in 1838-39 found the specimen in Michaux's herbarium in Paris. In 1838 Asa Gray had been appointed to a chair in botany at the University of Michigan, but because the building to house the botany department was not ready in time for the opening of college, Gray was granted a year's leave. During the year 1838-39 he traveled in Europe primarily to study in the various noted herbaria there, with particular attention to American specimens. There in Paris he gave careful attention to the Michaux material collected in America.

Piqued, I suspect, by the suggestion on the sheet containing the unknown specimen that it might be a new genus, Asa Gray determined, after careful investigation and consultation, to christen the plant.

On April 8, 1839 Gray wrote to his friend and fellow American botanist, John Torrey. In the letter he reported: "But I have something better than all this to tell you. I have discovered a new genus in Michaux's herbarium — at the end, among *plantae inconitae*. It is from the great unknown region, the high mountains of North Carolina. We have the fruit, with persistent calyx and style, but no flowers, and a guess that I have made about its affinities has been amply borne out on examination by Decaisne and myself. It is allied to *Galax*, but it is 'un tres distinct genus,' having axillary one-flowered scapes (the flower large and a style that of a *Pyrola*, long and declined). Indeed I hope it will settle the riddle about the family of *Galax* and prove Richard to be right when he says *Ordo Ericarum*. I claim the right

of a discoverer to affix the name.

“So I say, as this is a good No. American genus and comes from near Kentucky, it shall be christened *Shortia*, to which we will stand as godfathers. So *Shortia galacifolia*, Torr. & Gr., it shall be. I beg you to inform Dr. Short, and to say that we will lay upon him no greater penalty than this necessary thing — that he make a pilgrimage to the mountains of Carolina this coming summer and procure the flowers.”

Dr. Charles Wilkins Short of Kentucky, trained in medicine, but active as a botanist and college professor of science, was known to Asa Gray only as a correspondent. Though he collected widely in the southern states, it is doubtful that Short ever saw the plant which bore his name as he died fourteen years before its rediscovery.

Despite his obvious excitement about the plant as indicated by his letter from Paris, Asa Gray himself did not make the rediscovery. But it was not for lack of hunting. Following the clue on the herbarium sheet — “Hautes montagnes de Caroline” — and with the knowledge from Michaux’s journal that the Frenchman had visited the high country, Gray made a journey in late June 1841 with two friends, John Cary and James Constable. They made their headquarters in Ashe County, North Carolina and visited most of the high country above 5,000 feet. Gray wrote a report of the trip in the form of a letter to Sir William J. Hooker of England, which was published in the *American Journal of Science* and in the *London Journal of Botany*. This report includes the statement: “We were unsuccessful in our search for a remarkable undescribed plant with a habit of *Pyrola* and the foliage of *Galax*, which was obtained [originally] in the high moun-

tains of Carolina. The only specimen extant is among the ‘Plantae Incognitae’ of the Michauxian herbarium, in fruit only: and we were anxious to obtain flowering specimens, that we might complete its history; as I have long wished to dedicate the plant to Professor Short of Kentucky . . .”

A footnote to this passage contained the first published description of the new genus *Shortia*, assigning it to the family Diapensiaceae in 1842.

Again during the summer of 1843 for three months, in the company this time of another botanical friend, William S. Sullivant, Dr. Gray explored for plants in the mountains from Maryland to Georgia, always with an eye peeled for the elusive *Shortia*. Again the plant eluded him. In fact the very existence of the plant became the subject of skeptical doubts among Gray’s botanical friends and there may even have been a few with silent questions about the authenticity of the herbarium specimen back in the cabinet in Paris.

Before his two excursions to hunt for what he must himself have begun to think of as rare a chance discovery as Bartram’s Franklinia Tree, never again to be found in the wild, he did consult Michaux’s journal for further clues. He passed over in the journal what has since, in the light of its eventual rediscovery, been interpreted as very clear directions for finding *Shortia*. On pages 45 and 46 of the French text published among the *Proceedings of the American Philosophical Society* in 1889 is this passage:

“The roads became more difficult as we approached the headwaters of the Kiwi [now the Keowee] on the 8th of December, 1788 . . . There was in this place a little cabin inhabited by a family of Cherokee Indians. We stopped there to camp and I ran off

to make some investigations. I gathered a new low woody plant with saw-toothed leaves creeping on the mountain at a short distance from the river . . .” (Michaux camped there for three days. On the 11th he made a three mile foray into the hills.)

“I came back to camp with my guide at the head of the Kiwi and gathered a large quantity of the low woody plants with the sawtoothed leaves that I found the day I arrived. I did not see it on any other mountain. The Indians of the place told me that the leaves had a good taste when chewed and the odor was agreeable when they were crushed, which I found to be the case.”

For some time after the rediscovery of *Shortia* botanists considered this to be the passage in Michaux’s journal that pointed to the type site. And, indeed, *Shortia* is abundant at the headwaters of the Keowee. However, it is likely that they were misled in thinking that this passage referred to the *Shortia*, as, indeed, Dr. Gray probably realized when he read it.

The key word here is “I gathered a new low woody plant with saw-toothed leaves creeping on the mountain a short distance from the river.” The fact is that *Shortia* is not a woody plant in the strict sense, even though its growth habit is quite similar to *Epigaea repens* and *Gaultheria procumbens*, both of which are classed as creeping shrubs. Michaux was a trained botanist and if he gathered “a large quantity of the low woody plants with the saw-toothed leaves,” he must have observed its woody nature and even a large quantity of true *Shortia* would have provided him with nothing but herbaceous material. Moreover, Michaux could hardly have been deceived into thinking that *Shortia* leaves have a good taste when

chewed and an agreeable odor when crushed. On the evidence of the passage it would appear that he was describing Wintergreen, except that it seems surprising for him to refer to *Gaultheria procumbens* as a “new” plant. Or was it to him?

We can be almost certain, at any rate, that it was not on this December, 1788 trip that Michaux found the small herbarium sample of *Shortia* that Asa Gray located later among the Frenchman’s *Plantae Incognitae*, because by December every remnant of the flower parts have disappeared from *Shortia*. The persistent style on the herbarium specimen suggests that it must have been collected not later than June or possibly early July.

Michaux was in the same general area the preceeding year, at the headwaters of the Keowee, arriving there on June 14. Since he was heading for the mountains to the west, he records, “We remained there more than two hours to rest our horses and to eat strawberries which were there in abundance.” There is no mention in the journal of his collecting the plant which he later labeled “un pyrole? Un genus novum?” But it is entirely possible that it was on this occasion that he picked up the specimen, not immediately identifiable, and it became part of the general collection of various plants he made later in the mountains to the west; hence “Hautes montagnes de Carolinie.”

The first rediscovery of living *Shortia galacifolia* did not fall to the lot of any of the botanists engaged in its pursuit, but to seventeen year old George McQ. Hyams of Statesville, N.C. in May of 1877. He was, however, unaware of the significance of his find. The occasion was later described by George’s father, Mr. E. Hyams, in a letter to Dr. Gray. “We

were passing along the road and my attention was called to an elevated hillside that I could not ascend as being at that time rather exhausted, being sixty years old, requested him to ascend and bring whatever was in flower. I have forgotten the locality, but he is fully known to it, as he lived within two miles of the place for several years."

The elder Hyams was a purchasing agent and collector of medicinal plants for a Baltimore drug company and managed the root and herb warehouse for the Wallace Brothers in Statesville. Though familiar with plants of the region from years of collecting herbs this particular plant was quite new to him despite its resemblance to the common *Galax*, which he frequently gathered. It was not until over a year later, however, that he dispatched a sample of the plant for identification to a friend in East Greenwich, Rhode Island, Joseph W. Congdon.

Mr. Congdon had his ear to the ground in the botanical world. With what must have been a step-father feeling he wrote Dr. Gray announcing that he thought he had in his possession a flowering plant of *Shortia galacifolia*. The original god-father of the plant hastily replied, "Do send the plant."

Asa Gray, himself by this time the American botanical authority, leaves us in no doubt about how he felt when at last he had on his work table a flowering specimen of the plant that nearly forty years ago had stirred him deeply in the Michaux herbarium in Paris. Immediately he wrote to William M. Canby, a close botanical friend who had occasionally taunted Gray with sly remarks about the mythical *Shortia*: "No other botanist has the news. If you will come here I can show you what will delight your eyes and cure

you effectively of the skeptical spirit you used to have about *Shortia galacifolia*. It is here before me with corolla and all from North Carolina! Think of that! My long faith rewarded at last."

To emphasize the strength of his feelings, which might be missed despite the exclamation points, he confessed that the rediscovery of Michaux's *Shortia* gave him a hundred times the satisfaction that his recent election to the Academie des Sciences of the Institute de France had done, though this election was one of the highest honors for a professional botanist.

Within the week Dr. Gray sent off a letter to the elder Hyams warm in his praise of the discovery; and, reflecting the importance he himself attached to it, lamenting with the father that he had not sooner sent the specimen so that the immortality of his son might have been assured by inclusion in the edition of Gray's *Flora*, which had just recently gone to press. But he promised an early recognition by way of an article in *Silliman's Journal*. He concluded his letter by warning Mr. Hyams that he and his friend, Mr. Canby, would descend on them the following May.

George Hyam's name appears as collector on the herbarium sheet which Dr. Gray made of the first flowering specimen of *Shortia galacifolia* now resting in the Gray Herbarium of Harvard. A further measure of immortality is assured him in the botanical literature in *Silliman's Journal*, which announced the happy rediscovery of the plant. Young Hyams must have felt considerable pride in the spring of 1879 when he guided an illustrious group of botanists to the station of his find, though too late in the season for blossom. Yet despite the early plant collecting trips with

his father and the notoriety he received by way of *Shortia galacifolia*, George Hyams did not pursue a botanical career; instead he became proprietor of a general store and postmaster of Old Fort, North Carolina. There he resided until his death in 1932.

In the group that descended on Statesville in June 1879, besides Dr. Gray and his family, were the botanist William M. Canby of Wilmington, Delaware; Dr. Charles S. Sargent of Brookline, Massachusetts; and J.H. Redfield of Philadelphia, Pennsylvania. Both Gray and Redfield published accounts of the trip: Gray in the *American Journal of Science* and Redfield in the *Bulletin of the Torrey Botanical Club*. Redfield's account records the occasion with some added information about the trade in native plants for the drug market:

"Being now in McDowell County, the *Shortia* locality was visited under the guidance of Mr. George M. Hyams, the actual discoverer. In the secluded and well protected station, well overshadowed by Rhododendrons and Magnolias, was seen the little colony of the plant, so long sought and by many so long doubted. Its companions were *Mitchella repens*, *Asarum Virginicum*, and *Galax aphylla*. The space over which the plant extended was perhaps 10 feet by 30 and in all there may have been 50 to 100 plants. As the plant multiplies by stolons it is remarkable that its area should be so restricted and since in the struggle for life of two allied plants the weaker 'must go', Dr. Gray suggested the possibility that its stronger cousin, the *Galax*, had crowded out the *Shortia*. And here indeed, in what may be the last foothold of the rarity, *Galax* appeared to be actually doing so. Yet the plants, though comparatively few, were vigorous and heal-

thy. Other stations may be looked for; but they must be hard to find. When we consider the long search which has been made for this plant, how all the mountain region of the Carolinas and Tennessee has been examined by the sharp optics of Buckley, Rugel, M.A. Curtis, Dr. Gray, Canby, LeRoy and Ruger, the Vaseys, elder and younger, Chickering and others, it is very certain that if there be other localities they must be few and far between."

It is rather curious that *Shortia galacifolia* was first rediscovered in North Carolina in the Catawba River headwaters where it is relatively rare, much rarer than in its major center of distribution in Pickens and Oconee Counties of South Carolina. It was in this latter area that plants were found in 1886 when Dr. Sargent was searching for the *Magnolia cordata* mentioned in Michaux's journal. In Dr. Sargent's party at that time were the young Boynton brothers, natives of the area. For the next few years they continued the search for other possible sites of the elusive *Shortia*. In 1889 Frank E. Boynton published in *Garden and Forest* an account of the trip he and his brother Charles had made in the spring of that year.

"We camped the first night at the White Water Falls, which alone are worth a considerable journey to see. The Jocassee Valley, our destination, is at the mouth of White Water Creek, or rather at the junction of White Water and Devil Fork. I wished to see if *Shortia* was growing as high up in the mountains as these Falls, which are at least 1,000 feet above the Jocassee. No *Shortia* was found, however, until we reached the valley, which has an altitude of about 1,200 feet and here it grows by the acre. Every little brooklet is lined with it. Most

of these little water courses are in deep narrow gorges where the sun hardly penetrates, except during the middle of the day. All these steep banks are literally covered with *Shortia*. What is comforting to the botanist is that it can hardly be exterminated. It is on land too steep to be cultivated and there is such an abundance that no amount of collecting can ever effect in strenuously. Our party took away bushels of it, and no one could tell that a plant had been disturbed, so thickly it is growing. No idea of the beauty of this plant can be formed until it has been seen in its native home. The mass of glossy green and white, once seen, can never be forgotten.

"The home of *Shortia* is a strange mixture of North and South. As a rule it grows under the shade of rhododendrons and tall kalmias . . . To see *Shortia* in blossom and in its glory one must get there about the 20th of March, not later than March 25."

The spring of 1969, when Timmy and I were guided into *Shortia* country by Mr. Charles Moore, was cold and late. Even in the final week of March, to which we had delayed our visit on Mr. Moore's advice, few blossoms were open. We were therefore unable to hunt for color forms that had been hinted at in one of P.A. Davies's papers on pollination of *Shortia*. "Corollas are normally white but color variants are frequent. Using the Ridgway Color Standards (1912), the colors varied from light rosolane purple to pale forget-me-not blue."

We did see great sheets of *Shortia* foliage on the shores of the Horse-pasture and White Water Rivers; and along one small side stream on exposed rather sandy, high banks we found swarms of young seedling plants, which Charlie Moore encouraged us to collect as it was within the

area to be flooded by the Duke Power Company's Jocassee Dam.

All of these rescued plants travelled successfully back to Millstream and are still thriving here. A few have a slight pink tinge to the corolla. Seedlings from these plants have self-sowed along the woodland paths where they are established. Perhaps one day there may be a blue flowered seedling.

I cannot resist the temptation to speculate a bit about the evolutionary history of *Shortia*. There is some fossil evidence that *Shortia* was fairly widespread in the mesophytic forests during the Tertiary, at least in eastern Asia and North America. During the Ice Ages of more recent times much of it was eradicated in the northern part of its range and the remnants found refuge in the mountain valleys south of the ice. In addition to the remnant population of *Shortia galacifolia* in the never glaciated southern Appalachians, there are at least three other species of this genus in Asia: In the Japanese uplands is *Shortia uniflora*, admittedly more beautiful than our native. Almost identical in leaf pattern and growth habit, though not as widely stoloniferous, it has somewhat larger bells more deeply fringed of a pale, but definite shell pink. Also from Japan is *Shortia soldanelloides*, formerly placed in its own genus in which it was known as *Schizocodon soldanelloides*. This species is of a more clumping growth habit, though the leaves are quite similar to those of *S. galacifolia* and *S. uniflora*. The flowers are smaller than those of the other two but of a rich old rose, somewhat paler at the deeply fringed edges of the bell and shot with reddish streaks and scintillations within. There is a rare and exquisitely lovely white flowered form as well. These bells are carried in campaniles

of up to six at the summit of the four to six inch scape above the mound of polished deep green leaves, which frequently retain their glowing red bronze winter coloring through flowering season, which is about a month later than that of *Shortia galacifolia* and *S. uniflora*. Their seed also ripens later, usually not until fall. There are a number of varieties of *S. soldanelloides* based on leaf form: var. *ilicifolia* (holly-leaved), and var. *macrophylla*, with leaves nearly twice the normal size with more prominent toothing, being the best known. There is also a diminished alpine form, smaller in all its parts.

There are in addition to the above species other *Shortias* or shortia-like plants which have been variously classified as *Shortia* and *Shortiopsis* from the Taiwanese mountains and the Himalayas. (See Roy Davidson's article in Vol. 37, p. 188 - 192 of the *Bulletin*.)

It is somewhat puzzling that during the ten thousand years or so since the retreat of the last ice sheet *Shortia galacifolia* has not spread north again from its refuge in the southern Appalachians. It certainly is adapted to growing far north of its present range. When transplanted to Connecticut and Massachusetts it will thrive if given proper conditions. It can endure the cold of a snowless winter and the heat and even occasional droughts of our New England summers and will self sow in suitable sites. Why then, we wonder, has it not slowly self-sown northward out of its Blue Ridge refuge? One likely explanation may lie in the combination of its site preference and the brief viability of its seeds.

By experiment it has been fairly well established that only very fresh seed will germinate. Seed ripens in our area about the middle of June

and if sown immediately will germinate within two weeks. Following germination the seedlings, of very tiny dimension and slow development, will not persist unless they are kept reasonably moist. A brief period of drought will annihilate them.

In the Blue Ridge, *Shortia* blooms early, the last part of March and the first part of April, and ripens its seed in May. The seed is very light and could easily be blown up out of the moist draws and stream sides where it grows under *Kalmia* and *Rhododendron maximum* or on the steep eroded slopes along tributary creeks. Some of the thousands of seeds produced annually must reach locations where the substrate and moisture are suitable for germination, but following germination the minute seedlings that sprouted in the well drained uplands above the moist, deeply shaded coves, which is *Shortia's* accustomed habitat, would be at the mercy of the high temperatures and droughts likely to occur in mid-summer. This is a possible explanation.

Young plants, if they can be brought through the critical period of infancy, may have a tiny rosette of four leaves by fall, still only half an inch across. During the second year, if conditions are favorable, and by now it has become more tolerant as the feeding roots strike more deeply, the plant will make appreciable growth of new foliage larger in the leaf blade and longer in the petiole. By the third season it may even develop in the center of the now husky rosette a flower bud. From then on the plant will make offsets by extending underground stolons until it forms a sizeable carpet.

At the end of each runner is an overlapping arrangement of leaves, a few long petioled and up to three inches

in the blade, and at the center many smaller leaves. In autumn among these smaller leaves are produced pointed buds from which arise the flowers and new stolons. The flowers are very rapid to develop in the first warm days of spring and though delicate in appearance are remarkably resistant to frost or even a covering of late snow. These blossoms, up to three from a bud, are carried singly on a naked reddish scape with two or three small colored bracts just below the five parted calyx. The five sharply pointed sepals are a glowing pink, a color strong enough to show through the petals. The five petals, generally pure white, but occasionally pale pink or, by report, pale blue, are slightly fringed at the flaring tips and united below to form an open bell. The five golden stamens, alternate to the petals and attached to the lower rim of the corolla, surround the three-lobed stigma on an elongated style, all forming a most elegant design of pink, white and gold.

These handsome flowers are not as transient as their elegance might suggest. Because there are few insects flying when *Shortia* flaunts its inviting flowers, fertilization is frequently delayed for many days. Though I can find no references to the actual agents of fertilization, I suspect that the work is carried on by small flies or in desperation by self-pollination. I do know that every flower that opens sets seed. When fertilized, by whatever means, the united corolla falls away carrying with it the attached stamens, to leave the still beautiful cluster of pink sepals and bracts around the swelling pear-shaped capsule with long pistil persistent. The greeny-white capsule rapidly enlarges and itself takes on rich

tones of reddish brown before, in June it begins to split longitudinally into three segments exposing a myriad of small, yellow-brown granules adherent to the ovary. That is the moment to collect seeds and to sow them immediately. It is possible that their fertility might be prolonged if they were refrigerated.

For quick easy propagation a clump of *Shortia* may be lifted after flowering and divided into as many parts as there are offsets at the ends of the runners. Each runner will have sent down many fine feeding roots as it advanced the previous season. For assured success it is wise to treat these separated runners as recently rooted cuttings. By all means pot them up and keep them moist and shaded, or coddle them until well established if planted out in a permanent site. Large divisions with plenty of roots establish fairly readily in acid, leaf-moldy soil in shade.

Shortia will endure and flower in quite dense shade or will succeed in a fairly open site on a north slope, where in fall it will color more brilliantly than in deep shade. The coloring of the foliage does not, however, appear to be entirely related to amount of light. There may be a soil factor also or, on the other hand, it may be genetically controlled.

Because a considerable portion of the small natural homeland of *Shortia galacifolia* has now been cleared of vegetation and is within the impoundments of the Duke hydro-electric development, it is fortunate for gardeners that this rare plant has been introduced into horticulture and has proved amenable to cultivation. Special credit should be given to Mr. Charles Moore of Brevard, North Carolina, who has long been a student

of the distribution of *Shortia* in the wild. When he, as an employee of the power company, learned of the plans to flood large segments of the plants' native home, he alerted gardeners and botanical gardens and guided many aficionados into the remote area to rescue the plants

from inundation and established large clumps in his own fascinating garden of wildflowers.

Portions of the latter part of this article appeared previously in *The Connecticut Plantsman*, Vol. 2, No. 4.

Don Smith

It is with the deepest regret that we must report the death of Don Smith on November 15, 1983 after a long illness.

Don, with his wife Hazel, is perhaps best known to our members as the Watnong Nursery, which they started in 1961 after Don's retirement from a long and distinguished career in the field of public education. From their tiny backyard nursery in Morris Plains, N.J. have come many distinguished plants, mostly woody shrubs and dwarf conifers, previously unavailable to the average gardener. It was a regular stop for all knowledgeable nurserymen and plantsmen who were visiting anywhere in the vicinity, and was frequently the goal of a special trip. Among their specialties have been particularly good forms of the Box Huckleberry, *Gaylussacia brachycera*, *Leiophyllum buxifolium*, *Tsuga canadensis* 'Watnong Star', a dwarf fir, *Abies concolor* 'Gables Weeping', and a prostrate juniper, *Juniperus horizontalis* 'Watnong'.

Don and Hazel always had an eye out for especially good forms of woody plants in the wild, in nursery rows, and in botanical and private gardens and people were only too glad, indeed flattered, to allow Don to collect cuttings for propagation. His high standards for excellence in plant material, his skill in discovering methods for propagating the most difficult plants and his generosity in passing them along to others was well known. If Don asked for a cutting, you knew you had a superlative specimen.

Don and Hazel Smith received many prestigious awards for their work, among which was the ARGS Marcel Le Piniec Award in 1971.

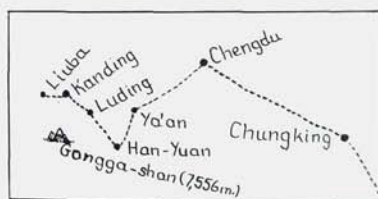
A tall, craggy featured man, kind, soft-spoken and gentle, Don was endlessly thoughtful of others and was much loved and respected by all who knew him. He will be sorely missed. We extend our deepest sympathy to his wife and lifetime partner, Hazel.

Plant Hunting in Sichuan, China

Part IV

Carla Teune
University Botanic Garden
Leiden, The Netherlands

Photographs by the author



Last night it was cold, and when we opened our eyes this morning, Thursday, September 17th, the village was covered with snow. Only the mountains, the trees and the roofs of the houses were snowy, but the roads were wet and muddy. We were all very tired, and wanted to do some work on our seeds. Moreover it did not look like a very attractive day to collect seeds so we stayed in the village to take pictures and work on our plants. Theresa felt much better and Ray came out with us for the first time. He still looked pale and much thinner than when we met at Heathrow airport, but he told us that he was definitely better.

We were allowed to take pictures in the village and of the villagers, who were very interested in us, our clothes and cameras. Roy gave some lovely presents to the people and he taught them a very old-fashioned children's game, which created some excellent opportunities for the others to take pictures. The highlight of the

morning was a comic duet between Roy and Paul, which caused great hilarity everywhere.

There was a young girl washing peeled potatoes in the stream and she wore the most beautiful silver and red coral and silver and turquoise jewels in her hair. One of the men had a silver studded leather bag and a beautifully worked silver knife. Red coral and turquoise are real antiques, they were imported via Kanding and the road to Lhasa. Kanding used to be famous for the armourers and in exchange for weapons like swords and spears these people received the beautiful silver jewels, still worn by the Tibetans. The Chinese are not allowed to wear jewels as these are considered too decadent for good communists.

The inhabitants of a small mountain village like Liuba are rather poor, although it is very difficult to get an idea about their way of life as they do not show their possessions openly. A Dutchman who was in Liuba in May



Roy Lancaster taught the villagers some old-fashioned, English children's games.



A Tibetan girl, with jewels in her hair, washing peeled potatoes in the river.

as our "scout" told me later that the inhabitants had tried to sell him pieces of jewelry, but they considered our group too big and too dangerous as we were always accompanied by Chinese. The inhabitants of Liuba (and of many other villages) mostly walked around in greyish, home spun clothes that did not look very warm on such a cold morning. Sometimes they only wore dirty rags. Only now and then we saw ladies still dressed in the traditional Tibetan clothes, black with much red. Later on we met an old lady in a nomadic group who wore a sheepskin, with one arm and shoulder bare. The people all have very red checks as a result of continually living in thin air at such a high altitude.

The village of Liuba looks very well organised and neat. (Neat in a Tibetan way is not neat in a Dutch sense.) The population works mainly in the small fields of corn, potatoes and oats.

This high altitude is too cold for growing rice. Yaks are kept for transportation purposes and of course for the milk, butter and cheese. Yaks are very often used for carrying goods on big wooden pack saddles. They can go very far and high into the mountains and are very strong and can carry heavy loads. Tibetans keep sheep for the skins and for wool. One day we met a flock with a shepherd and his dog; the man was very busy cutting large branches from a big *Hippophae salicifolia* var. *procera* as the sheep are fond of the yellow berries. Yak milk is churned in small, round, wooden churns to make a slightly acid (not rancid) butter that tasted much better than the tinned butter the Chinese gave us. Yak cheese is a hard, chalk-like cheese — delicious — but we got it only once, the first evening while sitting around the Tibetan campfire.

Liuba village is rather small, the



The sheep enjoyed the yellow berries of *Hippophae salicifolia* var. *procera*.

main street contains some twenty to twenty-five houses, both big and small. They are real Tibetan, made from roughly hewn stones and always with white painted window sills. Sometimes the wooden parts of the houses are beautifully painted with flowers, very much as in Austria. The houses can be very big. I have no idea how many people live in them. The stables for the yaks, sheep and horses are on street level and the people live mainly on the first floor, so they get some warmth from the animals downstairs.

There is one school in Liuba (our "hotel") and education is given in Chinese only, a clever way of suppressing minorities. There was a large shop, kept by Chinese people, but rather out-of-stock. Not very much of interest was left. Only six Chinese

live in Liuba. They must feel very lonely during the long and cold winter. The official guest house is a nice looking, old-fashioned building with a large court yard, stables under the rooms, and an open balcony, which looks down on the court yard. The building is built of wood, not of stone as are the other houses in Liuba. Our "scouts," the Dutchman Martin Koppelaar and the Sino-English San Choo Choo considered these lodgings too dirty for us (they were right) and so they decided to let us camp with the already mentioned, rather doubtful results. In the middle of Liuba is a large, square temple. It looked closed to us and we were not allowed to visit it.

This area of Mt. Minya-Kongka is Chinese-Tibetan, but it is very Tibetan. It is part of Sichuan province. The original Tibet is now a Chinese province, only recently opened for Western tourists. It is called Xizang Province.

In the afternoon the sun came from behind the clouds. It was the first sunny afternoon since Sunday and we all enjoyed it enormously. Roy, Alison, Steve and I, with a very kind and experienced Tibetan guide, started for a climb on the peak that over-towered our camp. It turned out to be much steeper and much more difficult than we had expected, so Alison and Steve returned after going up only half way. We loaded them with our rucksacks, and Roy, Alan the guide, and myself went on, climbed the peak from whence we had a splendid view of our camp and returned on the other side of the mountain. It was hot when we started, but while we climbed the weather changed and it started to rain as we reached the top. I had no coat on and was shivering, so the guide kindly loaned me his nylon coat



Tibetan window with white painted sill and frame and flower designs on the lintel.

and that helped a lot although he had cut out the sleeves. On our way back we slid down a very steep slope through a *Quercus* wood and Roy and I managed to collect a lot of already germinating acorns.

On Friday, September 18, it was sunny and hot when we woke up and it looked a splendid day for a last, long tour into the higher mountains. We climbed the mountains opposite of our camp. The morale of the group was splendid in spite of the various difficulties we had met during our stay. These problems had tied the bonds between the members of the group even closer and Theresa expressed our thoughts when she remarked that this group was the best she ever had, though this tour had given her more pains in the neck than she had ever experienced in her long career as a tour leader.

This long walk was too much for some members, and they returned guided by a Tibetan, or a Chinese, after going up half way. Only a small group, consisting of Alison, Roy, Alan, Paul, Tim, Kim and Steve and myself, had lunch on the top at an altitude of 4,000 m. Alison reminded me that the highest mountain in Europe, Mt. Blanc, is as high as the place where we were sitting that moment.

On our trip up we had gone through a thin *Betula* wood, mixed with *Sorbus ursina*, with an undergrowth of *Morina sinensis*, blue-flowering *Allium* and *Sibiraea angustata*, which had lots of seeds. We also found a new *Clematis* species. Then we came out of this forest and climbed until we were well above the tree line. Here the main growth consisted of grey-leaved mini-rhododendron, not very easy to walk through, and lots of small and inter-

esting plants like *Fritillaria* species with seed capsules, *Cassiope* (still in flower), *Gentiana* and *Equisetum* species and a large, pinkish-purple flowering *Pedicularis*.

Stubborn as I am I turned to the left and tried to follow the very strong Wolfgang, while the others turned right. I hoped to reach the snow, but after a few hundred meters I realised that it was too far away and returned to the others, who were taking a rest and having lunch. Far, far below we could see our bright red and blue tents as tiny dots; most intriguing were our three bright green "loo-tents." Suddenly clouds parted like an opening curtain and there we finally saw the snow-white peak of Gonggashan (Mt. Minya Konkga), a mountain over 7,100 m. high. It was very spectacular, this cone-shaped crown towering over the surrounding mountains, and very far away.

After a simple lunch and a good rest we came down. In my opinion descending is much more difficult than climbing. We all agreed that our last day had been one of the best. The evening meal, for this once, was a hit, with fresh fish especially brought in for us by jeep from Kanding and we had some very good Peking beer, which we had not wanted to drink during those previous cold days. We discussed the past adventures and decided that although we had not received the treatment we had expected from the Chinese, this tour had been a great success. We had collected many seeds and plants, seen beautiful mountains and landscapes and met new friends.

After dinner we left early "for school" to make our last notes, prepare our seeds and pressed plants for transportation and do the necessary packing for our return home.

When I counted my blessings I could look proudly upon a collection of three plastic shopping bags containing more than 175 packages of seeds, and a heavy, bulging herbarium bag — in short, very satisfying.

On Saturday, September 19th, we rose at the early hour of 5 a.m. and got no breakfast as there was no time to prepare it, because we had to take down our tents and load the lorry. Everybody was working at top-speed and we left very early for our return trip “home” with a sad feeling in our hearts. We had spent a wonderful and happy time in Liuba.

On the road we stopped frequently to collect plants and seeds and take pictures. At our first stop we saw a beautiful Tibetan house, more a fortress with one of those very high, chimney-like watch-towers. This looked a “rich house” and the inhabitants who came to meet us had comparatively good clothes on. They wore beautiful silver jewels and we could take pictures of them as much as we liked. We showed them how to use a camera and to look through it, a “game” they enjoyed tremendously, and I got the idea that it would be wonderful to bring one of those Polaroid cameras to China next time, to let them take pictures and then give them these while they “self develop.”

Our second stop, at lunch time, was in a fine, sunny place and there we met another group of Tibetans. These were real nomads, living in yurts (leather tents). They looked very poor with ragged clothes and one lady wore a leather “dress” with one arm and shoulder naked. Some of the girls were very beautiful and wore jewels in their hair and the traditional, colourful Tibetan dresses (only very, very dirty). They were much interested in

our food and were very happy to share our lunch and to be presented with the left-overs afterwards in the form of tinned fish, salted peanuts, tinned pineapple and pears, and all our empty bottles.

The slopes were still covered with flowers, many different species of the genus *Gentiana*. This time crossing Zhe-duo Pass (4,300 m.) was no problem at all; we were used to high altitude and the minibuses behaved very well. Paul Meyer remembered a special place where he had seen, on our way to Liuba, a yellow flowering meconopsis. We were so happy to find the plant for the second time and it was still in flower: a beautiful, cup-shaped blossom with golden anthers inside — *Meconopsis integrifolia*. Some of us walked around and found a lot of very small, jet-black seeds, enough to share with other interested members of the party. Of course we all took pictures of this outstanding beauty.

The mountains looked very different, compared with eight days earlier. Now they were covered with a very thin layer of snow and we realised we were just in time to return safely to warmer areas. September is a very good time to go high in the mountains as there are many ripe fruits and seeds to collect, and as that was one of the main purposes of this tour everybody was quite content, though it would be nice (and interesting) to go back in spring to see all the rhododendrons and meconopsis and *Rheum alexandrae* in flower along with many others of which we did not see even remnants.

We were on our way to Kanding and it was planned that we stay there for the night. For a change there were no events or accidents and so we arrived at our guest house at 4 p.m. We



A yellow flowered meconopsis.

were given pails of hot water and Alison and I both scrubbed twice because after the first scrubbing we still felt very dirty. In Liuba camp as well as in the school it had not been easy to wash unobserved by the natives. The best time of day for bathing with no Tibetan onlookers was in the dark after dinner. But then you had the problem that you could not exactly see how dirty you still were and, moreover, the water in the stream was so cold that washing was always rapidly done. In Kanding, though we could walk freely in the city, it was forbidden to take pictures. This is a military town and we were the first Western group to visit. We saw many Lamaistic monks, even very young ones (children) from both "sects," the yellow-robed and the orange-robed. There are very big temples in the city and famous monasteries.

The next day, Sunday, September 20, we arrived in Luding before lunch

time. We were all very tired now. To sit for hours in a not too comfortable bus on these roads is very tiring and almost everybody but the strongest (the Americans again) was sniffing and sneezing.

It was market day in Luding. Recently the Chinese government has given permission to communes and individuals to sell their products in open ("free") markets in the big cities, even on street corners. Here we could walk freely and were allowed to take pictures. Our first visit was to the famous 13th Century chain-bridge as we wanted to see this miracle by daylight. It was quietly swinging over the wildly streaming water of this branch of the Yangtze River. The entrance to the bridge is on Luding's main street through a beautiful temple. The bridge is made of heavy iron



Chain bridge in Luding.

chains with planks laid across them. Rosamee was terrified of heights and we had to lead her over the bridge. She threw her arms around Roy and he lost his little pipe, which went bobbing peacefully down the river and will by now certainly have reached Shanghai.

It is very easy to walk over the bridge. Even going over by bicycle must not be too difficult, though that was forbidden. On the other side is a much bigger temple, three stories high, which we climbed and had a splendid view of the city of Luding and the market. After our exploration of the bridge we went into a big street with very small houses open to the front to make little shops. People do business in these little shops and live in them as well. The main produce



A woodwardia with bronzed young leaves.

that we saw in the market were apples, pears, peanuts, long, thin onions (a sort of leek), and a yellow-flowering mustard plant used as a vegetable. Walnuts especially were in abundance and Roy got a big bag for only one yuan (75 cents or a quarter of a British pound). They were not easy to crack, however, as the shells were as hard as a stone. The main street (with our guest house) consists mainly of very old, wooden houses, beautifully carved. Kim Sorvig detected "just next door" a shop where they sold different kinds of liquor (very expensive for the Chinese, very cheap for us), and he bought a bottle of ginseng brandy.

The weather improved during the afternoon and our Chinese guides offered us a short bus ride to a steep, chalky slope where we could botanise. It was an interesting place from a horticultural point of view, but not easy to walk or climb on. There were different *Rosa spp.*, from which I harvested (painfully) fresh hips. Rosamee, Alison and I found a splendid Woodwardia fern with bronze colored young leaves. In this area the climate is not as harsh, as it is at a much lower altitude than Kanding. Some other interesting plants that we found were a new clematis species (Rosamee again at her new hobby), *Leptodermis sp.*, a thin shrub with small, dark purple, tubular flowers, a deciduous viburnum and some interesting ferns (Carla again at her hobby).

The Chinese announced to us that it would be impossible to continue next day on the same road to Ya'an we had taken coming to Luding and Kanding because the terrible rainfall had caused big landslides. "The way is missing," announced our interpreter and the message was very clear to

us. Our liaison officer telexed to Ya'an (we were very surprised to hear that such a piece of modern technology existed in this remote part of the world) and we were given permission to take the only remaining road, the military road, as it would take more than a month to repair the other one.

It turned out to be one of the most memorable days. This road winds through extremely dense woods, a beautiful landscape like that in the old Chinese paintings. The mountain slopes were very steep and covered, literally overcrowded, with a dense mass of interesting trees, shrubs and plants. Roy and I agreed that the landscapes and the plant world in this area looked very much like that in the rich area of Mt. Omei, which we had botanised in October of 1980. It was very sad that we had no permission to get out and collect — a tantalising situation.

Though we saw hundreds and hundreds of military lorries on the road, we were the only civilian transport. Now that this road was the only one left to Luding, Kanding and Lhasa it was the last possible chance to bring food and other important supplies over the mountains to Lhasa before the heavy snow made even this road impassable. Our drivers did the best they could on this road, which had suffered badly from the heavy rains. There were very big holes in the surface and everywhere workers were repairing it, carrying big and small stones in wheel barrows and baskets; only occasionally were big machines used.

Looking out of our windows we saw huge rocks on one side and steep ravines (we estimated some more than 500 m. deep) on the other. Rosamee, with her fear of heights, was rather unhappy, but kept her sense of humor

and gave these ravines fancy Latin names like: "droppii superba," or "droppii welcommii." But sometimes we had narrow escapes and Rosamee closed her eyes. I can say that I really enjoyed the trip, the beautiful natural surroundings and the plants. But our good luck ended in the afternoon. The road was blocked by an accident. A big van, too heavily loaded with tree trunks and driving much too fast, hit another lorry coming from the opposite direction. On this muddy, slippery road it was almost impossible to back and the two giants stood there like two entangled deer. After a lot of consternation on everyone's part, the wood lorry managed to drive backwards (thus threatening our existence), but our driver, seeing the small opening, managed to pass. So was this really dangerous situation solved, though not without a lot of heated wrangling about whose fault it was, how dangerous it was, and so forth. Moreover, our interpreter showed us a lorry, hanging on the cliffs, that had crashed down the same day, and so a sigh of relief escaped us when we were able to move on.

At (late) lunch time there was another stop, this time no accident, but the road was gone because of the heavy rainfall during the past few days. We therefore decided to have a picnic lunch while an enormous crowd of Chinese workers with big, modern machines worked to get the road passable again as soon as possible. Our presence sitting on the side of the road, eating, created considerable diversion for the lorry drivers.

This area was much lower, $\pm 1,200$ m. we estimated, and the climate was almost subtropical. There was a little village, only some six houses, beautifully adorned with garlands of bright orange corn and sometimes tobacco

leaves. Even the walls of the houses were covered with corn-on-the-cob (the cheapest and easiest way to dry it), making the village extra picturesque. We were allowed to walk around and even to take pictures of the plants, but not to walk out of eye-sight. Even when I wanted to disappear behind a bush "for sanitary reasons" they whistled and finally came to find me.

There were some very good plants like *Nandina domestica*, with splendid bronze coloured young leaves, *Hydrangea anomalla*, some *Rosa spp.*, and some very interesting, new ferns, even a *Cyrtomium*. My "find-of-the-day" was a small group of orchids, looking like a *Pleione sp.*, but Roy told us that pleione does not occur in Sichuan. Yunnan is where you can find them. We all collected as much as we could and wrapped them in humid moss for further transportation and they arrived home in a healthy con-

dition. After some hours the road was "repaired", though it still looked very doubtful if we could pass, especially the big wood van in front of us. But very carefully, we all got by this difficult place and arrived in Ya'an about 6 p.m.

In Ya'an we stayed in a different hotel, much bigger and more luxurious than the one where we had been on our way into the mountains. This was a real "super deluxe hotel"; originally built for Russian technicians and engineers, but after the rupture in Sino-Russian relationships it was turned into a hotel. Alison and I "occupied" three big rooms: one huge "reception room" with two big desks and six enormous chairs; a bedroom each with a very broad, soft bed with mosquito nets, another desk and some big chairs; each our own bathroom with a shower, a tub, a loo, and a wash basin. Not everybody was so elegantly



Garlanded with drying cobs of corn.

housed, so we invited some of the others to use one of our bathrooms. I was lucky to have a strong ventilator in my room and I laid my seed bags on the floor under the ventilator to dry the seeds in the wind. This also gave me the opportunity to have a look at them and to change bags where necessary.

Our trip from Ya'an to Chengdu the next day was a relatively peaceful one with very few adventures though we did lose the "gold lamee bus." This was Roy's "elite bus" with gold lamee on the seats. Our bus had seats covered with blue velvet so we called it the "blue velvet bus." We were supposed to meet the gold lamee bus at the agricultural commune where we had stopped on our way out from Chengdu, but there was no sign of it. Theresa was very worried about the non-arrival of the other bus and after waiting more than two hours asked our bus driver to turn around so we could search for them. For some reason he and the guide said they would not do it, though they never gave us any explanation. We were all very upset by this, but just at that moment the gold lamee bus appeared. They had followed another road, without telling us in advance, in order to load up with petrol and change two tires. There are no petrol stations on Chinese roads and you have to go to special garages with special permits in order to get petrol. To the surprise of the occupants of the gold lamee bus the garage workers who sold them petrol and changed their tires were two large Chinese ladies. Some minutes after our happy reunion and leaving the commune we were stopped by a real accident. Two lorries had hit each other. One lorry, which was carrying a load of long bamboo poles, was lying



Roy Lancaster and the author returning from a successful plant hunt.

in the ditch and there were hundreds and hundreds of interested onlookers gathered around. We could not possibly get by and when we stopped all the by-standers turned as one man in our direction. Chinese are very fond of the theatre and we apparently created theatre of some kind to them, especially when we got out of the buses to stretch our legs. Tall Paul Meyer created an uproar in a group of Chinese school children who abandoned their teacher and followed him as though he were a real pied piper, surrounded by hundreds of laughing children.

We finally got going again. Looking out the window of our bus gave us a good opportunity to see the passers-by on their way to market. Many were transporting animals in what seemed to us a most inhumane way: too many

chickens suffocating in a basket, pigs lying on their backs or in little corset-like baskets on the parcel carriers of bicycles, ducks bundled by their feet and hung upside down from the handle bars. These would all be sold alive, the best proof in tropical countries that the meat is fresh.

The next day in Chengdu and our last before boarding a plane for Canton, we did some shopping and had an opportunity to meet our good friend Professor Fang Wen-Pei. Professor Fang is a very famous Chinese botanist that Roy, Peter A., and I had met on our trip to Mt. Omei the year before. He came to our hotel to see us and exchange books. He is an old man of 84 and an authority on Chinese plants, especially the plants of Mt. Omei on which he published a book in 1942-44 *Icones Plantarum Omeiensium*, with both descriptions and line drawings in four volumes. He had very kindly presented us with two volumes of this interesting work when we met in 1980, and Roy and I were happy to see him again and be able to present him with some books in return. He came to see us with his son, an authority on Ranunculaceae, which was very interesting for Ray, our clematis enthusiast. Professor Fang's son told us his father had not been very well and had spent some time in a hos-

pital. Professor Fang did, indeed, look very weak, but he talked energetically and with great enthusiasm. He had worked, long before World War II, in Edinburgh and his English was still very good so we could talk to him without an interpreter. He recognised me immediately and said, "Oh, the red-haired one from last year." Paul Meyer had the good idea of making "royal photographs" and we all took turns sitting next to the Professor to be photographed. The print is now a much cherished memento in my work room.

It was a very happy reunion and a wonderful way to end our second trip to China. A tour such as this one is both interesting and inspiring, seeing so many good garden plants in the wild and being able to visit a part of the world where they grow naturally. It leaves with me many memories of good friends, and the small adventures we endured and the happy discoveries we made together. I especially want to thank Raoul Moxley who organized the trip and Theresa Atkins and Roy Lancaster who led it and went to so much trouble to make the tour such a success. I hope to go back to China with them again in the near future to collect plants and seeds and make pictures of this enormous and fascinating country. §

A Safe Haven For Wildflowers

Robert T. Kemp
Asheville, North Carolina

At Asheville, North Carolina, where the American Rock Garden Society will meet in June 1984 for its 50th Anniversary, there is a preserve for wildflowers on the campus of the University of North

Carolina at Asheville. This ten acres of meadow, woodland and streams has been entrusted by the University Board of Directors to a nonprofit community association, the University Botanical

Gardens at Asheville for development and maintenance as a haven for the native flora of North Carolina.

The concept for a public garden of North Carolina wildflowers was born in the Wildflower Preservation Committee of the Asheville Garden Club. In 1960 this committee, chaired by Bruce Shinn called a public meeting for the organization of the Association, which asked the college to dedicate an area of the new campus for a garden of native plants.

Through the ensuing twenty-two years Mrs. Shinn's dream has been largely completed according to the design of the landscape architect, Doan Ogden, with the exception of a Botany Center Building for which plans are underway. About 550 species of plants belonging to eighty or more families grow in the Gardens. These plants come from all parts of North Carolina, including the coast, even though Asheville is in a mountain basin hundreds of miles from the ocean.

There is an almost complete collection of native rhododendrons and azaleas, as well as several rare plants. One example of the rarest plants is *Shortia galacifolia*, an herb discovered in the Carolina mountains in 1788 and not found again for almost 100 years.

At the far end of a looping trail is Heath Cove, where an old log cabin with a dogtrot stands. It was originally built in adjacent Madison County sometime between 1810 and 1830, and one family lived in it for three or four generations. The cabin is, as are all improvements, a gift to the Gardens. Its removal and relocation in the Gardens was a gift from Mrs. Hubert Hayes as a memorial to her husband. The cabin and its primitive furnishings reflect a mountain life style of the last century.

The most significant gift to the Gardens is the dedication of its loyal members, particularly those who have

labored to plant and maintain the Gardens, volunteering time and muscle on a continuing basis through the years.

Rock gardeners will be interested especially in the Rock Garden, a natural rocky hundred and twenty foot stretch of bank below which the only road through the Gardens courses along Reed Creek. This natural formation includes a massive vertical rock face overhanging a small bog, fed by a natural spring, which is home for Golden Club, pitcher plants, Marsh Marigolds and iris, to name a few. The face of the rock supports nature's weather reporter, the Resurrection Fern. Another portion of rocky bank was modified by the placement of a hollow surfaced rock directed to carry a trickle of water to splash over ferns, solomon seals, columbines, bleeding hearts, blood roots, hepaticas, stone crops and lady slippers. Further along on the drier end of the Rock Garden are coreopsis, spigelia, violets, *Iris cristata*, cacti, and many other species. The development of the Rock Garden was supported by a grant from the Garden Club of America, in the form of The Founders Fund Award given in 1970 on the nomination of the French Broad River Garden Club of Asheville.

At the time of the national meeting of the Rock Garden Society in June, the spring blooming season will be over. Flowers of the high summer will be coming into bloom. These include Bee Balm, Bush Pea, many varieties of milkweed, the several rudbeckias, Cardinal Flower, jewel weed, spiderwort, and others to be seen along the path of the Sunshine Garden. Trees and shrubs which you will find blooming in late June are stewartia, Sourwood, buckeyes, viburnums, and some rhododendrons still blooming in the shaded coves. A greater variety of bloom can still be seen at this time at higher elevations in the Asheville area. A slide program, entitled

"Wildflowers Through the Seasons", which shows a sampling of the blooms to be found throughout the year will be showing in the Hayes Cabin during your tour of the Gardens.

You should enjoy your visit. Writing about the University Botanical Gardens in May 1974, the reporter for *Southern Living* magazine called these beautiful acres, "Asheville's Retreat to Serenity".

Bruce Shinn

It is with great regret that we must announce the death of Bruce Shinn, word of which we received as this issue went to press. A longer account of her many contributions to horticulture and conservation appears in the Bulletin Board. We extend our deepest sympathy to her husband, Thomas.

But Would It Be Rock Gardening?

Geoffrey Charlesworth
South Sandisfield, Massachusetts

The books we read and the societies we belong to have titles that incorporate the words "Rock", "Alpine", and "Garden" in various combinations. The books usually advocate a methodology and aesthetic for the classic rock garden; there are several noble examples of these gardens in several well visited locations such as the Bronx, Wisley, Edinburgh and Kew. There are less ambitious examples in the gardens of ordinary folk; you probably have one yourself or feel you ought to. There is an impression given in the literature that in some way a rock garden can and should look natural. We are exhorted not to make a "dog's grave" or an "almond pudding", and this or that construction is dismissed as "hideous". What we are advised to do is some miniature replica of a geological formation, but this pointed advice is peppered with warnings and strictures so daunting in their effect that no matter what

we do one or another of the pundits or their disciples will pour scorn like a stone mulch on the endeavor. As we labor in our gardens this scorn rings in our ears "a disconnected and haphazard collection of pudding-like palaeolithic barrows, or ill conceived ramparts".

Has anyone seen an ideal construction and is it a concept worth striving for? If you look at a dish garden or a bonsai specimen or even a "container planted for effect" you must see it out of context to appreciate it. The table on which it stands or the stone wall, patio or alpine house that accommodates it have nothing to do with the object itself. It thus requires extensive use of a skillful imagination on the part of the observer to understand the message that the object and its maker intend. We normally use this faculty without thinking and the understanding is deepened by our participation in the "art form". This special sensitivity is brought into focus very clearly

when the comments of non-gardening friends are endured. The skill is comparable to that of a photographer who frames a good shot or crops a print to eliminate redundant material. Without the use of this imagination, harmony and naturalness are virtually impossible in rock gardening. Even the giants of this art form fail when looked at from the appropriate distance and appear as misplaced quarries or whatever other unkind epithet you care to invent. Conversely the worst "dog's grave", if inspected with love and imagination and again from an appropriate distance can contain exquisite miniature landscapes.

So why do it if its success or failure depends so heavily on the empathy of the observer? Well, by all means do it if you like fooling with rocks; if you love geological forms; if rocks make you mystical (especially those brought from a great distance and placed near temples); if you have the urge to construct a peak, chasm, cliff or boulder field for its own sake or for any of an infinity of idiosyncratic reasons. But if you merely want to grow plants no such construction is really necessary. There are ways of growing all growable plants without this elaborate geological furniture and it is by no means necessary to feel inadequate if rock and tufa are unavailable for one reason or another, nor to feel an apostate if having plenty of rock and tufa you do something else with it.

The common denominator of joy is a garden or an alpine house full of well grown plants, in bloom preferably, but with form, rarity or difficulty that elicits admiration for the plants themselves. We tend to forgive the setting if the plants do likewise. A

really good rock garden is an improvement on nature precisely because it is artificial. It brings together the world's horticultural beauties, allowing a Himalayan to mingle its roots with a Pyrenean; a Californian with a New Zealander. It allows color combinations or exclusions of our own choosing; it allows high alpine to consort with seashore plants, and desert plants to live a few yards from a bog. The artificiality is its splendor. A specialist's garden is more interesting, not more beautiful. The glorious sea of erythronium above Logan Pass in Montana overwhelms us with its prodigality but would anyone want to attempt to duplicate it? Even the most lavishly endowed half acre of nature would contain too few choice species and probably too many weeds to be worth the attempt to imitate it except as a tour de force.

If we abandon the criterion of "naturalness" are we left with aesthetic anarchy? I think not. Most gardeners do what they please and the individuality shines out of even the most derivative and cliché ridden gardens. Therefore abandon without guilt (or embrace without self-righteousness) all conventions and ideologies insofar as they prescribe the parameters of aesthetics for growing the plants you want to grow. Especially abandon the Japanese temple garden and the Wisley mountain scene as the touchstones of taste. They are not what gardening is all about. If you want a Wisley mountain or a Japanese garden by all means go ahead and have one, but remember it is fashion and not dogma. And fashions are constantly changing. The most successful parts of the gardens I have seen recently are raised beds with no pretensions whatever at imitating nature. How about a Society for Raised Beds (ARBS) instead of ARGS?§

The French Wanderer:

Andre Michaux

Sandra Ladendorf
Chapel Hill, North Carolina

May 15, 1795 "During the night my horse strayed away. The 16th, Sun. the 17th and 18th were spent searching for my horse. The 19th bought another horse for the price of fifty dollars . . . Magnolia tripetala abounds on the banks of Noley Chukey."

This excerpt from Andre Michaux's journal typifies the daily life of our early plant explorers here in America. Each day in the wilderness was fraught with difficulties and dangers and delight. For Michaux, Bartram, Fraser and other 18th Century botanists, the delight came when they encountered a luxuriant stand of a familiar plant like *Magnolia tripetala* or found something new, something they couldn't identify, like Michaux's "new arbuste with toothed leaves" which languished unidentified among Michaux's herbarium sheets in Paris until 1839 when Asa Gray found it and named it *Shortia*.

We know quite a lot about the work of Andre Michaux, very little about the man. We have no portrait, not even a description. Portraits do exist of his son, Francois-Andre, including one by Rembrandt Peale at the American Philosophical Society in Philadelphia. If one assumes, "like son, like father" then Andre Michaux had a pleasant face, neither handsome nor ugly. Francois-Andre looks like a personable, an agreeable man.

It is through the pages of Andre Michaux's journal, the terse and

sometimes cryptic notes written by firelight as he camped in the American wilderness, that we can begin to know Andre Michaux. We can guess; we can surmise.

He must have been extraordinary, that French peasant, that farmer born in 1746 at Satory in Versailles. Although his formal education ended at age 14, he had studied Latin and Greek, and according to all reports, he had an amazing facility for languages. In *Lost Heritage*, Henry Savage, Jr. says Michaux's wanderlust began at age 14 when he translated Quintus Curtius's description of Alexander's conquest of eastern lands and he then dreamed of seeing those exotic places.

But he settled into the conventional life of a young farmer. When he was 23, he married the girl next door, Cecile Claye, and continued to care for his younger siblings and to farm the family acres which he had inherited.

His life changed dramatically within a year when his young bride died in childbirth, leaving him with a son, Francois-Andre. Michaux was devastated. Then, according to Savage, he became acquainted with Louis-Guillaume Lemonnier, court physician at Versailles and professor of botany at the King's garden. On his own land near the Michaux farm, Dr. Lemonnier was experimenting with plant breeding and the culture of exotics, particularly

imports from America. Michaux studied, experimented and learned. His renewed zest for life focussed on plants, plant collecting and travels to far-off lands.

He began by studying botany under Bernard and Antoine Laurent de Jussieu at Trianon for two years. Then he went to Paris to study at the Jardin du Roi where he soon was given the job of plant collector.

His first expeditions were modest — to England and then to the wilds of the Auvergne and the Pyrenees. After that he was sent to Persia and spent the next three years exploring the ancient lands of the Mid-East. Just how far Michaux traveled is unclear — one source suggests that he followed the travels of Alexander as far as India — in any case, it is apparent that he spent a great deal of time among the hostile tribes of the lands that we know today as Iraq and Iran.

His skills with languages became evident while he was in Persia. Not only did he quickly learn that language, but he became knowledgeable enough to complete a French/Persian dictionary during those months. All this while collecting innumerable herbarium specimens, packing up boxes of seed and having an occasional adventure, like the time friendly tribesmen found him naked and bleeding on the desert after he had been beaten and robbed by marauders.

After he returned to Paris, it was not long before Count d'Angeville, director of the royal parks and gardens, asked him to go to eastern North America. The forest reserves of France had been severely depleted during the battles with England, so Michaux was asked to seek out, study and report about American trees that might be suitable for reforestation.

Andre Michaux sailed from France

in September 1785, accompanied by his son Francois - Andre, then 15; a gardener, Pierre Paul Saunier; and a servant. They arrived in New York November 14th and Michaux immediately set to work.

Michaux must have been a man of unusual courage, curiosity and energy. These facets of his personality were evident during his Persian expedition and again during his first days in North America. Within three days, he was in New Jersey, collecting. A week after his arrival, he had employed several laborers and was off to Elizabeth-town to collect seeds and trees. During December he sent five boxes of seed back to France, including seeds from the red and white oaks, American chestnuts, tulip trees, locust, liquidambar, laurel, azalea, vaccinium and others — plus a cage of eighteen partridges.

Michaux's facility for languages was again apparent. He bought maps and a small dictionary in November and employed an interpreter early in December. He bought a larger dictionary in January, and by March he fired the interpreter, which suggests that he was by that time reasonably comfortable with English.

We know none of this information from Michaux's writings, because his journals for his first two years in America have been lost. For the facts in the preceding two paragraphs, we are indebted to William J. Robbins and Mary Christine Howson who researched the diplomatic correspondence between New York and Paris and then wrote an article for the American Philosophical Society journal, "Andre Michaux's New Jersey Garden and Pierre Paul Saunier, Journeyman Gardener".

Initially, Michaux intended to start a garden in New Jersey, a garden that would serve as a holding station

for trees and plants to be shipped to France. At that time, aliens were not allowed to own property in that state, but thanks to a special act by the General Assembly of New Jersey, he was granted the right to own no more than 200 acres, to be used only as a botanical garden.

He bought acreage for the New Jersey garden but soon became disenchanted with the climate and headed south, leaving Saunier and the servant to handle the New Jersey activities, collecting, growing, and shipping. Michaux continued to support Saunier with seeds and money.

Late in the fall of 1786, Michaux bought 111 acres near Charleston, South Carolina, and the garden he developed there became his headquarters for his remaining years in America.

His output was prodigious. Between 1785 and 1793, he is credited with shipping sixty thousand plants and ninety boxes of seed to France. Both the Charleston and New Jersey nurseries were used as places in which to grow material until ready for shipment.

All of these trees and seeds were collected as he slowly explored and botanized his way around the eastern United States, and even into Canada, reaching almost to Hudson's Bay on one trip.

Michaux is credited with traveling more than 3000 miles during his collecting trips. That doesn't sound like much to contemporary Americans who can zip across the entire United States on super-highways in less than two and a half days. But Michaux did all of his miles on horseback or on foot, frequently cutting his way through impassible forest or following a guide over minimal Indian trails.

As indicated at the beginning of this article, he did have a good deal

of trouble with his horses, over the years. That notation was dated 1795, after ten years in this country and evidently he still had not adopted Bart-ram's method of bellling his horse before bedding down at the campsite. Terse notes throughout the journal pages mention horses lost, stolen or strayed. For a collector trying to carry hundreds of seedlings back to Charleston from Virginia, Tennessee or the mountains of North Carolina, a horse was all important.

And he faced very real dangers. While he was seeking rare flora, he had to beware of the fauna. His notes mention opossum, bear, deer, buffalo and raccoons and many birds. On one trip, his guide was badly mauled by a bear. Mountain lions also ranged the mountains of North Carolina during those years. And Michaux lived in continual fear of stepping on snakes. Indeed, he records killing a yellow, red and black banded one which might have been the deadly coral snake or its harmless mimic, the scarlet king. He mentions killing moccasins and other snakes.

Hostile Indians were also a danger during some of his explorations. Sometimes he would have to wait for days until enough armed men could get together to make a particularly dangerous crossing. Seeking shelter with settlers was common on Michaux's journeys — for the haven, for food and for protection.

One can extrapolate from Michaux's cryptic notes about people. It's apparent that he was one of those special men who was comfortable with all types of people, and who moved readily from one level of society to another. He could comfortably dine with George Washington at Mount Vernon, bringing him seeds from LaFayette. He could camp in the wilderness with an Indian guide. He visited American, Irish, German and other settlers

on the frontier. They saved news and held his mail for him. Joseph Kastner in *A Species of Eternity* says the settlers called him "the French wanderer". From the back woods, he could then visit Bartram to exchange botanical information and materials, dine with Jefferson or be comfortable having tea with ladies on the lawn of the Florida Governor's mansion.

In 1789, political matters intervened in the life of this French botanist. He heard news of the French Revolution and soon felt its direct impact. His funds were cut off. During the rest of his years in America, he supported his work and his travels by exhausting his own patrimony. Interestingly enough, although Michaux came to America as a king's man, and although the new republican government refused to support his researches, he became an enthusiastic, even ardent, republican. Such an ardent republican that one night when he was seeking shelter on his journey, after his host exhibited vehement royalist feelings, Michaux refused to break bread with him. (He did spend the night under the man's roof, however, to protect his botanical specimens, which gives an indication of his priorities.)

His journal pages dated August 30, 1794 are also indicative. He climbed to the top of Grandfather Mountain in North Carolina with his guide Davenport and wrote, "Reached the summit of the highest mountain of all North America and with my companion and guide, sang the Marseillaise and shouted "Long live America and the Republic of France, long live Liberty, etc., ""

We learn from his journal notes about his interest in rocks, soils and plants. "The 2nd of April Epigéa repens in full bloom as on previous days. On several individuals all the female flowers were without rudiments

of stamens while on others individuals all the flowers were hermaphrodites."

Michaux's concern for his horse shows up again and again. One night he was staying fourteen miles from Louisville and wrote, "Supper one shilling, Bed six pence. Hay for the horse for the night one shilling. Maise eight quarts one shilling four pence."

And another time, "My horse fared very well on Maise fodder and in a Stable that was not muddy like all those in America when one lodges with Americans or with Irish." (He spent that night with a Scot.)

As he traveled, he was always experimenting and learning — "Having nothing to do I made ink with gall nuts which I gathered on the Oaks in the vicinity of the spot where we were camped." Or later, "I had supped the previous evening on Tea made from the shrub called Spice-wood. A handful of young twigs or branches is set to boil and after it has boiled at least a quarter of an hour sugar is added and it is drunk like real Tea. This beverage restores strength and it had that effect for I was very tired when I arrived."

Michaux also brought material and information to America. He is credited with educating the mountain people in the uses and virtues of ginseng. Also, through his Charleston Garden, he introduced many valuable plants into the United States. The list includes *Ginkgo biloba*, *Albizia julibrissin*, and *Lagerstroemia indica*.

Although he ranged extensively up and down the eastern part of the United States, he botanized most extensively in the mountains of North Carolina. He returned again and again to Roan Mountain, Grandfather Mountain and the other peaks of the Carolinas that he called "Les wilderness". According to David H. Rembert, Jr. who wrote *The Carolina Plants of Andre Michaux* in the June 1979 issue

of Castanea, Michaux is the authority for twenty-six genera, one hundred and eighty-eight species and four varieties of Carolina plants.

Michaux's days of American botanizing came to an end in 1796. His money was completely depleted. After an abortive attempt at organizing a western expedition, interrupted by a political contretemps caused by Citizen Genet, Michaux sailed for France with a great accumulation of botanical material. His ship was wrecked near Amsterdam, he almost drowned and much of his material was lost or badly damaged.

When he reached Paris, he found that few of his sixty thousand trees remained. Marie Antoinette had had many of the trees shipped to her father's palace in Vienna, and those trees that had remained in the gardens were devastated at the time of the rebellion.

He was given a small piece of land on which to garden and a little money — not his back pay for the preceding seven years. He continued his botanical work and during the next few years produced two books, *Histoire des Chenes de l'Amerique 1801* and *Flors Boreali-Americana*, published posthumously in 1803. Both books were

beautifully illustrated by the Redoutes. The book about oaks in America describes thirty-six species. The flora is unique on two counts. It was the first flora to be written about United States' plants and every plant described by Michaux had been personally collected by him.

In 1800 Michaux joined an expedition to Australia but he left the group in Madagascar where he worked as a botanist until he died of a fever November 13, 1802.

His son, Francois-Andre, who had accompanied Michaux on his American travels for four years before he was sent back to France to study medicine, carried on much of Michaux's work during the next decades. He was sent back to America by the French government to do further work on trees. He was ordered to sell the Charleston garden, which he did in 1803. (The New Jersey garden eventually became the property of the Saunier family.)

Francois-Andre gave his father's journals to the American Philosophical Society and later left a bequest to that society which it received in the 1870s after the death of his wife. That money has been used for oaks and oak research, over the years. §

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Let's give ARGS a birthday present — \$50,000 for our 50th.

Little Known Miniature Conifers

Part II

Robert Fincham

Lehighton, Pennsylvania

Photographs by the author

In this second portion of his article, Mr. Fincham describes some of the miniature pines. In the first part he covered a general discussion of truly dwarf conifers and described some of the miniature firs and spruces.

The Pines

Pinus parviflora 'Adcock's Dwarf' — This enchanting dwarf form of Japanese White Pine is a fine addition to the rock garden. It is very slow growing and congested with short leaves, growing taller than wide. Even though it is in greatest demand for use as a bonsai, it is also appropriate for the rock garden. This plant evolved as a seedling mutation.



Pinus parviflora 'Glauca Nana'

Pinus parviflora 'Glauca Nana' — As the name implies this is a dwarf bluish form of the Japanese White Pine. The growth is similar to that of 'Adcock's Dwarf', only a little faster with longer leaves. Either of these cultivars would be an attractive, miniature, upright pine for the small to medium sized rock garden.

Pinus strobus 'Amelia's Dwarf' — The pendulous new growth makes this Eastern White Pine a truly unique plant. Its color is dark green, but only the youngest branches show the pendulous habit. It is globose with a



Pinus Parviflora 'Adcock's Dwarf'

growth rate of 5 to 6 centimeters per year. Layne Ziegenfuss first propagated this plant with scions sent by Bill Bennett.



Pinus strobus 'Amelia's Dwarf'

Pinus strobus 'Anna Feile' — This plant was put on the Market by Layne Ziegenfuss and named for a very nice lady on Long Island, N.Y. It forms a globose, fairly tight plant that grows about 4 cm. a year.



Pinus strobus 'Anna Feile'

Pinus strobus 'Greg's Witch's Broom Seedling' — It is very easy to become enamored with this tight little bun.

The growth rate is 1 to 2 cm. per year. The needles around the winter buds are smaller than most of the needles on the plant. This pine originated as a seedling mutation grown from seed collected from a witch's broom named *Pinus strobus* 'Horsham.'



Pinus strobus 'Greg's Witch's Broom Seedling'

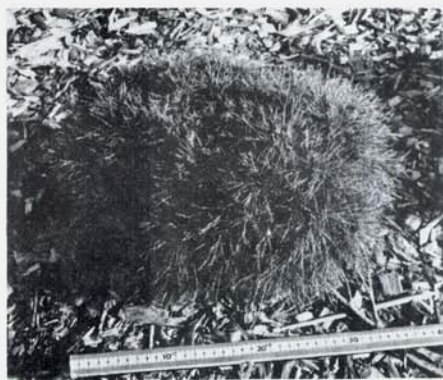
Pinus strobus 'Hillside Gem' — Among the White Pines, this plant is a true gem. Found as a seedling by Layne Ziegenfuss, this conifer forms a



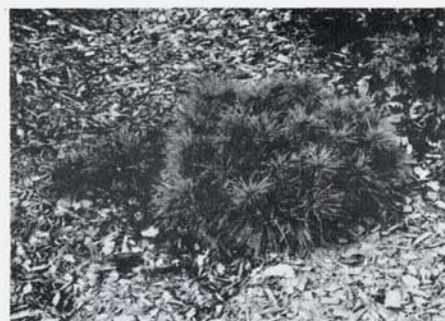
Pinus strobus 'Hillside Gem'

stunted upright plant with very small leaves. The branches are open and ascending with the winter buds in capitate clusters.

habit with thick stems and long leaves and grows 3 to 4 cm. per year. It was discovered as a witch's broom at Macopin, N.J. by William Gotelli and George Erhle.



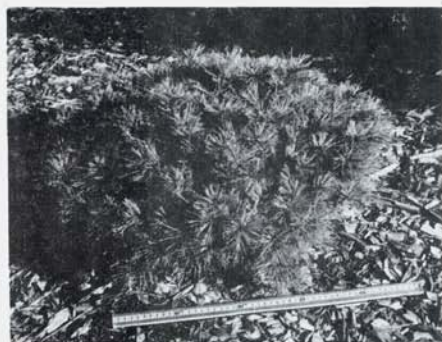
Pinus strobus 'Horsford'



Pinus strobus 'Merrimack'

Pinus strobus 'Horsford' — This very special dwarf plant is one of the most distinctive members of my collection. 'Horsford' is a dense bun with thin leaves that are quite long for its dense habit. This plant was discovered as a seedling mutation by William Horsford in Vermont and grows only 1 to 2 cm. a year.

Pinus strobus 'Merrimack' — Though, perhaps, nor a true miniature, this pine is a pleasant addition in the medium to large sized rock garden. It develops into a low hemispherical bush twice as wide as high, growing about 5 to 6 cm. a year. The branching is dense with short needles. This plant is one of several witch's broom seedlings developed at the Arnold Arboretum by Al Fordham.



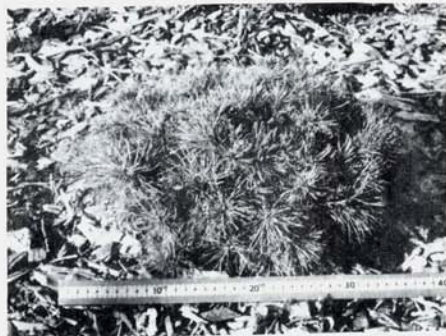
Pinus strobus 'Macopin'



Pinus strobus 'Minuta'

Pinus strobus 'Macopin' — A dandy little addition to a planting, this cultivar forms a rounded bush of open

Pinus strobus 'Minuta' — I consider this plant one of the treasures of my Eastern White Pine specimens. 'Minuta' forms a dwarf mound of very diminished size. Its growth rate is about equal to that of 'Horsford' but with needles that are sized in proportion to the plant. I believe this pine originated as a witch's broom discovered by Joe Cessarini. A specimen of this plant is a must for any rock garden, large or small



Pinus strobus 'Uncatena'

Pinus strobus 'Uncatena' — Anyone owning this plant can't help but develop a fondness for it. Its growth is similar to that of 'Merrimack' but at about half the rate. This pine is another witch's broom seedling developed by Al Fordham.



Pinus sylvestris 'Beauvronensis'

Pinus sylvestris 'Beauvronensis' — This Scots Pine cultivar is a desirable addition for the medium to large sized rock garden. It forms a specimen with a low, broad character. Originating as a witch's broom in France, it grows about 6 to 8 centimeters a year.



Pinus sylvestris 'Globosa Viridis'

Pinus sylvestris 'Globosa Viridis' — For a person who admires an unusual plant this cultivar is a must. First discovered as a witch's broom, the plant is a dwarfed form that develops a globular shape. Its unusual feature is the presence of short needles covering the winter buds. This characteristic makes it a standout in the medium to large rock garden. The growth rate is about 6 cm. a year. This clone is sometimes incorrectly named *Pinus sylvestris* 'Viridis Compacta.'

Pinus sylvestris 'Repens' — It is quite easy to develop an attachment for this slow growing, semi-prostrate form with its irregular growth habit. When 1 meter wide, 'Repens' will be only 20 cm. high. Any but the smallest rock garden will be enhanced by it.

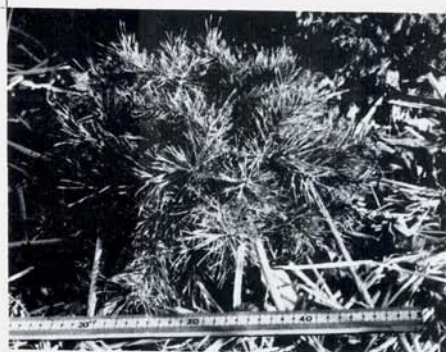


Pinus sylvestris 'Repens'

Pinus sylvestris 'Saxatilis' — This lovely dwarf pine is perhaps the smallest of the species. It is flat topped, leaderless and thin branched. At sixteen years it will be approximately 15 cm. high and 50 cm. wide.



Pinus sylvestris (Spaan's dwarf fastigiata seedling)



Pinus sylvestris 'Saxatilis'

Pinus sylvestris (Spaan's Dwarf Fastigiata Seedling) — Unfortunately this plant has never been officially named. Developed by Spaan, who is now dead, it is a seedling from a *Pinus sylvestris* 'Fastigiata' and though it also has a columnar character, grows much more slowly and doesn't develop a ragged old age.

(To be continued)



The fair-weather gardener, who will do nothing except when wind and weather and everything else is favorable, is never master of his craft.

— Henry N. Ellacombe

'Callaway' Ginger

Hexastylis Shuttleworthii

F. C. Galle

Pine Mountain, Georgia

Photographs by the author

Asarum or *Hexastylis* is not the question at present. Botanists generally prefer using *Asarum* for the deciduous species, *A. canadense* and *Hexastylis* for the evergreen species. *Hortus Third* and most gardeners include them all under *Asarum*. Needless to say there is still a great deal of work to be done on the taxonomy of the native gingers.

The Shuttleworth Ginger, along with other species, is extremely variable throughout the Southeast; and is even confused with other species such as *H. heterophylla* and *H. virginica*. I first saw the particular form, now called 'Callaway', in 1965 on the late Bloodworth estate in Decatur, Georgia. Mr. J.G.C. Bloodworth, Jr., was a knowledgeable wild flower enthusiast and had assembled a beautiful collection of native azaleas and wild flowers of the southeast. As a staff officer for the American Red Cross in Atlanta, he traveled extensively and often observed and collected plants during his trips. Unfortunately, while we often talked on the phone our schedule never permitted me to meet or walk through his garden with him.

Early in 1965 after Mr. Bloodworth's death, his daughters, Poppy Oppert and Molly Deal, advised of plans to

sell the estate and hoped it might be retained as a nature preserve. Unfortunately, this was not possible and the more than forty acres were sold to a developer. In mid July of 1965 we received a call advising we had one week to remove plants from the 45 acre estate before the bulldozer came in.

Mr. Bloodworth kept excellent records of most of his plants, both on index cards and in a log book, giving data on collection, site, outstanding features of the plant and final location in his garden. The location of plants was done by compass coordinates and distances from his home and other permanent features within the woodland garden.

We moved over 200 native azaleas and other plants using the notes and records to locate particular specimens. The garden had overgrown and we had overlooked a large clump of *Shortia*; but from the records, a large clump was found deep behind a large planting of *Kalmia latifolia*. Near the end of a busy day of collecting plants, Mr. Bloodworth's daughter, Poppy, who was with us, told of assisting her dad when she was a small girl in planting a special plant in a low moist area some distance from the major plantings. Finding this plant was a climax

for a hot, humid day. For here was a large colony, at least thirty square feet, of a low growing, beautifully mottled dark green wild ginger. The low stoloniferous habit of growth and the small mottled leaves were unlike any native ginger I'd even seen. Information on this plant was not found in Mr. Bloodworth's extensive records, so we must assume the plant was collected before he started his file of information.

Needless to say, we relocated this plant to Callaway Gardens, and began to propagate and evaluate it in different locations. Small plants were sent to various arboretums, gardens and nurserymen for additional evaluation. Favorable comments were received from the East to the West Coast, usually referring to it as the ginger from Callaway Gardens. After finding the plant mentioned in several small articles as 'Callaway' Ginger, we decided it was best to adopt the name.

Plants were also sent out for positive identification, and we received varying and conflicting comments. Finally, Dr. Fred Meyer of the National Arboretum said the plants best fit within the species of *Hexastylis shuttleworthii* (Britton and Baker) Small. The plant was first described as *Asarum macranthum*, which was a homonym, and therefore it was renamed, *A. shuttleworthii* in 1898 for Robert James Shuttleworth 1810-1874. In 1903 Dr. J. K. Small separated the genus into *Asarum* and *Hexastylis*. One might disagree on the classification of this plant if distinguishing species only on size of flowers and leaves. However, there is a great deal of variation within each species of ginger and *H. shuttleworthii* is no exception and based on the shape of the calyx flowers, the pattern inside and the variegation of the leaf, the 'Callaway' Ginger should

be included as a form of *Hexastylis shuttleworthii*.

The attractive small, mottled, cordate or heart-shaped leaves of 'Callaway' Ginger is a distinct garden feature. The small evergreen leaves vary from one and a half to two inches in length, and from one and a quarter to one and a half inches wide. The fleshy, pale yellowish brown urn-shaped calyx flowers with three blunt lobes are approximately a half inch in size and hidden by the foliage. The low compact stoloniferous habit of growth is excellent; and plants in a moist, organic soil will often double their size in one year. Division of the underground stems or rhizomes is an easy method of propagation. The plants are best used in light to heavy shade where they have proven to be a very fine ground cover. The dark green, mottled leaves have a cheerful look in the winter, unless covered by fallen leaves, and still appear fresh in the early spring. The roots are noted



Hexastylis shuttleworthii 'Callaway'
Arabis androsaeca

for a pleasing ginger-like odor and the leaves, when crushed, have a delightful mild fragrance.

Plants of 'Callaway' Ginger have proven hardy in Massachusetts, Pennsylvania, Ohio, Michigan, Indiana and on the West Coast. Unfortunately, in the Northwest it is attractive to slugs.

I have searched and collected native gingers in the Southeast and have yet to find one as attractive as the plant found by Mr. Bloodworth that we now call 'Callaway' Ginger though I must report that the large lustrous leaves of the Japanese species *Asarum kumageanum* are very attractive. It, however, is extremely slow in growing.

Plants of *Hexastylis shuttleworthii* 'Callaway' are now available in limited quantities from several sources, and I hope, as the plants become better known, the demand and interest in it will increase. The Cunningham Gardens of Walpole, Indiana, an excellent producer of ground covers, has a research project going now with the 'Callaway' Ginger and is working on the feasibility of producing the plant by tissue culture. Results of this work should be available in a year or so.

How fortunate we are to have knowledgeable plantsmen such as Mr. Bloodworth searching out the best of our native plants. §

The Hardy "Mesembryanthemum"

Photography by Kenneth Wurdack
Beltsville, Maryland

For a number of years several of our members in colder climes, ranging from Seattle to Denver to Philadelphia, and in Nevada, Maryland, Virginia, New York and Connecticut, have been growing a hardy "mesembryanthemum" under various names: *Mesembryanthemum othonae*, *M. othoma*, *Cephalophyllum pillansii* var. *grandiflorum*, *Delosperma parviflorum* and *Delosperma lineare*.

It is a pleasant trailing ground-covering succulent with thick fleshy leaves, bright yellow-green and from 7 to 11 mm long and 2 to 3 mm wide, which turn red in cold weather and are frequently evergreen in milder climates. The flowers are yellow, three-

quarters to one and a quarter inches across and somewhat daisy-like. They carry a tuft of stamens in the center rather than a flattened disk, but no non-petaloid stamenodes. The calyx is small with sepals only 3 mm long. The flowers are numerous, solitary on the ascending tips of the branches, and open in mid — to late May, depending on the climate in which they are grown, and sometimes continue flowering sporadically well into the summer months.

John Wurdack, who grows this plant in his garden in Beltsville, Maryland, tried unsuccessfully for a number of years to disentangle the confused nomenclature that has been given this

plant by horticulturists in the United States and Europe and to discover what it really should be called. Finally he sent specimens and descriptions of the plant, along with the list of names he had come up with, to several botanists specializing in succulents.

Eventually, late last summer, he received a reply from Dr. Hugh F. Glen of the National Herbarium, Botanical Research Institute in Pretoria, South Africa. Dr. Glen evinced great interest in the little trailing ice-plant, stating that it was obvious that it required more taxonomic attention than it had received, but that he was fairly certain that the plant in question, though a member of the Mesembryanthemum Family, was *Delosperma nubigenum* (Schlechter) L. Bol. As to its provenance, all the records Dr. Glen has seen of wild collected plants have come from Natal Drakensberg; however, as the Lesotho border runs along the top of the escarpment in this area, he said he would not be surprised to find it in that country ("Basutoland") as well.

Now, those of you who have been puzzling over the identity of the hardy



Delosperma nubigenum

"mesembryanthemum" you are growing can put the correct name on the label: *Delosperma nubigenum*. It comes easily from cuttings and should be grown in well drained soil in a sunny position. §

Plants to Leave Alone in the Early Spring

At least until mid-May, one does best to keep one's hands off the Hypericums, the woody Penstemons, *Erinus alpinus* and the Lithospermums. They may look as if they had died over the winter, but if the avid gardener would just be patient and direct their clean-up zeal in some other plant's direction there would be far fewer reports of "this is not hardy for me." I dread giving them to friends who have not grown them before as they so frequently report that "it didn't live over the winter", when the fact is they couldn't keep their hands off it in the spring. (May I add *Daphne cneorum* to this list. — Ed)

— Nina Lambert, Ithaca, N.Y.



Tulips

by Z.P. Botschantzeva, A.A. Balkema,
39 Main St., Salem, N.H. 03079 \$70.00

This is a beautiful book, over two hundred pages of text with forty-two colored plates and a generous plenty of scientific drawings to illustrate the text. One can wish only for a larger map than the half-page one of the enormous range in Central Asia to show the "Middle Asian centres of diversity of the genus *Tulipa*." Perhaps some tulip enthusiast will enlarge the drawing of the area north of Iran and Afghanistan and between the Caspian Sea and the Chinese border and pinpoint the sites from which Professor Botschantzeva collected each of the incredibly varied species she so generously describes.

For it is her careful descriptions of each specimen and the place and conditions where it was found that are of chief interest and value to the reader who wishes to grow these amazing and beautiful tulips first and to study their morphological and cytological aspects when it is seen how well we succeed. Scientists will be fascinated by her life-long studies of the tulip's botanical characteristics which she manages, by her very enthusiasm for her subject, to make eminently readable; but the lay-gardeners among us will be instantly enraptured by the feeling that — now we know what sort of place they come from, we may be able to

make up for years of mistreatment on our part. The idea of planting the bulbs one foot deep should have forewarned us for Professor Botschantzeva's calm assessments of their enormously rugged native heaths. Who of us could have guessed that our lovingly adopted *T. fosteriana* was found on "fine textured slopes and rock benches" in Samarkand, *T. Kaufmanniana* on "stony slopes in the lower and middle mountain belts" in western Tien Shan, and *T. dasystemon* growing in a thin grass cover on "fine earth among shingle" on a northeastern slope above a talus in the Alam-Ata region above Lake Issyk-Kul? Yet all these which we can now only consider — long-suffering beauties — are for sale by mail in American nurseries and doing their best for us in situations suitable to their hybrid relatives in Victorian flowerbeds in public parks.

Professor Botschantzeva worked for fifty years at the Botanic Garden in Tashkent, obtaining her doctorate in 1960 in the study of tulips. In her monograph she reviews the whole genus and its general morphology and follows this with detailed descriptions of over sixty species. She describes her cytogenetic investigations, discusses polyploidy in tulips, and gives minute and well-illustrated descriptions of the entire annual cycle of development. This must be the definitive scientific work on the tulips of the Central Asian deserts and mountains.

For gardeners it is a valuable reference book to aid us towards suitable sites and conditions for growing these daz-

zling flowers from a very wild and remote part of the world. §

Isadore Smith

The Story of The Little Cape

Marvin Black
Seattle Washington

Once upon a time there was a little cape, the westernmost point of land in Oregon. In 1603 a Spaniard named Martin de Aguilar named it — or some cape on this coast — Cape Blanco. Returning south, he and most of his crew died en route to Acapulco. In 1792 Captain George Vancouver sighted this little cape. He decided it could not be de Aguilar's cape, swore that the Spaniard hadn't sailed this far north, and named the spot Cape Orford. Whether Vancouver was right or wrong, the British name was later abandoned; the spot is called Cape Blanco to this day.

Over a century later someone found a fine silver-glaucous form of *Sedum spathulifolium* somewhere near the little cape, where it is both prevalent and highly variable in color forms. They named it for the cape. The plant selected was so fine and popular it received an Award of Merit from the Royal Horticultural Society in 1938. And somehow, while the little plant was dazzled by all that British praise, the ghost of old Captain Vancouver got his revenge. If Cape Orford never received its fair recognition, perhaps the Spanish name could yet be diminished. Flashbulbs flashed, and with some sort of horticultural holy water the celebrity plant was Latinized. The little plant returned to America dubbed 'Capablanca'.

There is a game children play, whispering a phrase down a line to see how changed it is at the end; we call the game "Gossip." The little plant's name passed from writers to exhibitors to nurserymen and back again. Some called it *Sedum spathulifolium* var. *Capablanca* (Linnaeus would have objected), others used 'Capablanca', still others chose 'Cappa Blanca' and a few capped that with 'Cappa Blanca' (the little cape would have been hurt). Now Mansfield wrote "*S. spathulifolium* var. *Capablanca* (from Capablanca)". Another author, who once labeled the plant 'Capablanca' in one of his books, managed his own continental drift by the time he wrote the name as 'Cassa Blanca', adding "this variant comes from S. California." Where would it all end? (Vancouver would have chortled).

Only three writers have I found who remember the little cape. Walter Kolaga comes close with 'Capo-Blanco'. George Schenk writes, "Plants of this (gray-green) color cover miles of cliffs on the coast of Oregon. A finer form with denser, smaller rosettes commemorates the Oregon coast in its name 'Cape Blanco'." Sunset's "Western Garden Book" uses that name, and many western nurseries have the name correct.

In using 'Capa Blanca' in the "Seed-list Handbook" Bernard Harkness cites two references, authors Hay & Synge and Alan Bloom. Hay & Synge uses Harkness' version, Bloom uses 'Capablanca'. Alan Bloom assures me he will henceforth recognize the original name.

Cape Blanco is an isolated, lonely point projecting into the Pacific, mainly noted for the lighthouse and small weather station there. One can

usually hear the wind moaning across the point, wind which reaches 100 mph in winter. Somehow I fancy an element of sobbing in the wind, a bereaved headland whose offspring was Latinized out of its birthright. I'm campaigning to get the original name 'Cape Blanco' restored; I believe an error was made. Perhaps it's provincialism; I was born in Oregon. But I'd do the same for 'Capacod.'§

• • • of Cabbages and Kings • • •

The is the 50th Anniversary year of the American Rock Garden Society and we are duly celebrating this auspicious event at the Annual Meeting to be held in June in Asheville, North Carolina. Rock gardening predates our founding in 1934 by a number of years, however, and horticulture's beginnings are long, long before that.

Horticulture is truly a most astounding occupation when you stop to think about it. It's one thing to grow purposefully, in a manner and site convenient for harvest, those plants that feed our bellies, but quite another to expend energy in an attempt to grow deliberately plants which offer us only their beauty. When and where did this fundamentally frivolous endeavor have its start? We don't know; the beginnings of horticulture are shrouded by the mists of time.

We do know that flowers were gathered for ceremonial purposes very early; their crumbling remains have been found in a Neanderthal grave pit. But picking wildflowers is not gardening. Even the culture of food plants probably occurred no

earlier than Neolithic times. The Lake Dwellers (c.8,000-6,000 B.C.) stored wheat, millet and rye in sufficient quantities to make it unlikely that these were garnered solely from scattered plants in the wild. Primitive flint hoes and sickles have been found in the rubbish piles of the Natufian culture in the Middle East dating from about the same time, give or take a thousand years or so. But it is likely that these first attempts at cultivating wild grains consisted of saving some of the seed gleaned for food and sprinkling it on the rich alluvium of river banks following spring flooding, where it was allowed to grow without further attention (a method still used today in some areas) rather than by the actual preparation of the soil and cultivation of the crop. If in the same era a Mesolithic man or his wife transplanted a few wildflowers into holes poked into the earth at the mouth of their cave or scratched up the soil in some out of the way corner and scattered it with the seed of flowering plants there is no record of their having done so. Gardens are evanescent

artifacts and such early attempts at horticulture, if they occurred, have vanished without a trace.

It was not until mankind made rock carvings and paintings depicting horticultural activities, and incized on clay tablets bills of lading and lists of the numbers and kinds of exotic plants delivered as tribute by conquered peoples or as a result of trade that we have any record of the creation of pleasure gardens and this had to wait until about 400 B.C. At about this time private gardens and public parks were created in Ancient Egypt and in China and in many places between. Phalanxes of slaves carried tons of river muck in baskets to enrich the soil of these gardens and dug miles of ditches and brought jar after jar of water from wells and rivers in order to irrigate them. Caravans and triremes transported exotic plants from yon to hither to enhance them and hordes of gardeners cultivated the beds of enriched earth, sowed the seed, transplanted and hoed and pulled weeds in order to maintain them.

Such gardens were created for the wealthy, powerful and leisured, who lolled, played, made love, strolled, conversed and contemplated what we hope were elevating thoughts in them. They did not themselves, as far as we can discover, actually dig and plant them, yet is it not possible that some slave became enchanted by the beauty of the blossoms under his care, filched a few seeds and smuggled them home to plant them in a broken pot or a neglected corner near his quarters? Gardening, we know, is catching and the virus, once it had struck, spread like the common cold throughout the ancient world.

We are told the gardens were at first areas in which mankind attempted to escape the chaos and dangers of

the surrounding wilderness. Such areas were usually enclosed, partly as shelter from cold or searing winds, but, perhaps, more importantly to keep out wild or semi-domesticated animals and even human neighbors that threatened not only the garden but the very lives and limbs of the gardeners themselves along with those of their tender wives and offspring. Gardens were some place to sit outdoors among trees and flowering plants, protected from the outside world. In hot, dry climates water was frequently piped in to create pools and fountains both to supply a handy source for household use and filling watering pots and to cool and moisten the air for the pleasure of the occupants. In many countries they were, indeed, an important part of one's private living space and were used for doing household chores as well as for contemplation and dallying. As such they tended to be fairly formal and architectural in design: a tree or two and perhaps a trellised vine for shade and fruit; short-clipped grass or, in dry climates, bare beaten earth sprinkled to keep down the dust or, in wealthier homes, paving; flowering shrubs and herbaceous plants were usually grown in pots or in small, frequently raised, geometrically shaped beds behind low fencing or ramparts of small rocks, or crockery to prevent their being overrun by careless feet. True, in China and Japan, gardens close to the house were occasionally deliberately created to resemble nature, but even these were carefully manipulated symbolic abstractions of nature rather than untamed nature itself.

On the whole, even today in our more informal, relaxed gardens, we tend to keep the wilderness at bay. Nature unbound, though perhaps no longer as perilous as formerly,

tends to be both messy and uncomfortable. A snarl of untrimmed shrubs replete with broken branches, brambles and poison ivy may appeal to the adventurous child, but not to the gardener's eye. A meadow of tall grasses and flowering herbs is lovely at a distance, but not very comfortable to sit on; it's likely to be damp and is certainly full of creepy, crawly things like ants and spiders and even — horrors — snakes. Weedy plants, if not kept under control, will soon choke out those we desire. Thus we have learned that if we wish to have a garden, we cannot entirely let nature have its way or soon the wilderness will engulf us once more. And keeping the wilderness beyond the pale requires eternal vigilance and hard, usually dirty and uncomfortable work as our forebears discovered. Those who perform this arduous labor are called gardeners and strangely enough there are those who find joy in it, who actually derive great pleasure in working the soil themselves and nurturing the plants they grow.

The Chinese have a saying which advises you to plant a garden if you wish to be happy all your life. Why should this be so? "We are nearer God's heart in a garden than anywhere else on earth," sings the poet Dorothy Blomfield. Perhaps this explains it. According to Nan Fairbrother in her book *Men and Gardens*, Mohamet promised those of his followers who fought and died for Islam that a paradise awaited them — a paradise resembling a shaded garden filled with delicious fruits and fragrant flowers, the sound of singing birds and running water and, let's face it, beautiful and complaisant damsels (perhaps to do the gardening). Non-warriors were apparently not welcome to this paradise, nor were virtuous ladies. Mohamet was, I'm afraid, a male chauvinist. More to our point, the followers

of Zoroaster according to Mrs. Fairbrother, "held the comfortable faith that gardeners went to heaven and so, said the Buddhists, did their gardens". The Old Testament of the Christian Bible states that God made a garden eastward in Eden and filled it with every manner of tree and herb that was lovely to see or smell or was delicious to eat. In this garden he placed Adam "to dress it and keep it." Thus Adam, before his fall, was the first gardener and, by extension, gardening is God's work.

Is this why we enjoy gardening? Is it an atavistic desire to return to our innocent beginnings? Or is it an effort to create, like gods, our own miniature gardens of Eden, where not only will the lamb and the lion lie side by side, but *Pyxidantha barbulate* of the New Jersey Pine Barrens will spread its mats of starry blossoms beside the twiggy, flower-laden branches of *Rhododendron racemosum* of the Himalayas: where *Primula kisoana* from the woodlands of Japan will send its tufts of soft furry leaves and pink flowers among the glossy patterned foliage of *Cyclamen hederifolium* from southern Italy and the isles of Greece; where *Lewisia cotyledon*, brought from the stony crests of the Siskiyou will spring from the same crevice as *Saxifraga longifolia* of the Pyrenees?

Is this what leads us to search the far corners of the world for new plants and persuades us that we can grow them together in the same garden? Is this what horticulture is all about? Or is it more simply the pleasure derived from working out of doors, far from the turmoil of the "wilderness" beyond our gates, among beautiful plants that are beholden to us for their well being. God's work, indeed. For whatever reason, good gardening to you all on this our 50th Anniversary. §

There is life in the ground; it goes into the seeds; and also, when
it is stirred up, goes into the man who stirs it.

— Charles Dudley Warner

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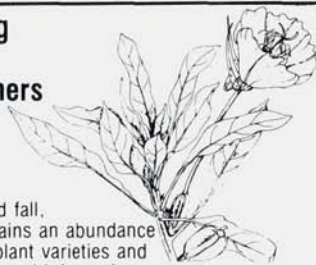
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