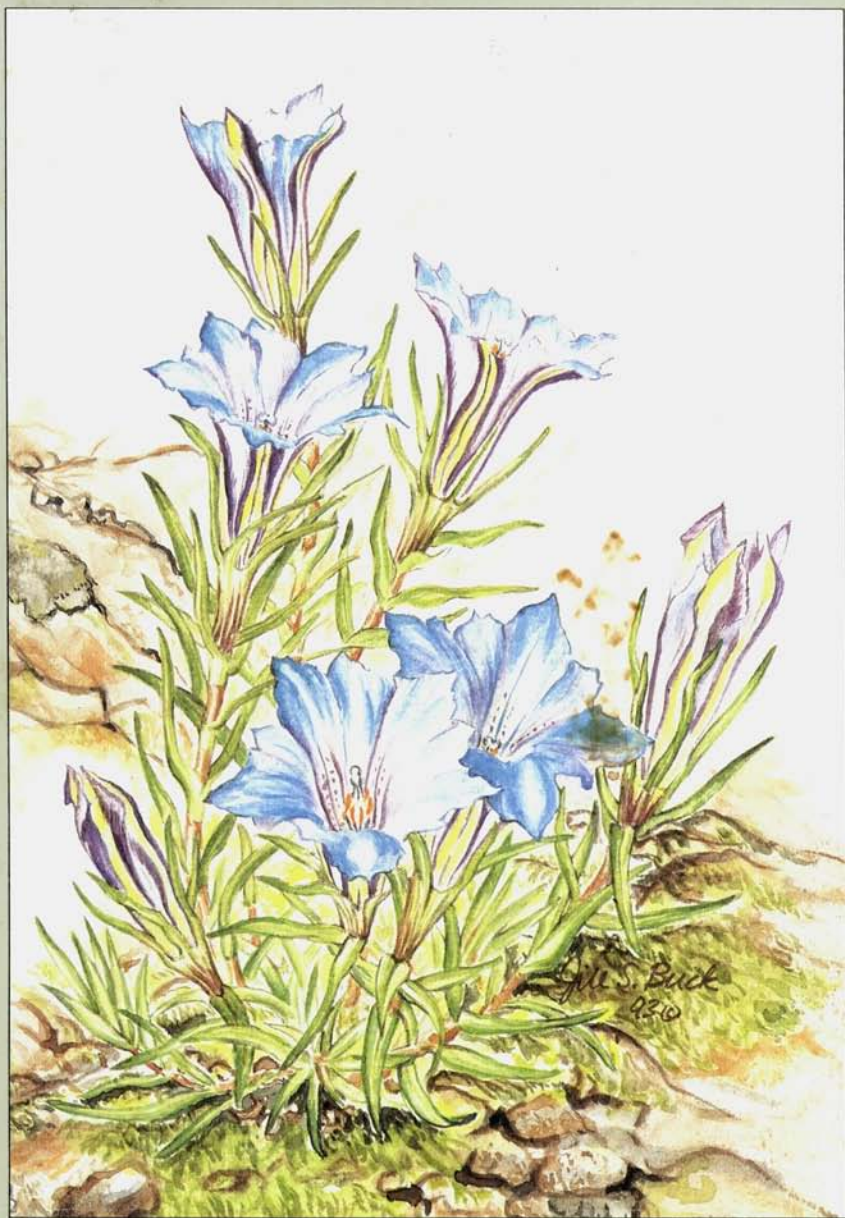


Bulletin of the  
American Rock Garden Society



Cover: *Gentiana sino-ornata* \_\_\_\_\_

by Jill S. Buck of Westminster, Colorado

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# Bulletin of the American Rock Garden Society

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# Asarums

by Barry R. Yinger

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Until very recently, few American gardeners displayed interest in the species and cultivars of *Asarum*. When my own interest in this group began to develop 20 years ago, there was little evidence of cultivation, even among avid rock gardeners. Some American species were grown by wildflower enthusiasts, and pioneers of American rock gardening such as Linc Foster and Harold Epstein were sampling a few of the Japanese species. There was virtually no accurate information available about the taxonomy or horticultural requirements of the group.

I first became aware of Japanese *Asarum* as a college student, after reading one of Dr. John Creech's accounts of Japanese plants in Japan. He observed that on Yakushima, a horticultural treasure island off the south tip of Kyushu, plants that one expected to be large were often very small, and plants that one expected to be small were sometimes surprisingly large, as in the case of *A. yakusimense* (now *A. hirsutisepalum*, photo p. 122). When one of my professors, the late Dr. Robert Baker, showed me illustrations of *Asarum* plants in a book

of old Japanese prints, my interest went from slow simmer to rapid boil. I subsequently spent a semester in Japan, where my interest became obsession. I have since learned a great deal about these plants, particularly during my research in the Japanese literature for my thesis in the Longwood Program, a graduate course in public garden administration. As I make more visits to Japan, I continue to assemble an ever-larger collection of *Asarum*, as well as information about them, their history, and their cultivation.

Species of *Asarum* are found wild only in an irregular belt around the temperate and warm-temperate regions of the Northern Hemisphere. Within this belt, glaciated regions have few species, while areas that escaped glaciation often have many. In North America, Europe, and Asia, interest in *Asarum* seems to pre-date written history. The native peoples of all three continents believed that *Asarum* possessed special medicinal or magical powers. Korean shamans decorated their belts and headdresses (*chokduri*) with *Asarum* (*chokduri-pul*). In Japan, *Asarum* plants were hung under eaves

of buildings to protect them from earthquakes and storms. *Asarum* still is planted at the entrance of the grand shrine at Ise, the most revered shrine of Shinto. In Europe, *asaribacca* (*Asarum europaeum*) became part of the *Materia Medica*. *Asarum* continues to be an important part of traditional Chinese medicine, a role it has played since ancient times.

Interest in the ornamental aspects of *Asarum* also pre-dates reliable historical accounts. By the sixth century, Japanese were using decorative *Asarum* designs on buildings (probably an evolution from the practice of using the actual plant for protection), and in time a series of decorative family crests (*kamon*) evolved. When the Tokugawa shoguns adopted the *Asarum* mark, it became the most potent symbol of power in Japan for over 300 years. By the 1700s the practice of growing selected *Asarum* mutations in decorative pots was a popular and highly developed hobby among the *samurai* and wealthy commoners. Passionate interest in growing *Asarum* species and cultivars continues unabated in Japan.

At first glance the more than 100 species of *Asarum* seem very similar, and many lack obvious ornamental merit. On close inspection, however, their many differences and distinctive charm become evident. The basic *Asarum* pattern is a low-growing, herbaceous perennial with heart-shaped leaves on stalks held on a creeping stem growing at or just beneath the surface of the soil. Most species are evergreen, a few are always deciduous, and some go either way, depending on the severity of winter weather. The flowers emerge from the rhizome at ground level. The more common shape is cup- or bell-shaped, but quite a few have a "Dutchman's pipe" flower, reminiscent of *Aris-tolochia*, one of their relatives. The

flowers' three lobes are calyx lobes. *Asarum* flowers rarely have petals; if they do these are vestigial structures well-hidden inside the flower.

The great majority of *Asarum* species are Asian. There is only one species native to Europe (*A. europaeum*). There are currently 15 species listed for North America, 4 in the Northwest, 10 in the Southeast, and 1 throughout the Midwest and Northeast. Only *A. canadense* is widely dispersed in areas that have been thoroughly glaciated.

There is a remarkable concentration of species in southern China, mostly between the Yangtze River and the Vietnam border, the presumed original center of *Asarum* distribution. There are more than 30 species in China, including Taiwan. Another concentration is in Japan, where again more than 30 species occur. The Japanese Ryukyu Islands (once mountains on the Chinese coast) have more than 15 species closely related to both Japanese and Chinese species. There are two species in northeastern China, two in Korea, and one across the Himalayan Mountains to India.

Native provenance is a rough guide to hardiness. The most tender species are those along the China—Vietnam border. There is a general and rather consistent increase in hardiness paralleling distance from this center of distribution.

In the wild, asarums are woodland plants, often growing in very deep shade. They commonly grow in small valleys and ravines and on north-facing hillsides. They are not thwarted by intense root competition. I have seen colonies thriving in bamboo thickets where little else could survive. Most *Asarum* species grow exclusively on relatively undisturbed sites; few re-colonize woodland that has regenerated after farming or other major disruption. Only a few species grow on somewhat

dry sites; most are common near streams or where seepage provides a consistently moist soil environment. *Asarums* are attacked by very few organisms and are very permanent under stable, suitable conditions.

### Taxonomy

The genus *Asarum* was established by Linnaeus in 1753, and itchy taxonomists have been pulling and poking at it ever since. Over the years, *Hexastylis*, *Heterotropa*, *Asiasarum*, *Japonasarum*, and *Geotaenium* have been proposed, rejected, and proposed again by evidently under-employed taxonomists, who unsuccessfully judge the integrity of this large group of plants by examining a small geographical grouping. The blind man and his camel are still at it, but opinion is swinging decisively toward the maintenance of one genus: *Asarum*. Even the Chinese, the world's master splitters, now accept the integrity of the genus. Still, the world is not safe; as in *The Night of the Living Dead*, the gardener no sooner relaxes than some dormant taxonomist with a sharp knife rises from sleep long enough to carve up this group of very similar plants.

In spite of, or perhaps because of, the apparent similarity of the species, *Asarum* taxonomy is very complicated. The great majority of *Asarum* species were not even described until the 1900s. The process of resolving problems of identification and nomenclature is compounded by the fact that the most important characteristics for classification are inside the *Asarum* flower. When the fleshy flower is pressed, the result is much like a freeze-dried road kill—unappetizing and difficult to reconstruct in three dimensions.

## Asarum Species Worldwide

	Deciduous or Evergreen	Est. hardiness USDA Zone
<b>North America</b>		
<b>Southeast</b>		
<i>A. arifolium</i> var. <i>arifolium</i>	E	6
<i>A. arifolium</i> var. <i>callifolium</i>	E	6
<i>A. arifolium</i> var. <i>ruthii</i>	E	5B
<i>A. contractum</i>	E	6
<i>A. heterophyllum</i>	E	5B
<i>A. lewisii</i>	E	6
<i>A. minor</i>	E	6
<i>A. naniflorum</i>	E	6
<i>A. rhombiformis</i>	E	6
<i>A. shuttleworthii</i> var. <i>harperi</i>	E	5B
<i>A. shuttleworthii</i> var. <i>shuttleworthii</i>	E	6
<i>A. speciosum</i>	E	6
<i>A. virginicum</i>	E	5
<b>Northwest</b>		
<i>A. caudatum</i>	E	6
<i>A. hartwegii</i>	E	6
<i>A. lemmonii</i>	E	6
<i>A. wagneri</i>	E	6
<b>Northeast and Midwest</b>		
<i>A. canadense</i>	D	4
<b>Ryukyu Islands</b>		
<i>A. asperum</i> var. <i>geaster</i>	E	8
<i>A. celsum</i>	E	8
<i>A. dissitum</i>	E	8
<i>A. fudsinoi</i>	E	9
<i>A. gelasinum</i>	E	9
<i>A. gusk</i>	E	9
<i>A. gusk</i> var. <i>minor</i>	E	9
<i>A. hatsushimae</i> (= <i>A. turbinatum</i> )	E	8
<i>A. lutchuense</i>	E	8
<i>A. monodoriflorum</i>	E	8B
<i>A. okinawense</i>	E	8
<i>A. pellucidum</i>	E	8
<i>A. senkaku-insulare</i>	E	8
<i>A. simile</i>	E	8
<i>A. tokarensis</i>		
(= <i>A. yakusimense</i> var. <i>glabrum</i> )	E	7B
<i>A. trinacriforme</i>	E	8
<i>A. yaeyamense</i> (= <i>A. hayatanum</i> [?])	E	8

continued...

The result of this confusion is that many *Asarum* names are in flux. Even if you can figure out which plant is which, chances that the name is permanent are not good. I rarely receive a correctly named plant, and even after identifying a new plant, I write all labels in pencil. The bright side of this confusion is that new species are still being found, even in the United States. Many exciting new species have yet to come forward in Asia.

#### *Asarum* in the garden

With proper siting, gardeners in USDA hardiness Zones 5 to 9 can enjoy *Asarum* in the shaded rock garden and woodland garden. There are no truly alpine species, although *A. heterotropoides* from northeast Asia comes close. Because *Asarum* plants demand close inspection for their many charms to become apparent, they fit well in any situation where plants can be examined at eye level.

All wild gingers have similar requirements in the garden. Shade is absolutely necessary. Morning sun is often tolerated, but afternoon sun is death to most species. All need a well-aerated soil, ideally a mixture of humus and grit that drains well and yet holds some moisture. Virtually all dislike lime, and all will thrive in a slightly acid soil. Good air circulation will reduce disease and predator problems.

There are two basic *Asarum* growth patterns. *Asarum* species have either short rhizomes that extend very slowly or wide-ranging rhizomes that extend rapidly. Thus the group can be roughly divided into clumpers (the former) and spreaders (the latter). Some species, such as *A. shuttleworthii* and *A. virginicum*, display both growth patterns.

#### Wild gingers of America

The easiest species for gardeners in

most of the United States to grow are some of the native American species. The 10 evergreen species in the Southeast are much hardier than their provenance would suggest; most do well in USDA Zone 5b or 6. Nursery-propagated plants of several are available occasionally from specialty nurseries. Any nursery offering large numbers of any of these 10 southeastern species is probably offering wild-collected plants. I sometimes see these in garden centers, almost always labeled *Asarum shuttleworthii*. They are seldom that species but more often *A. arifolium*, *A. minor*, or *A. virginicum*.

*Asarum shuttleworthii* var. *harperi* (usually seen as the clone 'Callaway'), some forms of *A. virginicum*, and the rare *A. lewisii* are strongly spreading, making nice carpets. Occasionally individuals of other normally clumping species will show this carpeting habit. Other evergreen species form discrete clumps that increase slowly. All have very attractive evergreen foliage, often mottled or veined with white or silver-gray. *Asarum arifolium*, *A. minor*, *A. virginicum*, and *A. shuttleworthii* are beautiful, tough, and easy—great garden plants for the beginning asariphile.

The northwestern US species sometimes do not thrive in the East, although *Asarum caudatum* is easy, if not especially exciting. The most beautiful northwestern *Asarum* is the strain of *A. hartwegii* with silver-splashed and netted foliage often called 'Silver Heart'. It can be a fussy plant in the East, probably objecting to our hot summers, but it is a good choice for cool-summer areas. Unfortunately, it is especially attractive to slugs.

*Asarum canadense* is too coarse and easy for many rock gardeners, although it is one of our finest native groundcovers. It will tolerate alkaline soil and occasional drought. It is a



workhorse plant for the rough, shaded garden, where its kidney-shaped, gray-green leaves contrast well with ferns and provide good cover for bulbs.

#### European species

*Asarum europaeum* is the only *Asarum* native to Europe. It is somewhat variable across its enormous range in the wild but seems mostly uniform in cultivation. It is suitable for the rock garden, where its neat, rounded, highly glossy foliage offers a pleasant contrast to more finely textured plants. It is usually evergreen in USDA Zone 6 but can lose its foliage and come back vigorously in the spring. The newly expanding foliage is especially lovely.

#### Japanese gingers

Japanese species of *Asarum* offer very interesting opportunities for gardeners in USDA Zones 5-6. Several Japanese species with widely varying color patterns—especially *A. takaoi* and *A. nipponicum*—are hardy to USDA Zone 5B. Snow cover or mulching with pine branches will enable you to grow them farther north.

The hardest Japanese species are the generally less exciting deciduous species, *A. sieboldii*, *A. heterotropoides*, *A. dimidianum*, and *A. caulescens*. *Asarum heterotropoides* should be cold-hardy anywhere in the United States, but it dislikes hot summers. The most interesting deciduous species is *A. caulescens*, with neat, distinctive foliage and charming, bicolored flowers. There is an elegant form with white flowers.

Among the best spreading evergreen species for cold climates are *A. takaoi* and *A. megacalyx* (photo, p. 120). Both spread by rhizomes,

## China

<i>A. albomaculatum</i> (Taiwan)	E 7B
<i>A. caudigerellum</i>	E 8B
<i>A. caudigerum</i> (= <i>A. leptophyllum</i> )	E 8B
<i>A. caudigerum</i> var. <i>cardiophyllum</i>	E 8B
<i>A. caulescens</i>	D 4B
<i>A. chinense</i> (= <i>A. fargesii</i> )	E 6
<i>A. crispulatum</i>	E 8
<i>A. debile</i>	E 8
<i>A. delavayi</i>	E 7B
<i>A. epigynum</i> (Taiwan)	E 8B
<i>A. forbesii</i>	E 6
<i>A. fukienense</i>	E 8
<i>A. geophilum</i>	E 8B
<i>A. hayatanum</i>	
(= <i>A. grandiflorum</i> , Taiwan)	E 8
<i>A. heterotropoides</i>	D 4
<i>A. heterotropoides</i>	
var. <i>mandshuricum</i>	D 4
<i>A. himalaicum</i> (also in India)	D 7
<i>A. hypogynum</i> (Taiwan)	E 7
<i>A. ichangense</i>	E 7B
<i>A. inflatum</i>	E 7B
<i>A. insigne</i> (= <i>A. longepedunculatum</i> )	E 7B
<i>A. infrapurpureum</i> (Taiwan)	E 7
<i>A. longerhizomatosum</i>	E 10
<i>A. macranthum</i> (Taiwan)	E 7
<i>A. magnificum</i>	E 7
<i>A. magnificum</i> var. <i>dinghuense</i>	E 7
<i>A. maximum</i>	E 7
<i>A. nanchuanensis</i>	E 7B
<i>A. petelotii</i> (also in Vietnam)	E 10
<i>A. porphyronotum</i>	E 7
<i>A. porphyronotum</i> var. <i>atrovirens</i>	E 7
<i>A. pulchellum</i>	E 8B
<i>A. renicordatum</i>	E 8
<i>A. sagittarioides</i>	E 8
<i>A. sieboldii</i>	D 5
<i>A. sieboldii</i> f. <i>seoulense</i>	D 4
<i>A. splendens</i> (= <i>A. chingchengense</i> )	E 7
<i>A. taitonense</i> (Taiwan)	E 7B
<i>A. wulingense</i>	E 7B

## Korea

<i>A. sieboldii</i>	D 5
<i>A. sieboldii</i> f. <i>seoulense</i>	D 4
<i>A. maculatum</i>	D 5

## Himalaya

<i>A. himalaicum</i>	D 7
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continued...

the former near the soil surface, the latter deeper. Both show a remarkable array of leaf color patterns ranging from green to silver with a variety of spotted, veined, and splashed markings. *Asarum takaoi* is the source of many of the elegant classical cultivars grown in Japan for hundreds of years. Both species are vigorous and easily cultivated.

The most interesting clumping varieties that will be successful in colder areas are *A. nipponicum* and its varieties, *A. tamaense* (photo, p. 119), *A. curvastigma*, *A. muramatsui* (photo, p. 124), and *A. savatieri*. *Asarum nipponicum* and *A. savatieri* are very similar, with the former blooming in winter and the latter in summer. Both display an exciting variety of leaf colors and patterns; no two plants are exactly alike. *Asarum curvastigma* has very beautiful leaves, usually in shades of gray. *Asarum tamaense* (photo, p. 119) is notable for the roughly textured surface of its glossy, leathery foliage caused by the deeply impressed veins. *Asarum muramatsui* has similarly rough-textured foliage, but its dark green leaves are flat, and the plant is somewhat spreading (photo, p. 124).

Gardeners in USDA Zone 7 and south have an embarrassment of riches from which to choose. Nearly all the Japanese species will thrive in Zones 7-8. Among the best choices are *Asarum kumageanum*, with variously patterned leaves so shiny they could be made of glass (photo, p. 121), and *Asarum hexalobum* (photo, p. 120), with an infinite number of leaf patterns, matte finished, mostly in shades of gray. For unusual flowers, it is impossible to beat *A. minamitanianum*, with flowers like some strange, three-armed starfish (photo, p. 122). Each lobe of the flower is greatly elongated, sometimes several inches. It also has beautifully marked foliage. Selections for

flower color have been made in Japan.

*Asarum* species native to the Ryukyus are more tender, suitable for gardeners in USDA Zone 8, and in a few cases, Zone 9. Several of these species have larger, succulent leaves that could be molded in plastic. *Asarum fudsinoi* bears leaves that can reach 8" in length, and flowers 3" across. The leaves of *A. monidoriflorum* could have been cut from black-green velvet, while the foliage of *A. dissitum* is glossy and succulent, with deeply sunken veins and little spots all over.

#### Chinese species

It is only in the past few years that many Chinese species of *Asarum* have emerged in cultivation, primarily through Japan. Because most are found in southern China, their hardiness is suspect, but some promise to be adaptable garden plants. One vigorous, very handsome species, *A. splendens* (wrongly distributed as *A. magnificum* by the Arnold Arboretum, photo p. 123), is appearing in American nurseries. It is probably a USDA Zone 7 plant. A more tender species, *A. geophilum*, is also becoming familiar in cultivation despite its modest ornamental qualities.

I have not yet grown all the Chinese species, and there are several I haven't seen yet. My first impression is that most will be useful only in mild climates. Some, such as *A. petelotii*, will not tolerate any frost, sulking when the temperature falls to near freezing. Those that show promise for widespread garden use include *A. maximum*, *A. delavayi*, and *A. porphyronotum* (photo, p. 121).

*Asarum maximum* (photo, p. 119) caused quite a stir in Japan when it was introduced from China several years ago. It was sold as the "panda *Asarum*," a clever marketing strategy based on this species' remarkable flow-

ers. Each 2"-wide flower is dark purple-black with a startling white central eye. Its leaves are large and leathery, highly glossy, either green or marked with silver-and-gray patterns. It seems vigorous and hardy.

*Asarum porphyronotum* has a less distinctive flower, but the foliage is unusually beautiful. Each large, matte-finish leaf is a symphony of shades of gray and silver. *Asarum delavayi* has very dark green, unmarked foliage tapering to an elongated point, with a glassy shine. Leaves can be 8" or more in length. The flowers are more than 2" wide and very showy, seemingly upholstered in purple-brown plush.

#### Asarums in pots

Asarums are very satisfactory pot plants, and there are several good reasons to grow them that way. The complex beauty of their foliage and long-blooming flowers is most easily appreciated at close range. Because many bloom in winter or very early spring, flower-viewing is sometimes practical only with pot-grown plants. New species whose hardiness is uncertain can be maintained in pots while divisions are tried outdoors. Unless you live in Zone 8B or 9, pot culture is the only way to enjoy the often-spectacular species from southern China and the Ryukyu Islands.

#### Japanese Asarum culture

Many Japanese hobbyists cultivate *Asarum*, almost always in pots. Some grow species types, but most hobbyists grow selected forms. These selections can be divided into two groups: classical cultivars (mostly selections of *A. takaioi*) and modern mutated forms, selected for changes in leaf or flower.

#### Japan

<i>A. asaroides</i>	E	6B
<i>A. asperum</i>	E	6
<i>A. blumei</i> (= <i>A. albovenium</i> )	E	6
<i>A. caulescens</i>	D	5
<i>A. constrictum</i>	E	6
<i>A. costatum</i>	E	7
<i>A. crassum</i>	E	8
<i>A. curvastigma</i>	E	6
<i>A. dimidianum</i>	D	5
<i>A. fauriei</i>	E	5
<i>A. faurieri</i> var. <i>nakaianum</i>	E	5
<i>A. heterotropoides</i>	D	4
<i>A. hexalobum</i>	E	6B
<i>A. hexalobum</i> var. <i>controversum</i>	E	6
<i>A. hexalobum</i> var. <i>perfectum</i>	E	6B
<i>A. hirsutisepalum</i>		
(= <i>A. yakusimense</i> Masam)	E	7B
<i>A. ikegamii</i>	E	6
<i>A. kinoshitae</i>	E	6
<i>A. kiusionum</i>	E	7
<i>A. kiusionum</i> var. <i>melanosiphon</i>	E	7
<i>A. kiusionum</i> var. <i>tubulosum</i>	E	7
<i>A. kumageanum</i>	E	7B
<i>A. kurosawae</i>	E	6
<i>A. megacalyx</i>	E	6
<i>A. minamitanianum</i>	E	7B
<i>A. muramatsui</i>	E	6
<i>A. nankaiense</i>	E	7
<i>A. nipponicum</i>	E	5B
<i>A. nipponicum</i> var. <i>brachypodium</i>	E	6
<i>A. nipponicum</i> var. <i>kooyanum</i>	E	6
<i>A. nomadakense</i>	E	7B
<i>A. parviflorum</i>	E	6
<i>A. rigescens</i>	E	6
<i>A. rigescens</i> var. <i>albescens</i>	E	6
<i>A. sakawanum</i>	E	7B
<i>A. sakawanum</i> var. <i>stellatum</i>	E	7B
<i>A. satsumense</i>	E	7B
<i>A. savatieri</i>	E	6B
<i>A. savatieri</i> var. <i>furusei</i>	E	6
<i>A. sieboldii</i>	D	5
<i>A. subglobosum</i>	E	7
<i>A. takaioi</i>	E	5B
<i>A. takaioi</i> var. <i>hisauchii</i>	E	5B
<i>A. takaioi</i> var. <i>dilatatum</i>	E	5B
<i>A. tamaense</i>	E	6
<i>A. trigynum</i>	E	7
<i>A. unzen</i>	E	7
<i>A. variegatum</i>	E	6
<i>A. viridiflorum</i>	E	6
<i>A. yoshikawae</i>	E	6

Classical cultivars have been grown for hundreds of years in Japan. We know from historical accounts that these selections were popular in the 1700s, and it is likely that some were grown long before. Classical cultivars of *Asarum* are part of the system of classical Japanese pot plant culture known as *koten engei*. Such plants are mutations, are grown in distinctive pots, and are selected according to standards established by societies each devoted to one such group of plants. These societies publish cultivar names and rankings. At least 140 classical cultivars of *Asarum* are still grown.

Most of the classical *Asarum* cultivars are "green stalk" (*aojiku*) selections of *A. takaai*, individuals that have lost the purple-brown pigment in their flowers and leaf petioles. Further selection for leaf pattern and shape is conducted according to rules set down by the society. Desirable characteristics of conformation include a slightly convex, rounded leaf and overlapping basal lobes. Patterns include "valley" (*tani*), a central leaf stripe; "butterfly" (*cho*), a splash of color at the base; "hanging wisteria" (*sagari fuji*), two elongated, symmetrical blotches; and "map" (*zu*), irregular white or yellow blotches, often accompanying an unconventional leaf shape. There are many other characters for color patterns. Many cultivars have foliage flushed red or pink in winter, adding extra color interest. Classical *Asarum* cultivars are often weak, and although some have enough vigor for the garden, they are best grown as pot plants. They are not easy to find for sale and are usually expensive.

Japanese hobbyists also grow more modern mutations, particularly mutations of all species with "albino" (pale green or white) flowers, or with other unusual flower colors. Double flowers are also highly prized. Unusual leaf

forms and variegated types not part of the classical cultivar group are sought as well. These novel selections are often very expensive (thousands of dollars) when first introduced.

#### Asarum Pot Plant Culture

Asarums are best grown in clay pots. Good soil aeration is very important, and evaporation from clay pots cools the root zone. In Japan, asarums are grown in *kanuma* soil, a volcanic product resembling reddish-brown, heavy perlite. Any well-drained, humusy, acidic media can be used, and pine bark works, too. I use a mixture of chopped oak leaves or pine needles, partly decayed, plus ProMix Bx, coarse perlite, and granite grit. The mix is tamped among the roots with a wooden chopstick. A layer of coarse granite grit is added on the surface.

Asarums grow well in pots sunk in sand in a cold frame. All but the most tender species can be handled this way all year even in cold climates. Most of the tender species thrive in a 40°F greenhouse; occasional drops to freezing are not damaging. A very few, such as *A. petelotii* and *A. longerhizomatosum*, are happiest if the temperature does not fall below 50°F.

Several diseases and predators attack *Asarum*. Scale insects and aphids sometimes appear; insecticidal soap will control them. *Asarum* leaves are poisonous to most caterpillars, but a hairy black variety occasionally attacks my plants; I pick them off. Slugs and snails are the worst predators. Susceptibility is highly variable; the Asian deciduous species and *A. asperum* are always the first to go in my collection. I keep toads nearby by having water and hiding places available. I hand-pick at night early in the season and sprinkle iron sulfate around (not on) the plants. Growing the common purple violet (*Viola papil-*

ionacea) or butterbur (*Petasites japonicus*) nearby will attract slugs away from most *Asarum* species and concentrate them for easy slaughter.

There are several fungal and bacterial diseases that can affect *Asarum* leaves and roots. Most occur when plants are stressed by poor drainage, lack of air circulation, or inappropriate temperature. These diseases can mar the foliage or, in extreme cases, rot the crown, killing the plant. Good drainage, a cool root zone, and an occasional fungicidal drench should solve such problems. Low nitrogen levels also help reduce disease problems. A slow-release, low-nitrogen fertilizer such as MagAmp works best.

The most serious problem that can affect *Asarum* is nematode infection. Both root and leaf nematodes can attack and kill *Asarum*. Sudden decline of healthy plants under good growing conditions is often found to be a result of nematode infection. If roots are brown and decayed at the tips, nematodes are likely to be the problem. Rotted leaf areas bounded by veins are usually the first sign of leaf nematode infection. Uncontrolled, leaf nematodes will kill most species. Many infected hosta plants are now being sold in the United States, and while the leaf nema-

tode rarely kills hosta (more the pity), it can spread to *Asarum* and other choice plants (ferns, *Hepatica*, Liliaceae). Control requires the use of very strong chemicals. Check with an agricultural extension office to find out what is available in your area. Immediately isolate or destroy any infected plants.

#### *Asarum* propagation

*Asarums* are usually propagated by divisions in early spring or early summer. Pieces of rhizome will often sprout dormant buds. It is best not to disturb roots in autumn. *Asarum* seed must not dry out. It must be washed carefully and given cold-moist stratification before it can germinate. Seedlings are very sensitive to damping off. Many species will grow from leaf cuttings. A current year's leaf, with petiole, will root under mist or high humidity. The previous year's leaf will often root but never initiate a growth bud. So far, no one has succeeded in propagating *Asarum* in tissue culture.

Fortunately, many of the Asian *Asarum* species are now being grown by a few gardeners in the US. It seems likely that more and more cultivars will become available in the near future.

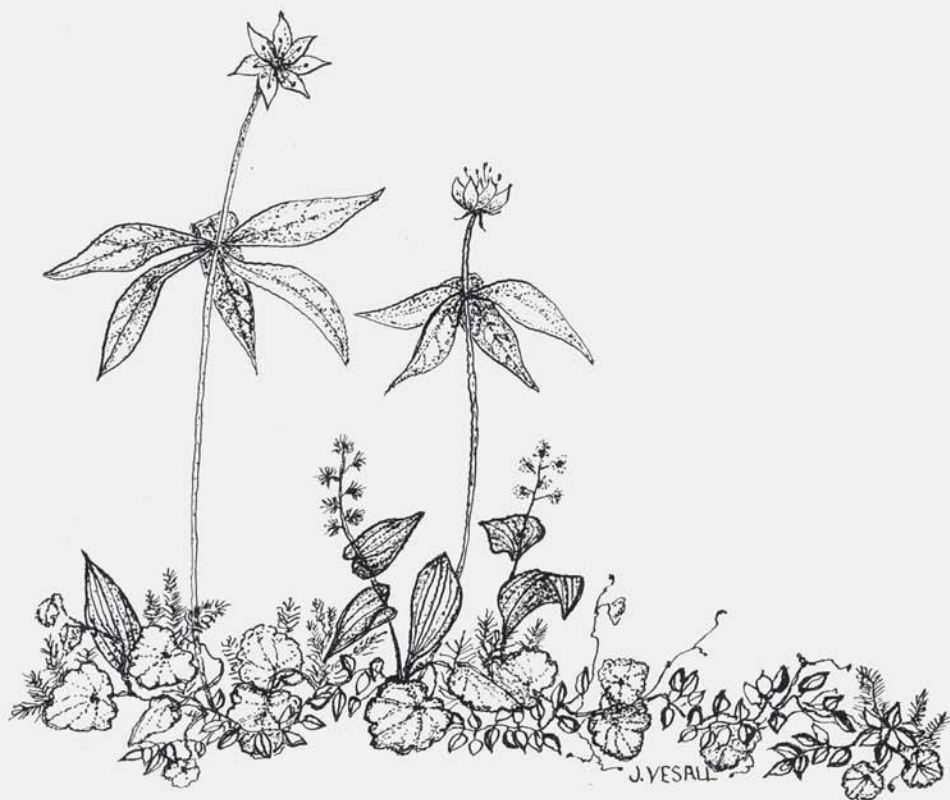
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#### Availability

Few types of *Asarum* are currently available from commercial nurseries. The following sometimes offer interesting species:

Plant Delights Nursery, 9241 Sauls Road, Raleigh, NC 27603; Catalog, \$2  
We-Du Nurseries, Route 5, Box 724, Marion, NC 28752; Catalog, \$2  
Woodlanders Nursery, 1128 Collecton Avenue, Aiken, SC 29801; Catalog, \$2  
Siskiyou Rare Plant Nursery, 2825 Cummings Rd., Medford, OR 97501; Catalog, \$2

Barry Yinger has collected plants in both Japan and Korea and also enjoys Japanese porcelain and Japanese and Korean folk music. He lives and gardens in New Jersey and Pennsylvania. Barry asks that you not write him requesting plants as he does not yet have any available.



*Trientalis borealis*, *Maianthemum canadense*,  
*Gaultheria hispidula*, *Mitella nuda*

# Ancient Rocks and Emerald Carpets

by *Jeanie Vesall*

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From the western and northern shores of Lake Superior stretch the forests and lakes of the Boundary Waters Canoe Area of Minnesota and Quetico Provincial Park of Ontario that preserve the Arrowhead Region. David and I visit this unique area each year. Canoeing along the shore of an inland lake, we find the doorway to our secret wild garden, marked by filigree branches of white cedar and dark columns of black spruce and balsam fir. One last hard pull and the canoe rests on the rock shoreline that slips away beneath the cold, tea-colored water. Our footsteps are silenced by the moss feathered. Skeletons of fallen trees, barely held together by delicate ribbons of tiny plants, are being swallowed up by the mosses. Here and there ponderous granite boulders lie between the trees as if they fell from the sky, plants invading their fractured surfaces. How did this wondrous rock garden come to be?

In the Precambrian era the primeval crust cooled, and planet Earth began to take form. More than 2.7 billion years ago, Minnesota was at the center of volcanic activity. Molten material from the earth's core reached the surface

and flowed over more than a quarter-million square miles. A horseshoe-shaped plain of igneous rock was formed from a center at Hudson Bay to Greenland, Manitoba, Ontario, and near the shores of the present day Lake Superior. This immense, rocky plain is the Canadian Shield, one of the oldest rock formations on earth. It is the largest area in the world where ancient rocks from earth's basement are exposed at the surface.

Another period of volcanic intrusion and uplift of high granite mountains followed. Eons passed, and the mountains were eroded to a plain; great seas flowed over it. The rock was changed by the pressure and weight of extruded magma and by deposition of sediments on the sea floor. Some of the oldest fossilized remains of living organisms date to this era. The region remained relatively calm until 1.2 billion years ago, when the last and most active period of volcanism in this region occurred. The earth's crust split along a crescent-shaped crack known as the Midcontinent Rift System. Lava flowed, cooled, and hardened over the region, forming a layer 5 miles thick. When this heavy

crust subsided, the Superior Basin began to form. These powerful events are evident in ancient lava flows carved into canyons, cliffs, and waterfalls along the shores of Lake Superior. Beginning 2.3 million years ago, glaciers moved over these northern lands four times.

An array of plants soften this rugged ice-scoured shield of rock, making the wilderness approachable. Here the evergreen canopy intercepts available sunlight, limiting the diversity of plant species on the forest floor. But what a mistake to dismiss this habitat as monotonous!

Endless expanses of mosses are the fiber of the plant association sometimes called the Canadian Carpet. Mosses are primitive plants, needing moisture for growth and reproduction. They inhabit the hollows and depressions of the damp forests of eastern white cedar (*Thuja canadensis*), black spruce (*Picea mariana*), tamarack (*Larix laricina*), and balsam fir (*Abies balsamea*), making fine displays. Sphagnum mosses may blanket the forest floor 2' or more thick.

Herbaceous plants seed into the moss layer, their roots expanding downwards. Many have evergreen leaves and small, intricate flowers followed by brightly colored fruit. Plants that form the Canadian Carpet and are common in northern forests include: *Cornus canadensis*, *Maianthemum canadense*, *Clintonia borealis*, *Coptis trifolia* ssp. *groenlandica*, *Trientalis borealis*, *Mitella nuda*, *Gaultheria hispidula*, *Ledum groenlandicum*, smaller *Vaccinium* spp., *Lycopodium* spp., *Streptopus roseus*, *Aralia nudicaulis*, and *Aster macrophyllus*. Even their names suggest the Far North. Alone, these are simple plants. Together, they make a beautiful foliage collage against the moss. Shiny leaves contrast with the bristly and woolly. Leaves arranged in stars play against those that

arch or cling. The Canadian Carpet invites inspection on hands and knees.

Nearest to my heart is the delicate *Linnaea borealis*, symbolic of boreal forests across the Northern Hemisphere. Twinflower weaves through the moss anchored by white, hair-like roots. A member of the honeysuckle family (Caprifoliaceae), its demure flowers are incredibly fragrant.

But the Arrowhead region contains a complexity of plant habitats. Different forest types gradually blend and overlap as the geologic features change. Each area has signature species complementing the more ubiquitous carpet plants. White spruce gradually replaces black spruce on moist wooded slopes. Sphagnum yields to less competitive moss species. Higher rates of decomposition produce pockets of humus-rich soil. Sunlight penetrates the canopy on sloping ground, enough to support an understory of small deciduous trees and shrubs. Several other plants join the carpet. Pink-flowered *Pyrola asarifolia* is a favorite, its leaves indented at the petioles, making them characteristically heart-shaped. *Pyrola secunda* has white or greenish flowers arranged along just one side of the raceme. *Pyrola virens* has petioles longer than the small leaf blades and large, green-veined flowers. Nose to the ground is the best way to find the tiny rosettes of *Moneses uniflora*. Its single, intricate, nodding flower seems to be sculpted in wax, exemplifying the perfection in miniature we expect from alpine plants.

The beautiful, whorled foliage of *Chimaphila umbellata* is surpassed only by its cluster of waxy, pale pink flowers. It grows in loosely connected colonies in upland pine woods as well as in spruce-fir woods.

In grasses near the edge of upland pine woods or in the disturbed soil of old roads grows *Gaultheria procumbens*. Hidden beneath the foliage, the



small, egg-shaped flowers produce bright red berries with the fragrance and taste of wintergreen. Here, too, is *Polygala paucifolia*, which for years I knew only from photographs. Its lavender-washed-pink flowers mimic tiny birds on the wing. It is easy to overlook when not in flower, and unforgettable when you find a patch in bloom. *Polygala* is suspected of needing mycorrhizal associations for growth in this nutrient poor environment.

We have devoted a portion of our woodland rock gardens to these plants of the boreal forests. Duplicating the groundcover effect of the Canadian Carpet is a challenge. Patience is crucial. A few species, such as *Linnaea borealis* and *Maianthemum canadense*, could be aggressive in a peat bed, but here they mingle with other woodlanders rather than to overpowering them. Lichen-covered rocks and moss-covered logs and stumps give the garden beds form and dimension. We gather crumbly remains of old stumps and use them as a secret soil additive; possibly this adds soil organisms that benefit the plants. Living mats of sphagnum moss are nearly impossible to maintain in the garden, especially when watered. Instead, I transplant pieces of moss from our woods and protect the cushions from the birds with pieces of black plastic netting.

Small peat beds, constructed to be moisture retentive, yet drain quickly, suit the plants from the moist spruce-fir forests. We rarely add any nutrients, except iron to correct chlorosis. Rocks and mossy logs hold an 18"-deep mixture of two-thirds sphagnum moss, well-rotted pine wood and bark, and decomposed evergreen needles, and one-third coarse granite grit. Barrier cloth under the mix prevents earthworms from changing the composition.

Many plants of the Canadian Carpet grow along spreading rhizomes, stolons, or rootstocks. We take advantage of this tendency toward vegetative growth to propagate them. Cuttings or small divisions root successfully in clean, coarse sand or a mixture of sand and peat, if they include the upright stems and a portion of the finely rooted horizontal growth. I have taken cuttings in June, August, and early September. If they fail to root by fall, we keep them over winter in shady cold frames, transplanting potted plants with compact root balls. Occasionally, I have established plants such as *Linnaea borealis* directly into the garden, using small rocks to hold down a length of stem and keeping it mulched and watered.

Plants native to upland pine woods grow here beneath large red pines (*Pinus resinosa*). Sandy soil and a pine needle mulch create a naturally acid bed. During dry spells, we water from a well. Hard water will eventually raise the pH of the soil. I counteract this with regular, light applications of sulfur. *Gaultheria procumbens*, *Polygala paucifolia*, and *Epigaea repens* can be grown from summer cuttings of green wood potted up in peat and sand.

Enchanting as these deep green forests are, the most beautiful rock gardens are found on the rocky shores of Lake Superior. Delicate ferns hide in the shadows on the canyon walls of small streams. Waves break against tiny flowering plants braced in the crevices of the ancient lava flows.

In the northern forests, ferns are as important to the landscape as mosses and conifers. *Woodsia ilvensis* is common, its scaly fronds only 4-6" high. It prefers acidic conditions and forms very congested, gray-green mats on sunny or shady rock ledges. *Cystopteris fragilis* var. *fragilis* is commonly found in shady rock crevices, its fronds similar to those of

*Woodsia* but without hairs. The leathery, chaffy fronds of *Polystichum braunii* form a perfect vase shape. In Minnesota, it grows in rock crevices along a single stream feeding Lake Superior. *Dryopteris fragrans* var. *remotiuscula* is easy to spot because of the skirt of old fronds that persists beneath the new growth. In a decaying granite boulder, *Polypodium vulgare* var. *virginianum* spreads its simple leathery fronds. It is capable of surviving considerable dryness. *Gymnocarpium dryopteris* grows in the Canadian Carpet from a slender creeping rhizome. I like to grow these small ferns wedged between rocks, encouraging the same tight growth they exhibit in the wild. The species listed are circumboreal, excellent cold-hardy plants for northern rock gardens.

Lake Superior's warmest water temperature is barely 50°F even in July and August. In the shallows of this icy bath, *Primula mistassinica* and *Pinguicula vulgaris* grow shoulder to shoulder in spongy humus filling the rock crevices. The primrose is not spectacular; "cute" might describe it better. Small, lavender-pink, yellowed-eyed flowers dance 4" above deep green rosettes. Plants from the northwest shore of Lake Superior are not heavy with the meal typical of the farinose section of primulas. Humus in the crevices seems almost peaty, not the alkaline conditions the primrose is supposed to favor. The shoreline rock is basalt, a basic igneous rock rich in calcium, magnesium, iron, and silicates. Sparkling against this dark rock, the glossy, lime-green leaves of the *Pinguicula* catch more than just the sun and waves. To supplement the lean rations of life in a crevice, this carnivorous plant traps insects for protein. If well-fed, it produces a pretty, single, lavender flower. The minute, meat-eating *Drosera rotundifolia* also waits for lunch here.

Both the primula and pinguicula can be raised from seed. The pinguicula needs the moisture of a closed container. Its tiny seedlings are perfect miniatures of the mature plant. The drosera seeds itself around our small, sunny bog. Frost heaving of the bog surface in the early spring sometimes tears their fragile roots. Fist-sized stones placed over the roots for winter help keep them settled.

Farther up the shore, still bathed in mist, is *Lobelia kalmii*, only slightly taller than *Primula mistassinica*. It carries numerous blue, white-centered flowers on slender stems. The small basal leaves are spatulate. Raised from seed or a small division, it stays small in the bog. It is very slow to emerge in the spring but is usually perennial for us. The shiny, dark green foliage of *Potentilla tridentata* billows over the rocks and is the perfect foil for its glistening white flowers. From a small rooted piece, I soon had it covering the ground in my heather bed. It looked nice with the bristly foliage of the callunas and ericas but gave no hint of stopping at the edge of the bed. I transplanted it to the small island of our concrete garden pool where it now competes happily with creeping juniper.

Northeastern Minnesota epitomizes the rock garden. Our northwoods garden at home may not yet be the emerald carpet we envision—and it may never be. Yet, at this point we are willing to forego ideals and pleased just to have these plants accept the conditions we can offer. They still remind us of our favorite places. I would be saddened if they lost their wild spirit to the complaisance of life in our garden.

Jeanie Vesall gardens in White Bear Lake, Minnesota, with her husband, David. Drawing by the author.



*Schizocodon soldanelloides* var. *intercedens* (p.103)

Phil Pearson



*Shortia galacifolia* (p. 102)

*Shortia uniflora* var. *rosea*





*Shortia* 'Leona' (p. 103)

*Diapensia lapponica* var. *obovata* (p. 101)

photos by Phil Pearson





*Schizocodon soldanelloides* var. *ilicifolia* (p. 103)

photos by Phil Pearson

Bed of *Schizocodon*



# The *Diapensia* Family

by Stephen Doonan

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Every gardener has a favorite plant or group of plants, often and attachment formed as the result of love at first sight. The first *Shortia* and *Schizocodon* I encountered were in the garden of Pat and the late Page Ballard in the spring of 1956. The Ballard garden, near Issaquah, Washington, contained a wealth of unusual and rare plant species, but my eyes could only see these small evergreen ground covers. I rushed to find all available literature describing their relatives, and a life-time interest in acquiring and growing members of the *Diapensia* family developed.

The *Diapensia* family is relatively small. Depending on the taxonomist, it is composed of only five to seven genera. *Galax*, *Schizocodon*, and *Shortia* are the most commonly grown members. The family's namesake, *Diapensia*, was named and described by Linnaeus in the flora of Lapland, hence *Diapensia lapponica*. The word "diapensia" is an obscure ancient Greek name; *D. lapponica* was the first member of the family to receive a name under the new scientific binomial system.

The genus *Diapensia* has at least four distinct species. *Diapensia lapponica* is a northern circumpolar plant with two varieties. *Diapensia lapponica* v. *lapponica* has oblong leaves and can be found from a localized area in northern Scotland, across northern Europe to eastern North America. This variety is found as far south as Mt. Washington in New Hampshire. The literature mentions a double flower form from here.

*Diapensia lapponica* v. *obovata* (photo, p. 99) ranges from northern Japan north to eastern Siberia and across Alaska. It differs from the type variety in having obovate leaves. Both forms are compact cushions with varnished leaves and can be covered with half-inch wide white flowers. *Diapensia lapponica* v. *obovata* is slightly easier to cultivate but, because of its affinity to the Arctic flora, may resent our long warm summers. Gardens with a more northern latitude or with a cool micro-habitat will have success.

The other three species of *Diapensia* are from the Sino-Himalayan mountains; recently *D. bulleyana* (*D.*

*purpurea*) has been introduced into cultivation. This species has several varieties, with flower colors ranging from cream to intense crimson. The other two species, *D. himalaica* and *D. wardii* (with rich rose-pink flowers), will hopefully be introduced and tested for garden worthiness.

In the sandy pine barrens areas of New Jersey to Virginia and on the seasonally wet coastal plains of North and South Carolina in moist habitats grows *Pyxidantha barbulate*. This small, prostrate, evergreen subshrub can form plants 10-15" across and will be almost covered with small, white flowers. The plant's name is derived from the shape of the stamens: *pyxis*, a small box, and *anthera*, anther. To keep this elfin plant in garden culture requires a cool, moist area with good light and a very sandy, acid soil; mosses must not be allowed to overwhelm it.

*Galax aphylla*, a robust grower, is a fairly widespread member of the *Diapensia* family, found throughout open woods of the Piedmont and Appalachian Plateau from Georgia and Alabama to West Virginia, with occurrences into the coastal plain of North Carolina and Virginia. The plant has heart-shaped leaves with crenate edges; the leaves are very shiny and turn bright red during the winter months. In midspring, flowering spikes about a foot tall with numerous, small, white flowers on very short pedicels develop. The cleft, five-petaled corolla is reminiscent of the *Pyxidantha* flower. The height of a mature plant is about 8" and it spreads by stolons in acid soil. *Galax* makes a good ground cover under larger rhododendrons, or, if grown in full sun, it will have bright red leaves the whole year.

My favorite of the family is *Shortia galacifolia*, the Oconee-Bell, a colloquial name for an ancient Creek Indian town which translates as "the water

eyes of the hills" (photo, p. 98). The plant has a most enticing appeal, with its dense cluster of rounded, glossy-leathery leaves, and a multiple of large, nodding, bell-shaped, white-petaled blossoms. The leaves turn rich red in winter, if not grown in deep shade.

The Oconee-Bell is unique in the history of American botany, collected by the French botanist Andre Michaux in 1788 on one of the tributaries of the Keowee River. His exacting herbarium notes of where he found the plant were sent back to France with the collected specimens. In 1838, Asa Gray, on a botanical tour of Europe, was looking through Michaux's collections and was taken by a certain specimen in his collection. It was obviously a new species, and he claimed the right to name it. Gray honored Dr. Charles Short, a Professor of Medical Botany in Louisville, Kentucky, and gave it the epithet *galacifolia* to describe the *Galax*-like leaves. Gray's misunderstanding of Michaux's directions for the original collection site would result in 48 years of frustrating search before rediscovery by Charles Sargent, an eminent American dendrologist. Following Michaux's journals to find another "lost" plant, *Magnolia cordata*, Sargent rediscovered *Shortia*; upon rereading Michaux's directions, he found the exact spot along the Keowee River.

In Japan, two mountain forms of *Shortia* occur. *Shortia uniflora* is the most commonly known form, with large, nodding, crystalline pink flowers nestled in the leaves. A smaller variety, found in distinct geographic areas, is *S. uniflora v. kantoensis*, which is about half the size. Its leaves have whitish veins that set them off. Like the American *Shortia*, the Japanese plants are naturally found in shaded, moist areas on northerly slopes that remain cool in the summer. All members of this



genus spread by runners on or occasionally just below the soil surface.

In the spring of 1970, Phil Pearson and I crossed *Shortia galacifolia* to an especially pink form of *Shortia uniflora*. In hundreds of hybrid seedlings, the variability of the two parents was expressed. Most of the hybrids were nice, but one exceptional plant we named in memory of Phil's late mother. *Shortia* 'Leona' (photo, p. 99) has hybrid vigor; its flowers stand above the foliage like *S. galacifolia* and have the pink color of *S. uniflora*.

Another beautiful genus in the family is *Schizocodon*. Its petals are deeply divided, resembling those of *Soldanella alpina*, a primrose family member from Europe; hence the species epithet "*soldanelloides*" (*Soldanella*-like). The name *Schizocodon* also refers to the flower, "divided bell." It's fun to roll the name of *Schizocodon soldanelloides* var. *ilicifolia* off your tongue as a lesson in the meaning of Latin-Greek plant names: "divided bell like a *Soldanella* with holly leaves!" The flowering racemes bear 3-10 slightly nodding pink flowers; the flowering clusters are well above the leaves (photo, p. 100).

*Schizocodon* occurs on ridges of high hills and up mountain slopes above treeline in partial shade and in the protection of small species of *Vaccinium*, *Gaultheria*, grasses, and sedges. On a trip to Japan in 1972 with Roy Davidson, we had the good fortune to see *Schizocodon* on the flanks of Mt. Nasu, albeit in the tail-end of a typhoon. The wild colonies have a great diversity of size, leaf shape, and variation of floral components; it would be difficult to pick a typical form from the diverse multitude.

In geographically isolated areas a distinct variety called *Schizocodon soldanelloides* v. *magna* occurs. In another area we saw a pure white-flow-

ering colony growing under trees on a high ridge top. Farther south at a mountain resort, we revisited an isolated and unique variety, *Schizocodon soldanelloides* v. *intercedens*, with delicate white flowers and new, bronzed leaves just developing (photo, p. 97); none of the plants in the whole colony showed any variation. On the island of Yaku, known for its many dwarf alpine plants, occurs another distinct variety, *Schizocodon soldanelloides* v. *minima*, this with tiny leaves and a single flower per stem—not characteristic of this genus.

The Japanese name for *Schizocodon* is "mirror of the mountain" for the very shiny leaves that turn reddish-purple in winter months. The leaf shape and size varies, and they can have many or scarcely any teeth on the margin. The very high mountainous forms and the variety from Yaku have numerous underground stolons that tend to form an intertwining plant mass; the varieties *intercedens* and *magnus* lack this characteristic.

Some current taxonomist working with dead, pressed plants in some dark herbarium wants to condense *Schizocodon* into the genus *Shortia*; the two genera have several distinct differences in life. *Shortias* have a single flower per stem versus the many flowers per stem of *Schizocodon*; *Shortia* species lack the deep clefting of the flower petals; and they bloom well before *Schizocodon* species. *Shortia* species in nature occur in very restricted habitats that suit their specific needs; *Schizocodon* is less demanding. The seed development of *Shortia* is relatively fast—the seed ripens shortly after flowering and must be planted immediately. On the other hand, *Schizocodon* seed capsules will not ripen until midautumn, and the seed remains viable for several years. Further, *Shortia* will only hybridize with



*Shortia uniflora* var. *kantoensis*

*Shortia*; the various forms of the single species of *Schizocodon* will interbreed and appear to be part of a single diverse but biologically well-defined species. I have repeatedly attempted to cross *Shortia* and *Schizocodon* and have so far failed to get pollination.

The family has other lesser known members. On Taiwan, a variable genus called *Shortiopsis* is found at the highest elevation in the cool temperate region with winter snow and frost. One flora lists four species; another flora reduces them all to *Shortiopsis rotundifolius*. I made a trip in search of this plant with Roy Davidson in 1972 and again with Phil Pearson in 1974 in hopes of seeing the plant in the wild and securing cuttings. Once because of storms, and later because of government limitations of when and where foreigners may go, we failed to see living plants and had to satisfy ourselves with pressed specimens in the University of Taipei Herbarium. On mainland China another *Shortia* occurs along with two beautiful members of the genus *Berneuxia*. *Berneuxia yunna-*

*nensis* has narrow, pointed leaves with clusters of pendant, white flowers.

#### Culture

*Shortias* and *schizocodons* like woody, acid soil that is kept moist through the summer and in shade or filtered sunlight of trees and larger shrubs. Overhead foliage will prevent frost from killing the tender new foliage in spring; at other times of year the plants are relatively hardy. These plants benefit from several applications of dilute fertilizer before and during their growing season. A light mulch of pine needles or decomposed leaf-mold is also recommended. They are generally free of all pests, but unfortunately can be very susceptible a fungus that will slowly kill the plant. No effective control for this disease has been found, so if you have healthy plants, be careful to plant any new plants you may acquire apart from your established colony.

All members of the *Diapensia* family are easy to propagate from seed and cuttings. Both methods require a cool, humid atmosphere until the germinat-

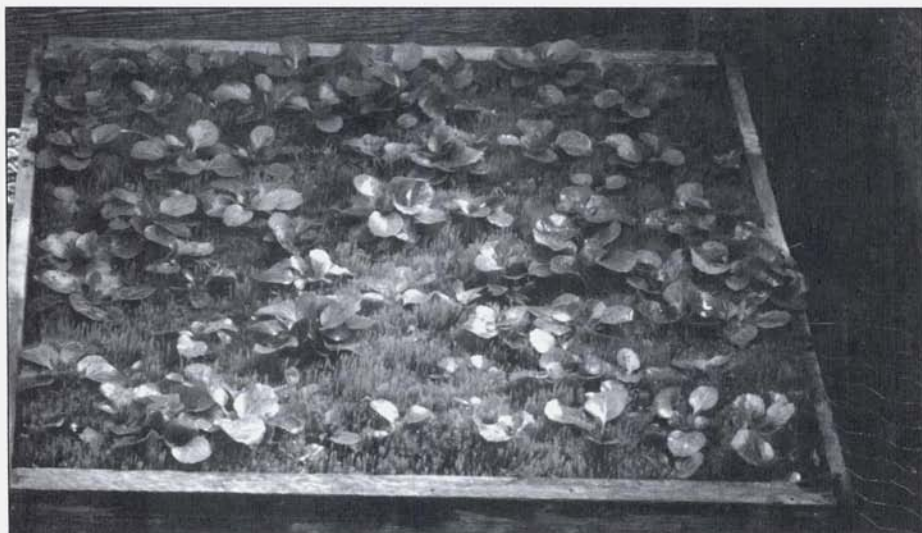
ing seeds develop into sizable plants, or the cuttings have developed a sizable root mass. Fresh seed will give the best germination and is nearly an absolute requirement for *Shortia*. Seeds of *Shortia* planted just as the seed capsule splits open will often germinate in two or three days if placed on a growing medium of clean sharp sand and peat moss in a sealed container. Use a 50-50 mixture of sand and peat, just slightly firmed to make a level surface for the seeds. It is important to use peat that has first been thoroughly moistened; dry peat may look okay at first but often will become too dry after several days. I may appear to be overstating the importance of the moisture content of the peat, but too dry a soil medium will cause failure. A sealed container will retain proper soil moisture for many months with no additional water. Fresh seed is best for other genera of the *Diapensia* family also, but dried, properly stored seeds have retained their viability for several years.

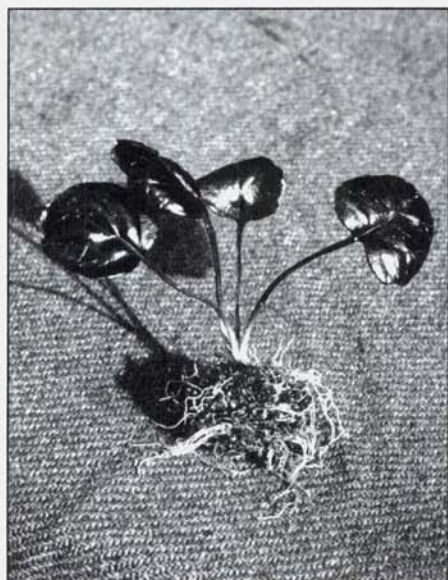
Many studies concerning the germination of the American shortia, *S. galacifolia*, have explored the problem

of poor seed germination. Several studies concluded that soil chemicals or a beneficial fungus probably were required for germination. Personal observation of *Shortia galacifolia* revealed that it can germinate while still in the opening seed capsule; the seed coat contains a fully developed plant with no endosperm (food reserves). *Shortia* in nature occurs in a restricted habitat of shade and humidity where the seed can begin growth immediately. The exacting ecological requirements probably explain its limited natural range. In any case, drying out the seed will diminish germination and also the vigor of any seeds that do germinate.

Plastic containers with clear, tight-sealing lids work as a germinating environment. The container should be in good light, but protected from the heat of direct rays of the sun. The seed is evenly spread by exhaling on your finger and lightly touching the seeds spread on a paper; gently rub thumb and finger to spread the seed. The small seed sprinkled on the soil surface should not be covered, since the root will grow down into the soil as the seed

Seedlings of *Shortia galacifolia*





Rooted cutting of *Schizocodon soldanelloides*

germinates. Use several containers if you have abundant seed; a thickly planted seed container will produce spindly, weak plants that may also be attacked by fungi.

The seedlings can be transplanted from their germination container to a larger growing environment after the development of two or three true leaves; this may take a full year. The seedlings can be carefully separated and planted about an inch apart in the new flat. Again, use a sand-peat mix for the growing medium and feed with a very dilute solution of balanced liquid fertilizer. The watering mixture should be applied lightly enough to maintain the loft of the soil mixture. Over-watering will cause the sand-peat mix to collapse and the well-aerated medium necessary for root development will be lost. A flat will need wire supports to hold up a plastic cover. This high humidity atmosphere and proper constant soil moisture will produce the fastest-growing plants. Place flats out of direct sun, check periodically for proper soil mois-

ture, and fertilize lightly to speed growth. Seedlings can bloom the second growing season if the optimum growing conditions of humidity, feeding, light, and temperature have been maintained.

Propagation by cuttings from an established plant is an easy way to increase the number of plants, especially a superior form. Some authors recommend dividing mature plants as a means of propagation, but I have found divisions not easy to reestablish for either *Shortia* or *Schizocodon*. Cuttings are made with the current season's new growth, usually by mid-June. Use a sharp razor blade and cut just this spring's "new wood." Don't be tempted to use older season's wood just because it may have a few weak roots. The most healthy and vigorous plants will be developed from cuttings of soft tissue. Use a rooting hormone, and place cuttings in an enclosed environment to maintain stable soil moisture and humidity. Rooting will take anywhere from a week to a month. As roots begin to appear, feed with a weak, balanced, liquid fertilizer. Maintain the high humidity of the rooting frame until sufficient roots have formed; for best results the cutting can be left through the first winter under the cover of frame. Both methods of propagation described above work best for members of the Ericaceae family, too.

Steve Doonan grows plants in Issaquah, Washington and owns Grand Ridge Nursery jointly with Phil Pearson.

# The Southeast Asia-America Connection

by *Richard Weaver, Jr.* \_\_\_\_\_

Soon after plant specimens collected by Europeans began to come out of Japan, especially those of Carl von Thunberg in the last half of the Eighteenth Century, it became obvious to plant geographers that the flora of that exotic land bore striking similarities to the flora of eastern North America. A pattern soon began to develop of genera being found only in these two geographically widely separated areas. Starting in 1840, Asa Gray, professor of Natural History at Harvard University, published a series of papers on the relationship between the floras, enumerating about 90 genera native to eastern North America and eastern Asia and nowhere else on earth. The articles have become classics in the literature of plant geography. With further plant exploration, particularly in the early part of this century, genera thought to exist only in Japan and eastern North America were occasionally found to have representatives in Pacific North America, the Himalaya, western China, the Caucasus, and southeastern Europe.

The connection between the two floras has been explained as follows.

During the Tertiary period, perhaps 70 million years ago, a more or less uniform forest covered much of the northern part of the continents, which were then much closer together than they are now. The forest even then contained many of our familiar woodland genera, with species well developed and widely distributed. With the cooling of global climates and resulting glacial advances, as well as continental drift, this forest became fragmented, with remnants surviving in a few climatically and geologically stable areas, the smaller ones often called refugia. Evolution proceeded, affecting different plant groups to a greater or lesser extent. Typically a Tertiary genus is now represented in two or more of these refugia by related but slightly different species. In a few cases, as for example *Viola rostrata*, the same species still exists in both eastern North America and eastern Asia. In some cases, evolution proceeded a bit further, and the related plants are now classified in different genera, e.g., *Heloniopsis* and *Helonias*, discussed below. In addition, some genera are presently found in only one refugium,

having become extinct elsewhere. Examples would be *Galax* and *Uvularia* in eastern North America, and *Anemonopsis* and *Kirengeshoma* in eastern Asia. Finally, this distribution pattern is not limited to plants. Particularly good examples are found among the reptiles, *Alligator* having an American and an Asiatic species, and the genus *Agkistrodon* (our copperhead and water moccasin) also with species in both areas.

Here I will discuss only a few genera with eastern American-eastern Asiatic distribution patterns. I have tried to include groups in which most of the members are commercially available in the United States.

#### *Chamaelirium* and *Chionographis* (Liliaceae)

The plant known variously as devil's bit, blazing star, or fairy wand (*Chamaelirium luteum*) is native to rather open, often dry woods over much of eastern North America. It is most abundant in the Southern Appalachians. The plants grow from a thick rhizome, rather shallowly buried in the earth. The two to five spatulate leaves are arranged in loose, basal rosettes; they are evergreen here in North Carolina but disappear completely during the winter in colder climates.

*Chamaelirium luteum* is one of few dioecious Liliaceae. The male plant produces a slender, arching spike as much as a foot long, with numerous, tiny white flowers (not yellow as the species epithet might suggest). The inflorescence of the female plant is much less showy, being only a few inches long, rather greenish, and borne on an erect stalk to 2' tall. Most wild populations consist primarily of male individuals.

With their gracefully arching, feathery inflorescences produced in the late

spring, these are fine plants for the woodland garden. They are easy to cultivate in partial shade in a well-drained soil with plenty of leaf-mold. Vegetative increase is very slow, so division is often not possible. However, the seeds, which do not mature until autumn, germinate readily if given three months of cold stratification. The seedlings grow reasonably fast and produce blooming-size individuals in four or five years. The plants are hardy into Zone 5.

*Chamaelirium* consists of a single species; its Asiatic counterpart is the genus *Chionographis*, a few species of which occur in Japan, Korea, and southern China. We have not grown the Chinese species, and doubt whether they are indeed in cultivation. *Chionographis japonica* is native to warmer areas of Japan and southern Korea. The basal rosettes resemble those of *Chamaelirium luteum*, but the leaves are narrower and brighter green. The "bottle-brush" inflorescences consist of numerous flowers with the upper tepals very slender and elongate. The spikes lengthen as flowering progresses and eventually reach a length of 6-8". We also grow *Chionographis koidzumiana*, another Japanese species which is quite rare in the wild. For us it is much smaller than *C. japonica*, and the inflorescence is less dense. Although *C. japonica* is an attractive and rather showy plant, *C. koidzumiana* is definitely a plant for the connoisseur. Its blooming period is late spring.

These plants are best cultivated in partial shade in a rich, moist soil. We have not succeeded in germinating the seeds. However, the plants make offsets readily and make very nice clumps. The offsets are easily detached, preferably when the new foliage is mature. Hardiness is uncertain, but we grew *C. japonica* in

Boston (Zone 6) with no trouble, and I remember seeing a beautiful clump in Lincoln Foster's garden in Connecticut.

#### *Heloniopsis* and *Helonias* (Liliaceae)

The swamp pink, *Helonias bullata*, the only member of its genus, is a rare plant, occurring at widely scattered localities on the Coastal Plain of the eastern United States from southern New York to southeastern Virginia, and in the Southern Appalachians of Virginia and North Carolina. It is a plant of sunny, acid swamps and bogs and is best known from its stations in the New Jersey Pine Barrens. It is listed as a threatened species by the US Fish and Wildlife Service.

The swamp pink is a handsome plant in all respects. It grows from a rosette of fairly narrow, evergreen leaves, which take on a bronzy tint in the winter. The hollow scape, with its reduced leaves, looks a bit like a stalk of asparagus as it elongates. It grows to about a foot tall. The thimble-shaped inflorescence, about 1.5" long, is made up of numerous, densely packed, small flowers with pink segments and bluish anthers, a most appealing color combination. Blooming period is from early to midspring, April or May depending on climate. It is hardy at least in Zone 5.

*Helonias bullata* is reasonably easy to cultivate in moist to wet, peaty soil in full sun or light shade. It does equally well for us in an artificial bog and in a natural seepage area. It can be divided after blooming, but vegetative increase is slow. The very fine seeds develop rapidly and are mature a few weeks after the blooms have faded. They should be sown immediately and covered lightly. Germination occurs in about a month, and the seedlings grow slowly.

The oriental counterpart of the swamp pink is *Heloniopsis*, a genus of two or three species native to Japan,

Korea, and Taiwan. The only one commonly cultivated is *H. orientalis*, a plant of woods or meadows, often at high elevations, from Sakhalin Island through much of Japan into Korea (photo, p. 118). The basal rosette of narrow, evergreen leaves is bright green and lies flat on the soil. The flowers are much larger than those of *Helonias bullata* and are borne in a short spike. The perianth segments are pale pink, and the prominent anthers are dark purple. The first impression is of a pink-flowered *Scilla sibirica*. The first flowers open just above the level of the rosette, but the scape elongates as additional flowers open, reaching a height of about 8". Plants bloom in earliest spring, usually starting in February for us in North Carolina. Several naturally occurring varieties are occasionally cultivated: *Heloniopsis orientalis* var. *breviscapa* is smaller with paler flowers; *H. orientalis* var. *flavida* is taller and the flowers are pale yellow.

We have always grown *Heloniopsis orientalis* in partial shade in a moist humus-rich soil, and it flourishes under such conditions. Judging from its natural habitat, it would probably also do well in full sun, as long as it does not dry out. We have never succeeded in germinating the seeds, but the plant is easily propagated vegetatively. Plantlets are produced when the tips of the leaves touch the soil surface in the garden. These may be detached when they are about one half-inch across and potted up like seedlings. Or the end of the leaf may be cut (a piece about an inch long) and the distal end stuck in a commercial seed germination medium or a mixture of half sand-half peat. Plantlets will be produced in about a month. *Heloniopsis orientalis* is possibly hardy into zone 4.

#### *Iris* section *Lophiris* (Iridaceae)

The genus *Iris* is large and diverse

and widely distributed in the Northern Hemisphere, but the section *Lophiris*, the *evansia* or crested irises, has an eastern Asia-eastern North America distribution pattern. There is a secondary concentration of species in western China and the Himalaya and, if the rare and difficult *Iris tenuis* from Oregon is included here, also in Pacific North America. Although a rather diverse group, all of the members of this section have in common flattish flowers, each fall of which is ornamented with a series of raised, frilly ridges termed a "crest." The majority of species, including *I. japonica* and its relatives, are somewhat tender and will not be discussed here.

Two species of *Lophiris* are native to eastern North America. The most familiar is *Iris cristata*, a delightful plant needing no introduction. It grows in a variety of habitats primarily in the Appalachians and Ozarks, from Maryland to Georgia west to Oklahoma. It is a low-growing species, seldom more than 6" tall, and spreads rapidly by slender rhizomes that creep along the surface of the soil. It is easily cultivated in any well-drained soil in light shade or full sun. It will succeed in deeper shade, but then bloom is sparse, and growth is less compact. *Iris cristata* is difficult to propagate from seed. However, it can easily be divided; the preferred time is when the new fans are mature and have started to produce roots. The plant is hardy in Zone 4.

*Iris cristata* is variable in color. The most common wild form has flowers of medium blue-violet with yellow crests on the falls. A white-flowered form, 'Alba', also with yellow crests, is common in cultivation. Other cultivars include 'Abbey's Violet' (flowers deep blue-violet), 'Shenandoah' (a good blue), 'Eco Little Bluebird' (dwarf with dark flowers), and 'Vein Mountain' (flowers pale blue with orange crests).

Pink-flowered and even yellow-flowered forms have been reported.

*Iris lacustris* is similar to *I. cristata* but smaller in all respects. It is a rare plant, native on gravelly, often calcareous soils around the western Great Lakes. It is listed as an endangered species by the US Fish and Wildlife Service and as such cannot be shipped interstate or abroad without a permit.

*Iris lacustris* is much less vigorous in cultivation than *I. cristata* and tends to be a shy bloomer. It should be grown in full sun or light shade in loose, moist soil. Addition of crushed dolomite to the soil mix appears to be helpful. The normal flower color is pale blue with yellow crests, but a white-flowered form is known.

The crested irises are much more diverse in Asia and include one of the tallest of all *Iris* species, the tender *Iris wattii* from the Himalaya, which may grow to 6' tall. At the other end of the height scale is the hardy *I. gracilipes* from Japan and China. This is a positively delightful plant, to me one of the most beautiful species in a spectacularly beautiful genus. It grows about 8" tall from slender, branched rhizomes that form a tight, circular clump. The very slender, almost grass-like leaves all arch outward, as do the flowering stems bearing their delightful, 1.5"-wide flowers. These are basically lilac-blue with a large white patch surrounding the crests in the center of each fall. This white patch is prominently veined with dark purple. A white-flowered form is cultivated, as is a dwarf clone, the so-called "Bukko Form."

*Iris gracilipes* is an easy plant in cultivation. It should be grown in deciduous shade in a rich but well-drained soil. It is not easy from seed, but it can be divided without too much difficulty. The best time is probably when the new growth is mature and firm. The plant is hardy at least in Zone 5.



Several taller Asiatic species in this section are good garden plants. The most familiar, of course, is *Iris tectorum*, the Japanese roof iris. This species was commonly grown on the thatched roofs of traditional Japanese homes but is apparently not native to Japan. Rather, it is native to central and southwestern China, including Taiwan. It grows from a thick, branched rhizome which resembles that of the bearded irises. The foliage is spectacular—broad and bold, forming bright green fans that remain in good condition through the growing season. The foliage, however, is susceptible to attack by aphids, which make unsightly spots on the leaves. The large flowers are borne on stems about 12-15" tall; they are 3-4" broad, blue-violet with an irregular pattern of darker streaks and spots surrounding the white crest. A pure white form is common in cultivation. Other forms include one with unspotted flowers, a supposed tetraploid, the "Taiwan Strain," somewhat larger than other varieties in all respects, and 'Variegata', with leaves variegated in the spring.

*Iris tectorum* is an easy and reliable plant in cultivation. It is most attractive in partial shade in good, rich soil. Under such conditions it spreads nicely and makes a wonderful, bold ground cover. Seeds germinate readily without pretreatment, although the percentage is higher with about a month of cold stratification. Plants are easily divided at any time, although soon after blooming is preferable. The species is hardy at least in Zone 5.

Much less common in cultivation and quite different in appearance, is *Iris milesii*, native to the Himalaya. Like *I.*

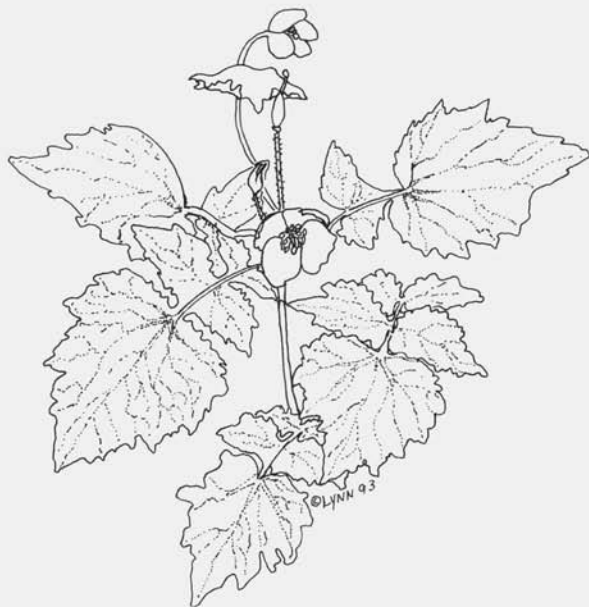
*tectorum*, it grows from a thick rhizome. The grayish foliage closely resembles that of a median bearded iris. The flowering stems grow to about 30" tall, bearing a succession of rather small but beautiful flowers. The overall color is lavender, but the falls have a few dark purple spots around the beautifully frilled yellow crests. The falls are, in addition, slightly reflexed and have crinkled margins. *Iris milesii* is best grown in full sun or light shade in rich, well-drained soil. Seeds germinate somewhat slowly, and the percentage increases with about a month of cold stratification. Hardiness is uncertain, but probably Zone 6.

#### *Sanguinaria* and *Eomecon* (Papaveraceae)

Bloodroot, *Sanguinaria canadensis*, is widely distributed over much of the eastern United States and adjacent Canada. It is one of our most familiar



*Sanguinaria canadensis*



*Stylophorum lasiocarpum*

and best-loved early springtime wildflowers. It is so familiar, in fact, that I will discuss it only briefly. The flowers normally have 8-16 pure white petals, but occasionally plants with pale pink flowers are encountered in the wild. The full double form 'Multiplex' was originally found in Michigan and has become a familiar garden plant. Bloodroot is of easiest culture, thriving and increasing well in a situation with light to moderate shade and a good, humus-rich soil. The thick rhizomes with their characteristic red-orange sap are easily divided at most any time of year. Seeds must be sown as soon as ripe and kept moist and warm during the summer. They germinate well if this warm period is followed by about 3 months of cold stratification.

The Asiatic counterpart of our bloodroot is *Eomecon chionantha*, a plant native to eastern China (photo, p. 118). The two species are rather different in appearance, as well as in the way they behave in the garden.

The shoots of *Eomecon* bear two or three heart-shaped leaves with scalloped margins. Rather than having a solitary flower as does the bloodroot, *Eomecon* produces a raceme with several flowers, each with four white petals and a conspicuous mass of bright yellow stamens. *Eomecon* thrives under the same conditions as does the bloodroot. In fact, it might thrive too well for many gardeners. Although it is a beautiful plant, it spreads rapidly by means of long, slender rhizomes and can become a pest. It is not for small, tidy gardens. However, if you have the room for it to "do its thing," it makes a beautiful ground cover. The foliage is exceptionally attractive and remains in good condition until cut back by frost. *Eomecon* is probably less cold hardy than *Sanguinaria* but should do well at least in Zone 5.

*Stylophorum* (Papaveraceae)

The golden poppy or celandine

poppy, *Stylophorum diphyllum* (photo, p. 117), is a plant of rich, moist woods in the midwestern United States from western Pennsylvania to Wisconsin and south to Tennessee and Arkansas. It is one of the few of our spring-blooming woodland natives with yellow flowers, so it is a valuable plant for the wild garden. It grows from a short, thick rhizome and forms a substantial clump with time. The pinnate foliage is bold and attractive and remains in good condition for most of the growing season. The bright yellow, poppy-like flowers, as much as 2" across, are produced for an extended period in spring and occasionally during the summer.

*Stylophorum lasiocarpum* has long been cultivated in its native China as a medicinal plant, but it has only recently become established as an ornamental in the West. It is rather different in general appearance from our native species; its foliage is bolder and more concentrated in a basal rosette. The flowers are slightly smaller and a shade paler, but they appear sporadically for months after the initial bloom period in midspring.

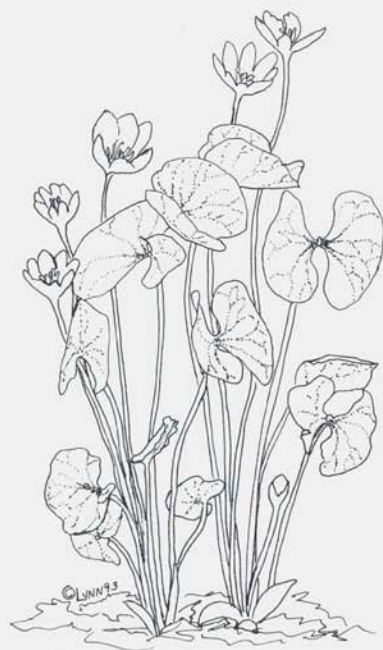
Both species are useful and reliable garden plants. Their bright flowers and exceptional foliage make them valuable in the shady border as well as the wild garden. They are easy to cultivate in a partially shaded situation with good, rich, humusy soil. Vegetative increase is relatively slow, but the seeds germinate readily if sown as soon as they are ripe. Both species are probably hardy in Zone 4.

#### *Jeffersonia* (Berberidaceae)

The twinleaf, *Jeffersonia diphylla*, is native from New York west to Wisconsin and south to Alabama, usually in moist woods over calcareous soils (photo, p. 118). It is well known to gardeners but in my opinion is a

plant that has never quite lived up to its billing. The flowers closely resemble those of a small, delicate bloodroot and appear about the same time in early spring. They are quite attractive but extremely fleeting; if they open in rainy weather, they seldom last more than a day. The foliage, however, is quite distinguished. The leaves are split down the middle into two equal segments, resembling the wings of a butterfly. They stand up well to the weather and are not particularly attractive to slugs or insects. The oddly-shaped capsules are also attractive, although they are mostly hidden by the foliage.

The Asiatic species, *Jeffersonia dubia*, is quite a different story. It is evidently a rare plant in the wild, and its natural distribution is not well known. It is native at least in extreme northeastern China and adjacent Siberia and has also been reported



*Jeffersonia diphylla*



*Jeffersonia dubia*

from Korea. The flowers appear at about the same time as those of our native species, and like them, do not last very long in the garden. However, in *J. dubia* the flowers are produced over a longer period of time, and they are larger and have fuller segments. The color is variable, reportedly from pure white (which I have not seen) through icy blue to a beautiful sky-blue. We even have a clone in which the petals are, somewhat unattractively, mottled blue and white. The foliage of *Jeffersonia dubia* has the same good qualities as that of our native twinleaf, but the leaves themselves are kidney-shaped rather than split into two divisions.

The jeffersonias should be grown under woodland conditions with high deciduous shade and humus-rich soil.

Although *J. diphylla* is native mostly on calcareous soils, it thrives on neutral or acidic soils as well. The plants are best divided in late spring or early summer, after the foliage is hardened. Seeds should be sown as soon as ripe. *Jeffersonia* germinates reasonably well if given a warm, moist period, followed by 3 months' cold stratification. Both species should be hardy in Zone 4.

*Podophyllum*  
(Berberidaceae or  
Podophyllaceae)

*Podophyllum peltatum*, the mayapple, is one of the most familiar wildflowers of eastern North America—big patches of its

distinctive leaves are prominent features in woodlands throughout the region. The flowers are large and attractive, but they hang from between the umbrella-like leaves and are mostly hidden from view. The plant itself is extremely vigorous, spreading by long, slender rhizomes, and can quickly overrun a small garden.

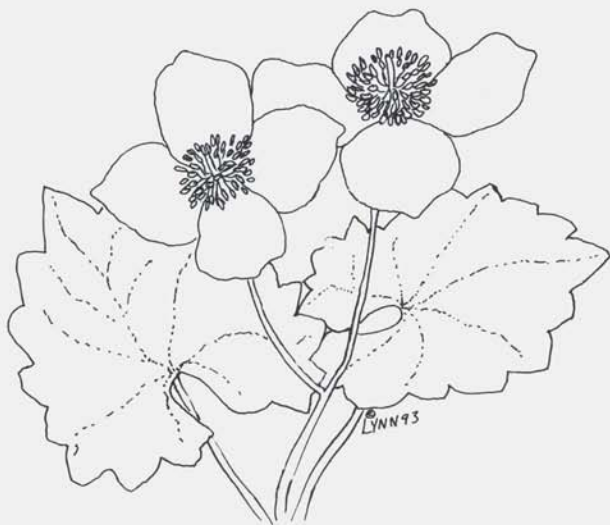
Several species of *Podophyllum* are native to Asia from the Himalaya into central China, but only *P. hexandrum* (*P. emodi*, photo, p. 118) appears to be in cultivation. This is a first-rate garden plant. Rather than spreading rampantly as does *P. peltatum*, this species grows from short, thick rhizomes and makes tight clumps in the garden. The flowers are somewhat cup-shaped and pinkish and open atop the developing leaves, allowing us to

appreciate them without rummaging through the foliage. The large berry is red or salmon-colored, rather than pale yellow as in our native species. Several varieties of *P. hexandrum* are in cultivation. The variety *chinense* appears to be showier in all respects, having larger, deeper pink flowers and foliage blotched with brown or purple.

Podophyllums may be increased by division, an extremely simple matter with *P. peltatum*, but a much slower process with *P. hexandrum*. Seeds should be given warm, moist stratification followed by about three months of cold. Both species thrive in partial shade and a good, humus-rich soil, although our native species will tolerate considerable sun. The Chinese species is not particularly heat-tolerant and goes dormant early in warm climates. *Podophyllum peltatum* should be hardy in Zone 3, while *P. hexandrum* is probably reliable only in Zone 6.

#### *Fothergilla* and *Parrotiopsis* (Hamamelidaceae)

*Fothergilla* is a genus of two rather similar species restricted in distribution to the southeastern United States. They are suckering shrubs with foliage very similar to that of *Hamamelis*, the witch hazels. Autumnal coloration is spectacular, typically bright orange with reddish overtones, and these plants would be well worthy of cultivation even if they did not bloom. The showy



*Emecon chionantha*

parts are the 15-30 ivory-colored stamens; the flowers lack petals and are arranged in a dense spike, resembling a bottle brush. They are strongly honey-scented and appear in midspring. Bloom and autumn foliage color are best in full sun but still acceptable in partial shade. The plants are not fussy about soils and thrive even in poor, dry sites. They are propagated from cuttings taken from soft sucker wood or by seeds, which should be given a six-month, moist, warm period followed by three months of cold. A bit of care is required to collect the seeds, since they are explosively ejected from the mature capsules. It is best to collect the capsules while still slightly green, and let them ripen in a large paper bag.

The more familiar species, *Fothergilla major*, is native to dryish

woods in the Southern Appalachians with scattered outposts on the Piedmont from North Carolina to Alabama. In cultivation it grows to a maximum of 8' tall. The shape of the shrubs varies, from erect and pyramidal to low and spreading. In fact, the low and spreading type has been considered a distinct species, *F. monticola*. *Fothergilla* was the subject of my Master's dissertation, so as a graduate student I had the opportunity to study most of the known populations in the Carolinas. Plant habit is very variable within wild populations, and there is no doubt in my mind that "*F. monticola*" is not distinct as a species. To my knowledge there are no named cultivars of *F. major*, although clones superior in habit, length of inflorescence, and autumnal coloration certainly exist in cultivation.

*Fothergilla major* is a showy and desirable ornamental. The flower spikes average 2-3" long and are borne in profusion on open-grown plants. They appear with the leaves, which are reddish when young. The plants are useful in the mixed border, or at the edge of a woodland, or as an accent anywhere. They are beautiful planted with redbuds (*Cercis canadensis*), which bloom at about the same time. *Fothergilla major* is reliable in Zone 4 and would survive in protected spots in Zone 3.

*Fothergilla gardenii* is native to a variety of habitats, from dry sandhills to swamp margins on the Coastal Plain from North Carolina into Alabama and the Florida Panhandle. It is smaller than *F. major* in all respects, its leaves are less prominently toothed, and the flowers appear before the leaves. Maximum height in cultivation is about 4'. Due to its small size, it is quite versatile in garden situations and is a good shrub for the rockery. Several cultivars have been selected, the most popular

being 'Blue Mist', originally from the Morris Arboretum of the University of Pennsylvania. This clone is outstanding for its bluish foliage, the color intensifying as the season progresses. *Fothergilla gardenii* is not as hardy as *F. major*, although it is reasonably reliable in Zone 5.

Native to the Himalaya and adjacent ranges in India, Pakistan, and Afghanistan, *Parrotiopsis jacquemontiana* is the Asiatic counterpart of *Fothergilla*. The two look quite different at first glance. *Parrotiopsis* is generally a small tree, to about 15' tall. Its apetalous flowers are borne in dense heads, and these are surrounded at the base by four or five large, white bracts (photo, p. 117). The whole assemblage, averaging about 3" across, resembles the inflorescence of *Cornus florida*. This is a uniquely beautiful plant, unfortunately seldom cultivated in the United States. It is only rarely offered commercially. *Parrotiopsis* is less hardy than either species of *Fothergilla*, reliable only in Zone 6.

Drawings by Lynn Janicki

Richard Weaver is joint proprietor of We-Du Nurseries in Marion, North Carolina, a mail-order nursery supplying a large and changing palette of wildflowers (see ad, p. 157).



*Stylophorum diphyllum* (pp. 113)

*Parrotiopsis jacquemontiana*  
(p. 116)

photos by Richard Weaver, Jr.





*Heloniopsis orientalis* (pp. 107, 109)



*Eomecon chionantha* (p. 112)  
photos by Richard Weaver, Jr.

*Jeffersonia diphylla* (pp. 113-114)

*Podophyllum hexandrum* (pp. 114-115)







*Asarum* 'Rasha Maru No Zu', classical cultivar



*Asarum maximum* (pp. 87, 88)

photos by Barry R. Yinger

*Asarum satsumense* (p. 89)

*Asarum tamaense* (pp. 88, 89)





*Asarum* 'Tanima No Yuki', classical cultivar



*Asarum* 'Kinryuho', modern cultivar

*Asarum megacalyx* (pp. 87,89)

*Asarum hexalobum*, in bature (pp. 87, 88)





*Asarum sakawanum* (p. 89)

photos by Barry R. Yinger

*Asarum kumageanum* (p. 88)



*Asarum porphyronotum* var. *porphyronotum*  
(pp. 87, 88, 89)

*Asarum splendens* (p. 87)



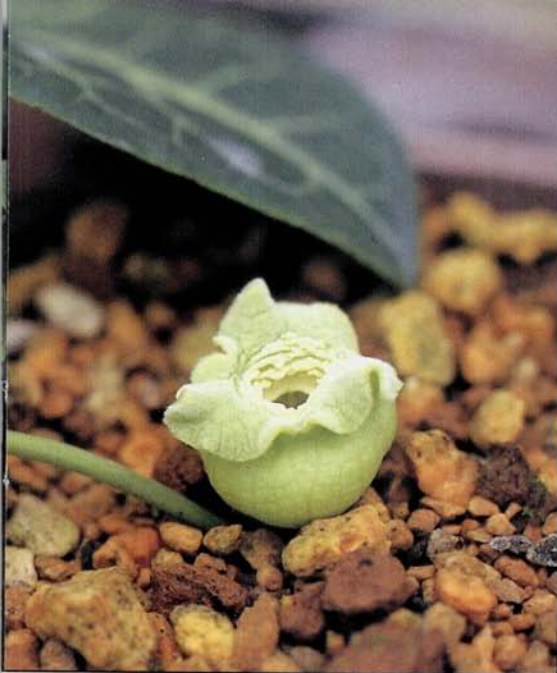


*Asarum yakusimense* (p. 83)

photos by Barry R. Yinger

*Asarum minamitanianum*, Japanese selections for flower color (pp. 88, 89)





*Asarum asaroides*, albino selection (p. 89)



*Asarum fudsinoi*, selected form (pp. 85, 88)

*Asarum splendens* (p. 87, 88)





*Asarum muramatsui*, in nature (p. 88)

A Japanese *Asarum* collection

photos by Barry R. Yinger



# Early Editors of the *Bulletin*

by Marnie Flook

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Dr. Edgar T. Wherry (Vols. 1-5; 1943-1947)

At the time Dr. Wherry was invited to become the first editor of the *Bulletin*, he was Professor of Botany at the University of Pennsylvania. He was active in the American Fern Society, the Mineralogical Society of America, and a charter member of the American Rock Garden Society. He was chairman of the ARGS Committee on Plant Naming and often contributed articles to the *Gardeners' Chronicle of America*. Martha Houghton wrote in the 1943-1944 Year Book (Vol. 2, No. 3), "Rarely has any journal begun its career as auspiciously as the *Bulletin*. Dr. Wherry has brought to its editorship the accumulated knowledge of a full life of travel and research..."

"Dr. Wherry is a man of great energies and a tremendous capacity for work; ...his field knowledge of plants in the Eastern States is unsurpassed, with a special emphasis on Polemoniaceae and Ferns; endowed with a deep love for his work his enthusiasm for some certain plant will lead him far afield and one of his outstanding characteristics is his generosity in imparting knowledge and aiding students; as a lecturer he appeals to both botanical and horticultural audiences and his unrivaled collection of over five hundred lantern slides of native plants all hand-colored by himself is famous."

From his first report throughout his term as editor, Dr. Wherry emphasized three special interests of his: using correct horticultural nomenclature, valuing our native North American plants, and considering the ecological viewpoint. In addition to editing, he wrote numerous articles for the *Bulletin*.

His first interest had been geology and soils, so he wrote of how to meet the edaphic needs of plants through the principles of soil physics. He started a feature called "KEEP OUT," describing plants that should not be allowed in the rock garden. *Euphorbia cyparissias*, *Campanula rapunculoides*, *Oxalis corniculata* var. *atropurpurea*, and *Saponaria officinalis* were all considered invasive and obnoxious. Animals, including the pine mouse, were also occasionally included in this series. Wherry also began a "WELCOME" column in which especially fine rock plants were described by various authors.

Dr. Wherry wanted to be sure that no mistakes were codified in the *Bulletin*, so he listed errata from previous issues. He could be prickly about his editing, as when P.J. van Melle objected to a change in an article. Wherry wrote: "In the *Bulletin*, volume 3, No. 1, pages 8 and 9, there appeared a *Saxiflora* article on *Juniperus procumbens* var. *nana*. This was prepared from a manuscript submitted by Mr. van Melle but was slightly condensed by the Editor. In the process certain words were introduced which had not been in the original manuscript. The author feels that as thus changed the article does not accord with his views upon the plant. Therefore the signature at the end of the article should be corrected to: Edgar T. Wherry."

Wherry edited three issues devoted each to a single genus. Volume 4, No. 2, on Phlox was written entirely by him. Volume 4, No. 4 was the "Penstemon Number," with twelve members contributing and an introduction by the editor. Volume 4, No. 6 was the "Violet Number." Volume 5, No. 2 was termed the "Beginners' Number." In this excellent issue, Wherry contributed the lead article about types of rock gardens, A.C. Pfander and Louis P. Politi, both of the New York Botanical Garden's staff, wrote about building rock gardens, and planting and care of rock gardens, and Warren Wilson of Oregon concluded the issue with "A Hundred Superior Subjects for the Rock Garden."



Although the first issue of the *Bulletin* edited by Harold Epstein contained over 20 advertisements for rock garden plants, no ads were printed in issues edited by Dr. Wherry. The inside back cover of each issue was titled "Specialists in Alpines and Rock Garden Perennials," and the names and addresses of 10-16 nurseries selling rock plants were listed.

In Dr. Wherry's report for the 1945-1946 Year Book (Vol. 4, No. 3), he pointed out that articles appearing in the *Bulletin* had been contributed by a small proportion of the membership and he encouraged others to write. In his final editorial he commented that five years was long enough for him to be Editor and hoped that someone else would take over, beginning with Volume 6.

The American Rock Garden Society did continue to benefit from Wherry's knowledge, experience, and devotion to the *Bulletin*. He wrote many more articles, mostly about native plants. He often wrote notes about seed offered in the Exchange, pointing out those he thought were weeds, incorrect names, etc. And he served as consultant when the Delaware Valley Chapter ran the Seed Exchange in 1972 and 1973, "spending endless hours of dedicated search for accuracy in the list."

In 1965, Dr. Wherry was one of the first to receive the ARGs Award of Merit, given in recognition of his many contributions to the Society and to horticulture. He continued to be active and interested in botany and horticulture until his death



in 1982 at age 97. To fully appreciate the accomplishments of this distinguished gentleman, read his obituary by Timmy Foster (Vol. 40, No. 4).

### Dorothy Ebel Hansell (Vols. 6-9; 1948-1950)

Dorothy Hansell assisted Dr. Wherry with the last few issues of Volume 5, so she was able to carry on very well when she became Editor. Volume 6, No. 1, the first issue under her supervision, had a few changes. Most noticeable were three pages of advertisements by rock garden plant nurseries.

Hansell wrote very little for the *Bulletin* during the three years she was Editor. She was also ARGs Secretary at the time, so she must have been very busy. She had the same concern as Dr. Wherry that everything in the *Bulletin* be accurate. She was particularly bothered by what she called "A Case of Mistaken Identity," in which the manuscript "Eastern Care of Western Rock Plants" (Vol. 6, No. 5) was mistakenly attributed to F.K.R. (Frances Kinne Roberson) rather than F.H.R. (Frank H. Rose of Missoula, Montana).



Letters from members now appeared in every issue, some long enough to be included in the table of contents. One from Roland G. Gamwell of Washington concerned an alpine meadow near Mount Adams. The "woody" field he described was printed as "wooden." Hansell wrote in the next issue: "The number of notes which the Editor received inquiring, "What is a wooden field?" indicates at least that the *Bulletin* is read to the last page!"

Hansell resigned as Editor in the fall of 1950 in order to become editor of a new publication of The New York Botanical Garden, *The Garden Journal*. She continued as Secretary of ARGs until 1955. She edited *The Garden Journal* until 1967.

Hansell was involved with many other plant societies, often serving as editor of their publications. The American Horticultural Society, Holly Society, Bonsai Society, and the American Association of Botanic Gardens and Arboreta all received the benefit of her expertise. She helped establish the International Peace Garden on the Canada-United States border between Manitoba and North Dakota.

In "Looking Backwards," written for the 25th Anniversary issue of the *Bulletin* (Vol. 17, No. 2), Hansell described the early days of the Society with notes about the first annual meetings, exhibitions, judges and awards, Regional Groups, officers, and the *Bulletin*. In the 50th anniversary issue (Vol. 42, No. 5, celebrating 50 years of the Society) Frank Cabot gives more details about this early period and Hansell's important part in it. She was honored with the Award of Merit by the Society at its annual meeting in 1968 as "...one of the founders of our Society and its devoted godmother through the years." Hansell died in 1978, a much respected and loved lady.

Guy G. Nearing (Vol. 9, No. 1-Vol. 12, No. 3; 1951-1954)

"The Editor Goes—The Editor Comes" (Vol. 8, No. 6) begins: "The Editor, Dorothy Ebel Hansell, bows out with this issue of *The Bulletin* and hands the proverbial 'blue pencil' to her successor, Mr. Guy G. Nearing of Ramsey, New Jersey." Nearing had been a member of the ARGS since 1935 and had written for both the *Gardeners' Chronicle of America* and the *Bulletin*, mainly articles about rhododendrons and propagation, plus an unusual one about caring for the mosses and lichens on rocks in a rock garden.

When Nearing became Editor, he was 61 years old. The story of his life before this time was a series of almost unbelievable disasters from which he always managed to recover. When he was a student at the University of Pennsylvania, already elected to Phi Beta Kappa and also headed for the Olympics as a champion runner, his eyesight failed. Yet he was able to graduate with distinction, thanks to his mother reading his assignments to him. Although he eventually recovered his sight, his weak vision prevented him from going on to graduate school as he had planned. He wrote for several national magazines and then entered the Army. Here he permanently lost the sight of one eye and shortly afterwards came down with tuberculosis. While recovering he built his own home. He next turned to advertising, where he was very successful for a time, but poor health caused him to return to the outdoors.



He opened a nursery in Arden, Delaware, where he specialized in hollies and unusual plants. His nursery merged with Guyencourt Nursery in 1929, and he began propagating rhododendrons on a large scale. Unfortunately, the depression caused this operation to end. While still at Guyencourt, he invented the Nearing Frame for rooting rhododendron cuttings. He started another nursery in Ridgewood, New Jersey, and began a large-scale hybridizing program. He tested many species, made hundreds of crosses, and grew thousands of plants resulting in many exciting new rhododendrons. He was considered an international rhododendron expert.

Nearing became fascinated with lichens, and wrote and published *The Lichen Book*, which he illustrated with 700 of his own line drawings. The project took ten years. The book became a classic and was soon out of print. In 1945, disaster struck again when a flash flood destroyed not only the nursery with its valuable hybrids, but also all of the engravings and drawings for the book. A few plants were saved: Rhododendron 'Ramapo', R. 'Purple Gem', R. 'Windbeam', and R. 'Wyanokie', plus the Guyencourt series. But there could never be a second edition of his book, and surely many fine plants were lost to cultivation.

In 1950, Nearing opened his third nursery, this time in Ramsey, New Jersey.

Here he again grew rhododendrons, both rare species and his own hybrids. His reputation as an expert continued to grow. It was during this time that he became the third editor of the *ARGS Bulletin*.

The format of the *Bulletin* remained pretty much the same under Nearing, but there were many more articles and notes by the Editor. Besides writing about rhododendrons, he described how to build a bog, including a discussion of sphagnum moss. The culture of *Pyxidanthera barbulata* was described, and many other Pine Barrens plants were discussed in detail, as were the unusual plants to be found in the Ice Caves of the Shawangunk Mts. in New York. The benefits of peat gardens were extolled; Nearing had high hopes that block peat would eventually be available, and peat gardening would take its place with rock and bog gardening.

Nearing disagreed with Dr. Wherry on nomenclatural detail and announced that he would continue to capitalize commemorative species epithets. Nomenclature rules had always bothered him; he had written a long and strongly worded letter about name changes in the July 1937 issue of *Gardeners' Chronicle*. Another dislike was mixed plantings of evergreens and bulbs or evergreen and deciduous shrubs; he suggested that each group be kept separate to protect the evergreens from being shaded.

While he was Editor, Nearing had proofreading and scheduling problems with the *Bulletin* printer, who was eventually changed. Many letters were exchanged between Harold Epstein, Nearing and Hansell about resolving this problem. There was also a lack of manuscripts. To help, Epstein persuaded his friend Will Ingwersen of England to write a series of articles for the *Bulletin*. The first of these, "Rare American Plants in Great Britain," was the lead article in Volume 9, No. 6. Other articles by Ingwersen appeared in Volumes 10 and 11.

Nearing wrote about moss as a propagation medium; using conifers to create solidity and shadow in the garden; how he discovered *Tsuga canadensis* 'Jervis'; how hybrids occur; and an article about limestone titled "The Home Haunts of Living Rock." He continued to write for the *Bulletin* even after he ceased to be editor. In later issues, he described how he built the rock garden at Guyencourt. In "Propagation Made Easy" he introduced the Nearing Frame he had patented years before. This article is well worth reading.

Nearing received one of the first *ARGS* Awards of Merit in 1965. He died in March 1986 at the age of 96. More information about his life is contained in David G. Leach's thoughtful "In Memoriam—The Remarkable Mr. Nearing," published in the *Journal of the American Rhododendron Society* Vol. 40, No. 3, 1986. No obituary of this outstanding man ever appeared in the *Bulletin*.

Dr. Carleton R. Worth (Vol. 12 ,No. 4-Vol. 20, No. 3; 1954-1962)

Dr. Carleton R. Worth of Groton, New York, was introduced in 1954: "...His explorations and his work with new and rare plants are too well known to require comment...Dr. Worth, Commander, U.S. Naval Reserve (Retired), in nine collecting trips has searched many of the higher mountain ranges of North and South America for alpine plants, concentrating especially on the Wasatch Mountains of Utah. His contributions to the *Bulletin* during the past years have told of his adventures and his efforts to introduce into general cultivation some of the rarest and most treasured miniature plants native to our continent."

Carl Worth was a charter member of the American Rock Garden Society and

often contributed to the *Gardeners' Chronicle of America*. He wrote about many plants, including a major article on crucifers for the rock garden. In other articles, he told about plants seen on a pack trip in the White Mountains of New Mexico, discussed success in growing difficult saxifrages, drabas, primulas, and daphnes in an alpine pit he had built himself, and told of a University of California Botanical Garden's plant-hunting expedition to Chile.

Additional titles include "North American Primulas" (Vol. 3:p. 65, 1945), "Sand Bed and Semi-Scree," (Vol. 6, No. 1; 1948, one of the first sand beds discussed), "Going West This Summer," (Vol. 8, No. 3; 1950), and "The Hundred Best Rock Plants" (Vol. 10, No. 2; 1952).

In 1954, the year he became Editor of the *Bulletin*, he also became Professor of Mathematics at Ithaca College in Ithaca, New York. Earlier, he taught at the University of Arkansas and at Rutgers. Rutgers University Press published two editions of his book, "Mathematics for the Student of Biology." According to Nearing, Dr. Worth was also in charge of the rock garden at Cornell University in Ithaca.

In the first issue he edited, Worth introduced his "Salamagundi": "This column is designed as a repository for notes on events and expeditions, articles of interest in other periodicals, and miscellaneous items which catch the Editor's fancy, and which he feels may be worth passing along." There were comments about publications of the American Primrose and American Penstemon Societies; notes about the latest Kingdon-Ward expedition; descriptions of articles in the *Quarterly Bulletin of the Alpine Garden Society* and the *Journal of the Scottish Rock Garden Club*; and detailed notes on articles of interest in *Baileya*, a periodical published by The Bailey Hortorium at Cornell University.

The next Salmagundi column began with apologies for the lateness of the *Bulletin*, citing a lack of material. Worth urged members ("We ask, beg, implore") to send in even a short note about some favorite plant. He also brought up the question of capitalizing the common names of plants. (Using lower case for all species epithets had finally been accepted by taxonomists.)

A letter written by Dr. Wherry described a visit to the Pine Barrens in October 1954 to see the Pine Barren gentian in bloom: "...a herd of *Swinus vulgaris* descended upon the meadow and dug up every plant in sight." Wherry wrote to urge members not to purchase any plants offered to them. Worth added: "Dr. Wherry's letter on plant vandalism leads us to protest that not all plant collectors are destructive." He went on to recommend growing plants from seed rather than collecting them in the wild.

The problem continued to be discussed in the next issue. Mrs. A. C. U. Berry, whom Dr. Worth described as "perhaps the outstanding rock garden enthusiast in the country, and an ardent student of the western flora" had written that a much more serious threat to our native plants was from housing developments and road and dam construction. Worth urged all gardening organizations to become involved, "to protect stands of rare plants, less by legislation than by purchase and preservation of these areas." These notes make interesting reading in 1993 (Vol. 13, Nos. 1 & 2; 1954).

Salamagundi appeared in every issue that Worth edited. Besides the usual notes recommending other publications, he often wrote about plants seen on travels, made comments on articles he had printed in the *Bulletin*, reviewed new books, and discussed the weather, rock garden plant nurseries, the Seed Exchange, and many other subjects. One column described preparing the index and putting

together an issue of the *Bulletin*, important subjects rarely mentioned in these pages. Most versions of Salamagundi were two or three pages in length; many are still of interest.

Volume 16, No. 1 (1958) was entirely about the propagation of rock plants. Worth wrote: "One of the greatest joys of gardening is that of increasing the supply of plants already in the garden, or of starting new and unfamiliar ones. The gardener who acquires all his plants tailor-made from a nursery misses the superlative thrill of seeing a plant develop from a minute bit of green into a miracle of flowering beauty." Further: "The rock gardener, if at all worthy of the name, must and will propagate plants...In this *Bulletin* an attempt has been made to bring



together the experiences of various growers, covering all methods, both old and new...all is first-hand..." Contributors to the propagation issue included Doretta Klaber, Claude Barr, Katherine Boydston, Louis Politi, Harold Epstein, and Guy Nearing. Worth wrote much of the material for this issue; his "Notes on Various Plants," continued in the following issue, containing valuable information on propagating many difficult genera of rock plants, all of which he had grown himself.

One of the longest articles ever to appear in the *Bulletin* was Worth's "The Rocky Mountain and Great Basin Ranges." This was part of his 25th anniversary series on our native flora (Volume 18, No. 2). For over twenty years he had explored mountain regions in the Rockies and Great Basin, and his descriptions of these areas and their plants have inspired many ARGS members to follow in his footsteps. All Rocky Mountain and Great Basin states were covered; the Bighorns, Snowy Range, and the Beartooths were just a few of the mountain ranges he described.

In Volume 20, No. 3 (1962), Dr. Worth wrote that the demands of his career had become too great, and he would no longer continue as Editor. In 1966, he was presented with the ARGS Award of Merit. Worth died in May 1975 and was buried near his home and famous garden in Groton, New York. The garden was described in thorough detail in three articles titled, "Dr. Worth's Garden," written by his friend, Mary Tibbetts Freeman, of Ithaca (Vol. 31, No. 4; Vol. 32, No. 2; and Vol. 33, No. 3. 1973-75.)

Photos of Dorothy Hansell and Guy Nearing courtesy of Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh, Pennsylvania.

Marnie Flook is ARGS Archivist. She lives in Chestertown, Maryland. This is the second in a series of articles about the first 50 years of the ARGS bulletin.

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# Plant Portrait

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## *Ophiopogon planiscapa* 'Nigrescens'

Here is an old friend to many growers, a handsome grass-like member of the Liliaceae that should not require description. For me it is among the easiest of plants to grow, requiring little other than good drainage. I get the impression from fellow growers, though, that it is thought of mainly as an indoor plant and is not as widely grown as its graceful black foliage would merit.

Several years ago, on a whim—or because I had enough material—I planted it out on the rock garden. I didn't know much about the plant's needs in terms of soil type, solar orientation, or just how much cold it might endure. The rockery that I chose was an acid scree in a walled garden, and I placed the plant on the shady side of the wall in a wide crevice. The first year it just sat there as if it had been rather rudely treated. I wondered if the winter would prove too much for it. Was it improperly sited? Little did I know what the plant was up to that first summer. I found out the next spring as little plants began showing up a foot or more from the mother plant.

I didn't attribute the plant's survival to mulch, although this particular scree did naturally collect fallen leaves. For the next two years the plant did not increase dramatically, apparently putting its efforts into growing its new plantlets to maturity before sending out more runners.

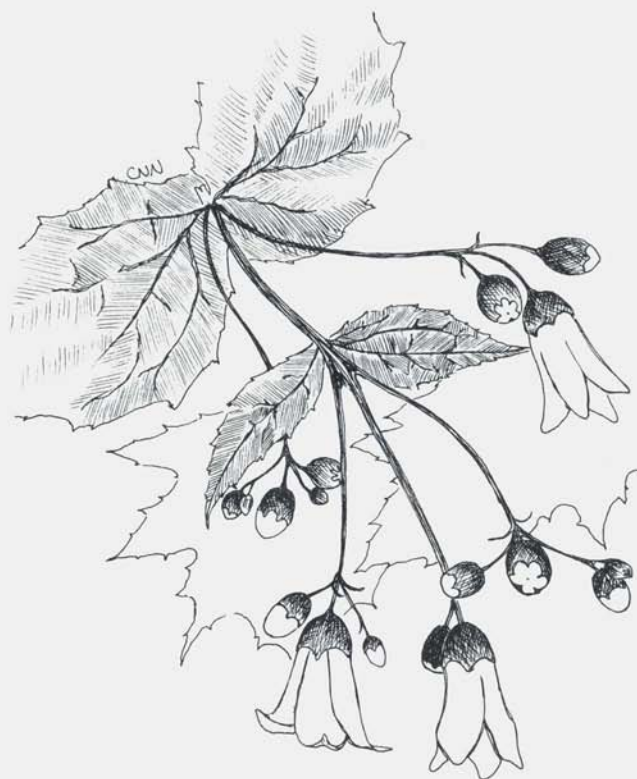
I intended to rebuild that scree, so I dug the plant and potted it, planning to put it back when the garden was complete. Somehow the scree was never completed to my satisfaction, and for several years I grew it as a delightful pot plant in the alpine house, where it flowered and produced large, black berries. Last spring, I finally planted it in another garden, in another spot where leaves collect naturally and a few other less than completely hardy species have prospered.

My experience with *Ophiopogon* has given me a great appreciation of its fortitude. Given enough soil it is massively deep-rooted, having swollen tubers similar to those of daylilies. In the alpine house during summer, when I was focused on outdoor gardening, the plant endured utter drought and did not even pout. That earned my respect. Then in spite of neglect it flowered and produced full racemes of black berries. My admiration was added. I am now tempted to try *Ophiopogon* in a sunny, drier scree, and also in a garden without leaf mulch to find out just how hardy this tough little plant can be.

—Wayne Kittredge



## *Kirengeshoma palmata*



Rock gardeners are notorious for wanting to grow plants grossly unsuited to their climatic conditions, so I feel perfectly guiltless growing *Kirengeshoma palmata*, a fall-blooming, Japanese, woodlander requiring shady, moist, acid soil in Colorado.

The beauty of this plant is difficult to describe. The open flowers have been compared to shuttlecocks by several writers. Held above palmate, deep green leaves, the sprays of waxy, pale yellow flowers are as pretty in bud as they are when open. This is

an ideal subject for the abject plant-worship so often practiced in our garden.

*Kirengeshoma palmata* is a member of the saxifrage family and bears as much resemblance to most members of its family as a lemon popsicle does to a tomato worm.

We grow the plant on the north side of the house, in unsuccessfully amended clay loam. The young shoots are frost tender and should be protected in areas where sudden dips to 10°F or colder are common after about mid-April. The large leaves are attractive throughout the growing season but need a constant supply of moisture to keep them fresh-looking. Occasional applications of liquid iron are a help if soil is alkaline. Bloom starts in September, but again, care needs to be taken that the display not be ruined by ridiculously early hard frosts.

*Kirengeshoma palmata* has proven utterly hardy, reappearing persistently despite several winters below -25°F, and without much mulch (winds wafting through our shade garden, sometimes in excess of 90 m.p.h., tend to blow mulches far, far away). I would imagine that gardeners who can provide more appropriate conditions for this plant would delight in large drifts of it; it is certainly one of the most beautiful plants I know, fall-blooming or otherwise.

—Bob Nold

## *Erigeron* 'Goat Rocks'

Washington State's Goat Rocks Range is an isolated and relatively little-visited area situated in the southern Cascades about halfway between Mt. Rainier to the north and Mt. Adams to the south. The highest peak is Mt. Curtis Gilbert at 8201', which anchors the south end of the range, while Old Snowy at 7930' dominates the north end. Northerly latitude and high precipitation ensure year-round snow and glaciers at the highest elevations. The area is one of my regular haunts for hiking, climbing, and botanizing, as the trailheads can be reached in about 90 minutes from my home and nursery in Graham. Here I am assured of peace and solitude—at least on weekdays.

One of my favorite hikes is to Hawkeye Point, the highest point on Goat Ridge, just to the northwest of Old Snowy. It is about 13 miles round-trip, with an elevation gain of approximately 3100'. This ridge is, as far as I am aware, the only area in the Cascades that has large, concentrated populations of both *Erigeron aureus* and *E. compositus* growing side by side.

In early September of 1990, after an extended lunch break at the summit of Hawkeye Point, I decided to drop down a couple hundred feet to a small, rocky bench just below the summit, in order to get a better view of a large flock of mountain goats that were grazing about a thousand feet below. There, amongst a large colony of *Erigeron aureus*, was a most unusual little daisy, its bright lemon-yellow flowers standing out vividly from the rich golden blooms of *E. aureus*.

The plant appeared to be in every way intermediate between *E. aureus* and *E. compositus*. The pubescent leaves form tufted rosettes that make a small dome. The foliage is petiolate, with obovate blades deeply lobed into three parts, and each leaf is about 2" long, elongating somewhat with age. The solitary blooms are about 1.5" across and are held on 3" stems. The blooms are very close in appearance to those of the well-known cultivar *E. aureus* 'Canary Bird', introduced by Drake's Nursery of Scotland. The rays are bright lemon yellow. The plant is taprooted; however the offsets root rather freely. I now have about 40 plants from my original collection of three cuttings. As befits a hybrid, the seed has proven sterile to this point.

Culture presents little in the way of difficulties when the plant is grown in a very lean scree or potting mix in full sun. Cover will likely be needed in areas with wet winters. Our plants in the alpine house produce flowers almost year round and certainly brighten the dark days between late autumn and early spring.

A subsequent trip to Hawkeye Point in August of 1992, during the main blooming period of erigerons, resulted in my finding another plant about a half mile away from the original. This second plant is almost indistinguishable from the first but has an even more compact habit. I have named the original clone *Erigeron* 'Goat Rocks', and I hope to offer it for sale in the autumn of 1993.

—Rick Lupp



## *Orostachys spinosa*

Every corner of the earth seems to have some abundant crassulaceous succulent that is scorned locally and admired globally. In Colorado, it's *Sedum lanceolatum*, which thrives with yuccas and cacti around Denver and cavorts with *Eritrichium* and *Androsace* well above treeline. That hasn't stopped Vaclav Plestil or other sophisticates from cooing over it the first time they find it.

I performed involuntary genuflection with my first *Sempervivum* in the Alps, and marvel at the sculptural perfection of *Dudleya* each time I visit California. I suspect that *Orostachys* must be terribly common in East Asia, since each new species or form I obtain is quite distinct in habit, bloom time, coloration and garden worth. I treasure my new acquisitions and can't help but wonder what treasures are lurking over the vast range from Central Asia to the Pacific Ocean.

No matter how many individuals or strains I grow or obtain, *Orostachys spinosa* will always have a special place in my garden and in my affections. Imagine a particularly tight and symmetrical sempervivum forged in stainless steel, and you can begin to picture this remarkable succulent. I have found that it has a steel-like disposition as well in the garden, thriving in as broad a range of soils and exposures as its hen-and-chick cousins. I have found that the tiny offsets will establish even more easily in tiny crevices than sempervivums. Several silvery limestone boulders in the Rock Alpine Garden now have concolorous colonies of this accommodating plant.

Metallic imagery belies the fascination of this plant: *Orostachys spinosa* is forever changing subtly. In winter, it shrinks almost into a ball, with leaves tightly appressed. In spring, it expands gradually, not like an artichoke head, but in two fascinating ranks—an inner ball and an outer layer of quill-like leaves. Mature rosettes can grow over 3" across, ringed with a multiplicity of tiny replicas. As if this weren't enough, the plant erupts into a 6-8" tower of bloom in late summer, producing subtle yet very pretty silvery stars right when the garden needs a pick-me-up. True, the color is muted, but who cares, if you can have a bevy of conical obelisks in your garden, your own tiny Tibet with living pagodas?

Few plants carry emblematic symmetry to such delightful lengths. I have seen *Orostachys spinosa* growing well in many places across the United States. In nature, *Orostachys* grow from subtropical China to the arctic desert of Siberia. And it is terribly welcome in one garden near the Rockies.

—Panayoti Kelaidis

# From China with Concern

by *Don Jacobs*

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“Everything around us looks so smiling that all nature seems to be at peace...however...a stern and relentless war of conquest is being continually waged on all sides, and every inch of ground is contested. It is well that plants cannot speak, or the exultations of the victors and the groans of the vanquished would be too much for humanity to bear!”

So wrote E.H. Wilson in describing his observations at a mid-slope transition site on Mt. Emei in October 1903. He was referring to the unique assemblage of plants occupying this area between 4,500'-5,500' where subtropical invaders from lower elevations are overwhelmed by temperate deciduous maples, birches, dogwoods, and viburnums from above.

Mt. Emei was unknown to the Western world until Colbourne Baber ascended to the Golden Summit in 1877. It is one of the five most sacred mountains of China but has a history of botanical exploration beginning only in 1887 when Ernst Faber brought home some 70 rare plants. Few additional plants emerged until Wilson's extensive collections.

The primary goal of my trip to China in 1983 was this famed mountain, 120 miles south of Chengdu, in Sichuan Province. The 10,000' peak is flanked by a few well-worn trails and a constant stream of pilgrims ascending to some 70 Buddhist temples above. Here, too, have trod nearly all plant hunters visiting western China from Europe and America. Many have been commemorated in plant names. E.H. Wilson, P. Farges, E. Bodinier, J. Cavalerie, J. Esquirol, C. Silvestri, Robert Fortune, R. Farrer, Augustine Henry, Thomas Watters, A. Steward. and von Rosthorn come to mind. It has been reported that more than 3,000 species of plants from Mt. Emei have found their way into western horticulture, a number greater than the total native vascular species of the British Isles.

Mt. Emei is indeed a picturesque and even somewhat awesome place. In the evenings, the prolonged calls of cicadas are nearly deafening. Their calls are distinctly unlike any American species, and these ventriloquists are seldom seen. Many beautiful beetles, butterflies, and other insects are readily observed, as are birds of many species, but

mammals are seldom encountered, even though the mountain is near panda country. The Sichuan fir community (*Abies sutchuenensis*) on the upper slopes of Mt. Emei is frequently shrouded in clouds. The beautiful yellow *Rhododendron chengshienianum* grows from there to the summit. Among firs in the cloud forest, I collected *Tiarella polyphylla*, *Impatiens omeiana* (photo, p. 141), *Lysimachia congestiflora* (photo, p. 142), and some ferns. More than 20 species of *Rhododendron* grow on the mountain. They range from 25-35' trees (*R. pingianum* and *R. openshawianum*), growing from 6,000'-8,000' elevations, to shrubs of various character at moderate elevations, and culminating with variable Sims azaleas (*Rhododendron simsii*) below 3,500'. The lower slopes are largely covered by second-growth stands of *Cryptomeria* and *Cunninghamia*. The ground is covered by many species of spikemoss (*Selaginella*), *Ardisia pusilla*, *A. bicolor* (photo, p. 144), *Sedum emarginatum*, *Pratia montana* (photo, p. 144), *Viola diffusa*, *V. philippica*, *Vaccinium* species, running fern (*Dicranopteris*), drifts of *Hedychium* ginger, and others. Where cascading streams emerge from rocky coves, grand, broad-leaved evergreen communities thrive. Twenty-foot *Acuba omeiensis* are scattered among *Schefflera*-type trees, large-leaved rhododendrons, fragrant *Michelia* (petals are blended with tea), *Illicium henryi*, *Itea omeiensis*, *Camphora*, *Camellia*, deciduous maples, dogwoods, and *Camptotheca*. Massive rocks are clothed with mosses and the evergreen fern, *Woodwardia japonica*, with 4'-long by nearly 2'-wide fronds, arches over them.

On the mid-slopes grow not only windmill palms (*Trachycarpus*), but a collection of unrelated plants that may

be confused at a distance. The most famous is certainly *Davidia*, the dove tree. Its flower bracts hang as large as handkerchiefs—or white-winged doves—from the branches. Even when not in bloom, it may appear so, because of persistent white leaves of kiwi vines (*Actinidia* spp.) scrambling up and around the trees. Related to *Pinckneya*, the Georgia poinsettia, are Chinese species of *Mussaenda*. Both have clusters of small yellow flowers surrounded by showy bracts of various sizes, pink in *Pinckneya* and usually white in wild *Mussaenda*. The woody-melon tree, *Rehderodendron macrocarpum*, with red, melon-shaped, woody fruits, nearly 3" long, also grows, here along with its showy relative *Styrax hemsleyana*.

Some of the plants that I collected at Mt. Emei and subsequently established in the China Cove Community at Eco-Gardens in Georgia are listed in Table 1. I have distributed these as much as possible to public gardens, commercial nurseries, and collectors.

The value of assigning cultivar names to choice specimens being propagated from exotic or domestic collections was convincingly demonstrated when I sent a specimen to Dr. John Wurdack for addition to the herbarium of the Smithsonian Institution and for identification. In collecting it on Mt. Emei, I considered it the most remarkable *Rohdea* specimen I had ever seen. After bringing it to flower at Eco-Gardens I began propagating it as *Rohdea* 'Eco China Ruffles' but later realized it belonged in a closely related genus, *Tupistra* (photo, p. 144). Zhaoran Xu, who has recently described several new species of *Tupistra* from South China, was visiting the Smithsonian at the time. He found my plant puzzling but decided to consider it an aberrant form of the variable *Tupistra chinensis*. I have since obtained a more characteristic *T.*

*chinensis*, and foliage characters are so vastly different that only flowers link the two forms, and even these are not identical. The cultivar name remains appropriate in distinguishing it. Leaves may be up to 5" broad, chartreuse green, ruffled and puckered. The inflorescence stands erect, like a pine cone, on a short stalk, in the foliage fountain, and produces orange berries with one to three large seeds in each. It has so far proved self-sterile, so all propagation has been by dissection. Hopefully, it will prove fertile to pollen from the new plant supplied by Jim Waddick. Its graceful foliage is much admired by visitors. The recently acquired form has tailored, dark green, narrower leaves much like wild-type *Rohdea japonica*.

There will always be differences in philosophy between namers of plants

and *vive la difference*. The fact that the current list of plants for the known flora of China contains several times the number of species described from North America causes some skeptics to frown on Chinese and Japanese botanists as "splitters" in contrast to "lumpers," who define species with a broad stroke. In truth, there is room for both viewpoints, because the facts vary greatly from one group of plants to another, and the goals of classifiers may be legitimately different. The same differences in philosophy occur among Asiatic and Western taxonomists. A great disservice is done to us as gardeners by those who for reason of philosophy or from lack of experience fail to recognize vast differences among related plants. Lack of recognition relegates substantially different plants to oblivion.

Table 1 Mt. Emei Plants Now Growing at Eco-Gardens

*Acorus gramineus*  
*Ardisia bicolor*  
*Ardisia pusilla*  
*Begonia limprichtii*  
*Cymbidium ensifolium* (survived -8°F at Eco-Gardens)  
*Cymbidium sinense*  
*Dryopteris decipiens*  
*Impatiens omeiana* (yellow, hardy perennial)  
*Lepisorus bicolor*  
*Lysimachia congestiflora* 'Eco-Satin'  
*Osmunda japonica*  
*Petrocosmea flaccida*  
*Pratia montana*  
*Sedum emarginatum*  
*Selaginella moellendorffii*, *S. stauntoniana*  
*Sorbus folgnerii*  
*Tupistra chinensis* 'Eco China Ruffles'  
*Viola diffusa*, *V. philippica*  
*Woodwardia japonica*

Some plants from the karst mountains near Guilin and elsewhere

*Aleuritopteris argentea*  
*Asarum forbesii*, *A. geophyllum*  
*Eurya alata* 'Eco Glowing Embers'  
*Pyrrosia adnascens*  
*Quercus glauca*  
*Rhododendron ovatum* 'Eco Tips Aglow'

I trust I have not conjured up visions of botanists sitting in a field assigning species names to each new color form or leaf type as they appear. Botanists are not so blessed as ornithologists, whose subjects select their mates with the aid of song, sight, and discretion, rather than accepting or rejecting whatever pollen comes their way. But this is an opportunity as well as a liability.

Botanists travelling in China in recent years are certain to come away with mixed emotions. Flying in, seeing the countryside from the air, it is clear that much of the countryside is traversed by elaborate irrigation systems and a crazy-quilt of cultivated fields. Even rocky slopes have been terraced and support rice fields. Undisturbed native vegetation is virtually non-existent. Apparently virgin woodland, on close examination, usually turns out to be a former cemetery, park, or shrine, neglected for decades and now overgrown. Orderly arrangements of ancient trees and rock formations hint of a glorious past. Exotic specimens, still persisting, reveal the innate horticultural interests of the native people.

Only fear of government suppression conceals the current frustration, embarrassment, and disgust of the men and women whose ancestors gave us chrysanthemums, roses, peonies, all so skillfully embellished by cultivation that we can only speculate on the ancestral types. Among exotics revealing earlier cosmopolitan interests and world-wide exchange are specimens of *Thevetia peruviana* (Peruvian yellow trumpet), *Magnolia grandiflora* (our southern evergreen magnolia), *Cornus florida*, (flowering dogwood of the USA), and Kaffir lilies (*Clivia*) from Africa. In 1983 I saw *Clivia* offered for sale at astronomical prices in Chengdu and Canton, from \$4 for one-year seedlings to \$75 for flowering young plants and \$150

for plants with three flowering stalks.

As early as the Han Dynasty (ca. 200BC-200AD) trade existed between China and Africa. After the Mongul Emperors (descendants of Genghis Khan) were driven out of China in 1368, the Ming Dynasty ushered in a new blossoming of culture. Isolationism first ruled, but by the turn of the century world trade was encouraged by the emperor. Nearly a century before Columbus discovered North America while searching for "Genghis," Commander Cheng Ho sailed to and returned from Mogadishu, Somalia, with 30,000 men and 60 galleons, each with 10 times the capacity of the Santa Maria. Subsequently, China returned to its traditional isolationism.

Chinese peoples, though world-renowned entrepreneurs, have been stifled for decades in their own country. As recently as 1987, I could find no organized garden centers or commercial nurseries anywhere in the country. But curbside marketing of home-grown plants, handmade pots, penjing trays, fancy goldfish, and even fancy guppies were beginning to appear. Caged birds have been woven through Chinese culture for millenia, yet bird life in China nearly vanished after Chairman Mao instructed the citizens to eat all birds because they consumed human food. Fortunately, Chinese enclaves in Thailand, Singapore, Taiwan, Hong Kong, and elsewhere perpetuated the avian interests discouraged in mainland China.

Many Chinese scholars exited the country as the revolution ended in the 1940s, but many more suffered on, silently making their contributions. In 1983 I was impressed by a fine plant science and herbarium building nearing completion at the new Beijing Botanic Garden. Visiting the former National Botanic Garden was not permitted because of the devastation committed

during the "cultural revolution." At the new site, a pinetum was being planted with conifers salvaged from the former garden. Well-engineered water gardens were in various stages of completion. Extensive test plots of the hardiest kiwis (*Actinidia*) and other crop plants were in place, and the grounds were reasonably well groomed.

The spartan scientists working at the Beijing Botanic Garden command respect. They certainly have not been pampered with niceties or modern equipment, yet they graciously share whatever they have. The only exception was the single specimen (at that time) of *Cathaya argyrophylla*. This very rare conifer was not known to botanists until discovered in Kwangsi Province in 1955 and described in a Russian journal in 1958. It is much coveted in Europe and America and should be hardy through Zone 6. No cuttings were offered.

In and around the ancient capital of Xian, citizens struggle to retain their cultural heritage. Education is highly prized and restricted to the industrious. I conversed with high school students studying in the fields until dark, because distractions interfered with concentration at home, and light was poor.

No account of the famed Mt. Emei can ignore the grand old man of the mountain, Dr. Won-Pei Fang. There is a close link between him and his colleagues and the Arnold Arboretum. Dr. Fang's mentor was Professor S.S. Chien. Dr. Chien and several of his students studied at the Arnold. H.H. Chung, another Arnold alumnus, also sent student collectors to the area.

On a pleasant morning in July 1983, after spending several days at Mt. Emei, I strolled across the Sichuan University campus at Chengdu, toward the Plant Science Building. Few students were on campus then. Signs of neglect were depressing as I viewed this

grand edifice. Lawns were choked with tall weeds, dead limbs were untrimmed, pools were unkempt and nearly dry. In the building, I came promptly to the office of Dr. Fang, shared with his 45 year-old son Ming-Yuan. Despite high ceilings, tall windows, and adequate space, the atmosphere was dingy, with unswept and unlighted corridors. I was warmly greeted by the 80-year-old botanist, who spoke English to me. As we sipped tea, we discussed Mt. Emei and exchanged reprints of our publications. I described an interesting *Begonia* that I had collected at about 5,000' on the mountain, hoping to learn its identity. Dr. Fang smiled coyly and said, "On Mt. Emei are many begonias." The plant has since been identified as *Begonia limprichtii* (photo, p. 143), a semi-hardy, rhizomatous species with near-round, bright, glossy green leaves with erect red hairs, and groups of white flowers. It is winter dormant and can tolerate some freezing (at least to 20°F).

I asked to examine certain plants in the herbarium. Supporting Dr. Fang by an arm and accompanied by his son, I ascended several flights of stairs. I was seated in the herbarium, and the son gave instructions to the young lady, keeper-of-the-keys, who brought the specimens for me to examine. I may be prone to read too much in reflecting on the apparent security here. In Guilin and elsewhere I was allowed considerable freedom to examine pressed specimens stored in unlocked cases. Dr. Fang died soon after my visit.

Let us hope that the opportunities for studying plants in China as well as America will long continue—I fear they dwindle fast.

Don Jacobs has developed Eco-Gardens, a research garden supported by sales of rare plants and world-wide exchanges near Atlanta, Georgia.



Boat on Kuei-Chiang

*Impatiens omeiana* (pp. 137, 138)

photos by Don Jacobs





Karst mountain

photos by Don Jacobs

*Lysimachia congestiflora* (p. 137)







*Begonia limprichtii* (pp. 138, 140)

*Petrocosmea flaccida* (p. 138)





*Pratia montana* (pp. 137, 138)

photos by Don Jacobs

*Ardisia bicolor* (pp. 137, 138)



*Tupistra chinensis* (p. 137)



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# Propagation

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## Sowing Seed for the First Time

I hate putting myself on the line as an expert on anything, because I'm not, but I certainly know what works for me. Growing plants from seed has interested me for 20 years ever since I figured out that it has significant advantages over buying plants from nurseries.

I like a natural look in the garden, and this is created by using several plants of each kind mixed with a few single specimens. A collection of just one plant of each hybrid or species isn't my idea of a garden. One never sees one *Draba densifolia*, one *Anemone patens*, one *Silene acaulis*, and one *Arenaria obtusiloba* in the mountains; they grow in drifts. But unless you have very deep pockets, you do not buy drifts of each. Growing from seed can give you the privilege of numbers and the ability to achieve a natural effect in your garden, without major expense.

No matter how much you work at selecting the best conditions to grow a plant successfully in the garden, trough, or alpine house, there is no guarantee it will survive. The worst part of having purchased a choice plant that decides to die is watching it expire slowly. I hedge my bets by growing from seed and placing plants in several different spots of the garden.

Extra plants grown from seed can be used for barter or gifts among gardeners—and I speak from experience. One of our chapter members has the pleasing habit of approaching me holding a pot saying, "Do you have this plant?" I always seem not to, so the next statement is "Well, you do now," as he places a treasure in my hand. Immediately I start thinking, "What do I have for payback?" This usually results in a trip to the seedling frame, or taking a trowel and bag to the garden where there are excess duplicates. You can only achieve this abundance and the resulting generosity by propagating from seed.

Retirement is fabulous, and I hope you all live long enough to enjoy it. One of our habits is breakfast at a fast-food restaurant, and we have three in our town. Every morning that our steep, curving mountain road is passable, we put the poodle in the vehicle and drive the seven miles to Brevard. We usually eat a biscuit with jelly and have a cup of black coffee at Burger King. Then we do errands and head back to work a full day in the garden.

One of the perks of a BK breakfast is the marvelous, tough, insulated cups they use to serve coffee. We collect and rinse every one, then burn holes in the bottom with a small electric soldering iron. These become my seed pots. I rarely place a label in a seed pot until germination has occurred. Why take a chance on wasting a label? The BK coffee cup takes a Sharpie fine point pen beautifully, and there is lots of room for seed information on the cup. This is easily transferred to a label if the seeds germinate. If I run out of cups, I use a square 4" pot. I now use larger seed containers than I once did, having decided that young seedlings will hold over better in these larger pots if I am busy and can't pot up when I should.

The potting mix is uncomplicated and not very scientific. If there is regular

commercial bagged potting soil in the garden shed, I will empty a bag into the wheelbarrow. Since I buy gritty creek sand by the truck load for drainage when constructing a new garden or sand molds for troughs, there is usually a supply in the yard. A few shovels of sand are added. If ericaceous seeds are being sown, damp peat moss will be run through a sifter and then added. If scree plant seeds are being put down, the peat is omitted and a pail of turkey grit is added. I buy the grit from the feed-and-seed store in 80-pound bags. After a good stirring, I shovel any mix that remains into a large container for future use. Then there are the days I find a bag of commercial perlite-and-peat mix in the shed and just mix in a pail of turkey grit. Recently I bought a small bag of pre-mixed seed starting soil for \$1.49 to try. I try for as sterile a mix as possible to avoid weed seeds, but I don't get uptight if sterility isn't perfect.

Make certain there are no large pieces of peat or wood chips in your potting mix. Trying to separate the roots of four small seedlings all determined to hang onto one large piece of peat or wood will result in one unhappy gardener and four equally unhappy seedlings.

My favorite time for sowing is mid-December after the leaves have been cleaned up outside, but I have been known to sow seed at any time the mood strikes. During the busy gardening season, I store any seeds I may acquire in a covered cookie tin in the crisper drawer of the refrigerator.

Once I'm ready to sow, the pots are filled with soil and firmed by banging sharply on a hard surface. I like the soil mix almost to the top, leaving just enough room for a thin mulch. This way the seedlings will be high enough to take advantage of any air movement. Seeds are sprinkled on top and covered lightly with turkey grit according to my regular habit or the latest theory I've found in some publication. The pots are set in water to soak overnight, watered from the top with a watering can, and drained.

December sowing is exciting because the pots are set in the laundry for three weeks. Whatever germinates goes under the lighting system or on the window sill to grow, and the other reluctant seed pots are put into an outside frame. Lengths of screening are placed on top to protect the pots from a small poodle who thinks it's fun to lay on them and from our heavy rainstorms.

If I sow during warmer weather, the laundry period is omitted, and the pots immediately go out under the screening in the frame. When these germinate, the pots are sunk in a sand frame with no screening.

I consider myself not a mechanically minded person, so anything I attempt is easy. Mechanically minded to me is anything to do with tools, machines, mathematics, the level (with those foolish bubbles), carpentry, plumbing, heating, electricity, and deciphering complicated sewing patterns. In times of great stress and frustration during our 42 years of marriage, my husband has been known to howl, "Don't you understand *anything* mechanical?" No. And mechanical covers a great deal of ground around here!

However, in the three pre-retirement years, when Bruce lived in Massachusetts while I lived 925 miles away in North Carolina, I learned to cope. If I wanted to water the garden from the stream with the pump, I followed simple step-by-step instructions we had worked out. If I wanted a truckload of rock moved, I moved it. If there was a huge rhododendron trunk to be removed, I attacked it with a mattock and a shovel. If I wanted a frame, I built it.

Anyone can build a frame, if she wants it badly enough. I consider frames essential to gardening; sand frames are my favorite. Preserved or treated timbers are easy to lay after leveling the ground. If only two or three timbers high, I can get away with omitting the nailing part. I once made a 3' x 6' frame of concrete blocks, decided I hated it, and then spread hypertufa on the outside surface to make it into a large trough. Bricks would make a neat frame but wouldn't fit into our garden, since nothing else is constructed of brick.

When constructing a simple frame of concrete blocks, I'd place two or three layers in a rectangle or square. Inside, sand would be filled almost to the top and pots sunk into this medium to about half an inch from the top of the pot. After the sand has been wet, it is easy to lift a pot, check it and return it to the same hole as often as you wish. Sawdust can be used as a substitute, but sand is my first choice. The sand holds water nicely, but not too well, and it keeps the pots from tipping over.

Now that Bruce is here, our frames have been properly leveled, deepened, and nailed. Some of them boast removable screens and Plexiglas covers. One large frame has an oscillating fan running night and day. I use this for tricky mountain plants that like air movement.

The sun can be brutal in North Carolina. Using mulched, insulated cups sunk in a sand frame protects the roots of tiny seedlings from heat and cuts down on watering. I prefer growing my plants "hard", so plants that aren't scheduled for shade gardens are given full sun. Shade-loving plants are treated to shade screens.

There are so many reasons seeds don't germinate that I have trained myself not to be too upset when something just sits there. My recommendation to a beginner would be to start on a small scale, but sow at least a dozen different kinds of easy seeds. Surely some will germinate, thereby encouraging you to do more. It is exciting to grow plants from seed, and every one needs an accomplishment of which she can feel proud. After all, gardeners are normal people—aren't they?

Germinating seeds requires a certain amount of commitment. Pots must be watered during dry spells; seedlings must be moved to larger pots. Then that final step of planting into the garden—this is my favorite time.

ARGS members who are mad about growing from seeds have their favorite private or plant society sources, some very carefully guarded. Seed collectors advertise in society bulletins. If I were a beginner and wanted to get started growing from seed, I'd go to chapter meetings and visit area rock gardens to see what is being grown successfully and what appeals to me. Talking with gardeners can give you a clue to seed sources and growing conditions. Rock gardeners are usually generous with their time and cultural hints. Occasionally a person will be secretive, so—try someone else.

If pushed to the wall—and I always try to avoid choosing seed for other people—I would steer you to the ARGS seed list. If more than three donors send in the same seed, this could be an easy plant to grow. I would suggest the following for a beginner: *Androsace camea*, *Aquilegia canadensis* 'Nana' or *Aquilegia flabellata*, *Aster alpinus*, *Campanula carpatica*, any *Dianthus*, *Draba aizoides*, *Erigeron compositus*, *Erinus alpinus*, *Gentiana septemfida*, *Papaver alpinum*, *Potentilla megalantha*, and *Viola jooi*.

Seed sowing is addictive, like eating chocolate chip cookies or potato chips. Start with a small seed assortment, a small frame, and a small garden. Your first

triumphs may eventually lead you to become the proud owner of a garden filled with rare treasures started from seed.

—Ev Whittemore

Ev Whittemore was once a beginning gardener and remembers the challenge of learning to be a rock gardener. Her garden in Penrose, North Carolina, will be on the tour for the 1994 Annual ARGS Meeting. She hopes that many of the plants she started from seed will be alive for the tour.

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## Books

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*The Propagation of Alpine Plants and Dwarf Bulbs*, by Brian Halliwell. 1992. Timber Press: Portland, Oregon 208 pp., 45 line drawings, 6.25" x 9.25"; hardbound. \$24.95. ISBN 0-88192-254-4

This is not a book for readers who merely skim text. Each paragraph is crammed with how-to information. In a delightful departure from many English sources, this book is written with North American alpine and bulb enthusiasts in mind; almost every method discussed is manageable in our varied climates. The graphics are excellent, too.

Brian Halliwell, with his years of hands-on experience at Kew and his keen knowledge, has surely accomplished his objective of sharing what he has learned with other gardeners. The book is in two parts, the first concerned with seed propagation and special techniques, the second containing an enormous A-to-Z listing of recommended propagation methods for individual plants. Special tidbits are included, as under *Anchusa caespitosa*: "young plants flower best, so take cuttings every second year." When was the last time you saw x *Briggandra calliantha* in any book, much less one with tips on propagation? Under *Conandron ramondioides* you will find, "Cut tubers into pieces as new growth starts." Tubers? I have yet to find a tuber beneath the soil of my conandrons; I will have to consult with Mr. Halliwell on this. There are over 1,100 plants listed, and not many of significance seem to have been omitted, which is most helpful.

—Jerry Cobb Colley

*Who Does Your Garden Grow?*, by Alex Pankhurst. 1992. Earls' Eye Publishing: Lamb Corner, England. Available in USA through Capability's Books, Inc., Hwy. 46, Deer Park, WI 54007. ISBN 0951-8133-07.

Have you ever grown *Aethionema* 'Warley Rose'? or *Aubrieta* 'Dr. Mules'? Did you wonder what "Warley" referred to or who Dr. Mules was? Here is a book that satisfies your curiosity and entertains you at the same time with vivid and

amusing descriptions of plant people, nurseries, gardens, and a little history of gardening. These brief biographies are nearly all of people who gardened in England, who lived into this century, and whose names or the names of whose nurseries have been attached to good plants. Many of these plants are still in cultivation, and some of them are rock garden plants. Many of the gardens have vanished, and many of the plants have been lost to cultivation, so each story contains intimations of mortality for man and his works. But the telling is not at all pessimistic, and there are plenty of plants and gardens that have survived their creators and namesakes.

Even if you haven't grown them—and not all the surviving plants are available in the US—you will find Mrs. Pankhurst's book fascinating. Each biography is about two pages long, so it is perfect bedside reading. At the rate of one a night, you could make this book last two months. The illustrations of people are splendid, the black and white plant pictures are a little dim, but there is a block of a dozen colored photographs that help justify the naming of the plants in the first place. As you read the book, your view of gardeners as a quirky, generous collection of people is confirmed, and the suspicion arises that at the beginning of the century everybody in gardening knew everybody else—exactly as it is today. The difference now is that there are no more Miss Willmotts with 104 uniformed gardeners, and, alas, Warley Place has also vanished. But the *Aethionema* is still around, and so is the beautiful purple *Aubrieta* raised by eye surgeon Dr. Philip Mules around 1894.

—Geoffrey Charlesworth

*Saxifrages: A Gardener's Guide to the Genus*, by Winton Harding. 1992. The Alpine Garden Society: Worcestershire. Rewritten and expanded, Ed. Christopher Grey-Wilson. 152 pp., line drawings, 16pp. color photos. 8.25" x 5.75"; paperbound. . ISBN 0-9000048-58-1

In 1985 Fritz Kohlein's 220 page *Saxifrages* was translated from the German. In 1989, Webb and Gornall's 307-page *Manual of Saxifrages* came out (why didn't they just call it *European Saxifrages*? It is the definitive treatment of these, merely skimming over the rest of the world's wealth in the genus). Why on earth would the Alpine Garden Society choose to produce a 152-page update of Winton Harding's treatment while the ink is still fresh on these other tomes?

Saxifrages are as much the backbone of the rock garden today as they were in Farrer's time. With thousands of hybrids, cultivars and even species ascribed to this genus, a third book has yet to exhaust the possibility of *Saxifraga*. Like a whole generation of rock gardeners who imprinted on Harding's classic, even 33 stunning color plates do not approach the black-and-white poetry of the original.

—Panayoti Kelaidis

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## Errata

—#@!☆@#☆@!!!—

*Bulletin of the American Rock Garden Society* 51(1): Winter 1993.

Photo, p. 38, top left is *Eriogonum caespitosum* not *E. flavum* var. *piperi*.



## ARGS Coming Events

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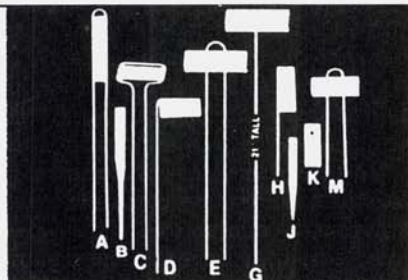
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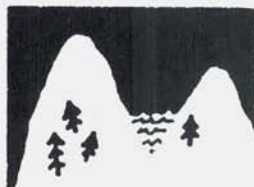


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