

# BULLETIN

of the

## AMERICAN ROCK GARDEN SOCIETY

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No. 2

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### DWARF AND PYGMY CONIFERS

JOEL W. SPINGARN, *Baldwin, N. Y.*

In the past century or more, slow-growing conifers have enjoyed intermittent popularity. When land was plentiful and gardens sizeable, these dwarf trees were generally out of place. Today, with the shrinking size of gardens, their use in rock gardens is certainly gaining in importance.

Often, rock gardens are constructed on very prominent sites where they are evident the year round. I have seen many on Long Island, of small size, set in front of houses, each adjacent to the path leading to the front door. While many persons may think such a site unfavorable for a rock garden, it nevertheless is often the site chosen by the home owner. In this case one must be extremely discriminating in the choice of plant material. In addition to finding the very diminutive rock plants for spring and summer interest, it is of major importance to pay a good deal of attention to finding plant material for winter interest. Usually the only material contained in a rock garden of interest in winter are the rock outcrops and possibly the bare branching of some of the deciduous dwarf shrubs. The use of miniature conifers would lend much of character, background, and importance to any rock garden, not only for winter interest, but once one has become inoculated, for interest the year round. Similar circumstances have led me to become a dwarf conifer buff.

Those familiar with the arborescent forms of conifers will find the dwarfs in sharp contrast to the normal, but on close examination the differences are primarily in size. A great many resemble their arborescent brothers, but because of their greatly telescoped growth, have gained much compactness. A very old, six-foot dwarf conifer's parent could be more than one hundred feet high, but if the dwarf conifer be one of the lower growing forms such as Cole's prostrate hemlock, or *Chamaecyparis obtusa* 'Juniperoides', it would never grow more than a foot in height.

There is considerable variation in form. One can find them in every imaginable outline: pyramidal, fastigiate, pendulous, umbrella-like, or little congested cushions; also there are the irregular contorted forms that offer so much character.

During the cold months, many of the dwarf conifers can be of considerable value in lending a cheery hue to the garden. There is an enormous range of colors to choose from; from deep purple and silvery blue to bronzy gold and bright yellows, some variegated with splashes of color rivaling many flowers. This group offers color as well as character for winter as well as for summer interest.



I have found they grow in almost any soil that drains readily and is not overly rich in organic material, and once established will require very little attention. A few require perfect drainage, such as *Juniperus communis* 'Compressa'. I have found that it does best planted on a slight rise to facilitate the movement of water. Some of the junipers, such as *J. chinensis* 'Shimpaku', find my Long Island soil a bit too acid, so occasionally a bit of lime is applied. Fertilization is rarely required, except where the soil may be devoid of organic matter. Overfertilization may result in the plant growing out of character and losing the compactness that is so desirable in many of the dwarfs. An annual application of a small quantity of iron chelates is beneficial to improve color. Spider mites have an affinity for the compact growth of many, so it is wise to use a good miticide occasionally for control. I use Kelthane or Tedion.

Dwarf conifers originate in many ways. The majority of these plants occur from seed, and these forms are usually very stable and rarely revert. Another group is derived from propagation of witches'-brooms, an abnormal condition occasionally found on a branch of an otherwise normal tree. Other dwarf forms are the result of environment, sometimes called climatic dwarfs. These plants become stunted or prostrate in their effort to survive the high altitudes and bitter cold of mountain regions. Examples of these can be found among the junipers, pines, and firs.

I have endeavored in the following list of approximately one hundred conifers to include the best of more than four hundred growing on my grounds, and have taken "availability" into consideration. Some of the following are quite rare, but all are available from one specialty nursery or another. I have almost every plant listed, under propagation, but of course some are very limited in quantity, due to a dearth of cuttings. The plants grow so slowly they cannot keep up with the demands of collectors. Included are a few stronger growing forms for use in the background of larger rock gardens.

I have tried to group duplicate variants together to prevent the prospective buyer from collecting a lot of "names." I also mention any special growing conditions necessary for particular plants.

Remember that the vast majority of conifers require a good deal of sunshine to bring out their true character and beauty. Some of the spruces and hemlocks do well on less, but should have at least half a day of sunshine. The only exception is *Tsuga canadensis* 'Cole's Prostrate' which will thrive on only a few hours of sunshine each day.

## ABIES AND CEDRUS

### *Abies procera*

'Glauca Prostrata'

24" x 40" in 25 years

A very handsome dwarf fir, gray-blue in color, dense foliage. My plant is growing horizontally in flat layers. Undoubtedly the result of a side branch propagation.

### *Abies arizonica* 'Compacta'

12" x 9" in 5 years

Plants so labeled are probably *Abies lasiocarpa* 'Compacta.' A very handsome cone of silvery blue-green foliage. Bark conspicuously light gray. Fairly rapid grower.

### *Abies pinsapo* 'Glauca'

30" x 36" in 12 years

Radial stiff blue foliage. Most plants are horizontal growers but I have seen two trees at the Cutting Arboretum, Oakdale, Long Island that have formed leaders and are quite sizeable. They are truly magnificent specimens.

- Abies balsamea* 'Hudsonia'  
10" x 20" in 15 years  
Probably the dwarfest fir. Dark shining green, flat-topped. Similar plants are *Abies grandis* 'Nana' and *A. balsamea* 'Nana'. The latter grows rounder on top.
- Cedrus atlantica*  
'Glauca Pendula'  
13' in 13 years  
An extreme weeping form of the Atlas cedar. I am training a plant vertically for eight feet and then horizontally, allowing all the branches to fall, forming a curtain wall of pendulous foliage.
- Cedrus deodara* 'Pendula'  
24" spread in 6 years  
Typical foliage but very pendulous. Rather strong grower. Very striking trained over rocks. Form 'Aurea Pendula' similar, of slightly slower growth and good gold color.
- Cedrus libani* 'Nana'  
25" x 18" in 12 years  
A very dwarf, irregular, upright plant eventually conical. One of the slowest growing cedars.
- Cedrus libani* 'Sargentii'  
5' spread in 10 years  
Typical cedrus foliage. Long leaves, blue-green in color. Fairly rapid grower. Very pendulous.

## CHAMAECYPARIS LAWSONIANA forms to 1" annual growth

- C. lawsoniana* 'Aurea Densa'  
13" x 7" in ten years  
A rare small ovoid shrub of excellent golden color, branches vertically set.
- C. lawsoniana* 'Forsteckensis'  
11" x 13" in ten years  
The true form is a very dwarf congested bun-shaped bush. There are looser growing forms in circulation, probably the result of propagating strong growing shoots by grafting.
- C. lawsoniana* 'Gimbornii'  
15" x 11" in ten years  
A very dwarf blue-green ovoid bush of vertically set branches.
- C. lawsoniana* 'Minima  
Aurea Rogersii'  
10" x 7" in ten years  
Similar to *C. l.* 'Aurea Densa' but slightly more slender and compact.
- C. lawsoniana*  
'Pygmaea Argentea'  
16" x 7" in six years  
Appears similar to 'Gimbornii' with new growth tipped white; very handsome but rare. Best planted in protected area.

## CHAMAECYPARIS LAWSONIANA forms to 2" annual growth

- C. lawsoniana*  
'Filiformis Compacta'  
17" x 17" in twelve years  
Hornibrook's description, "A crowded, globular bush, its drooping branchlets giving it the appearance of a wet mop." Branches filiform, leaves adpressed, blue-green color.
- C. lawsoniana* 'Lycopodioides'  
30" x 18" in 12 years  
Another tangled mass of filiform branches and adpressed leaves but conical in growth.
- C. lawsoniana*  
'Minima Glauca'  
28" x 24" in 15 years  
A squat cone of vertically-set branches, blue-green foliage.

CHAMAECYPARIS OBTUSA forms  $\frac{1}{8}$ " to  $\frac{1}{2}$ " annual growth

- C. obtusa* 'Chilworth'  
7" x 9" in 12 years      Branches recurving and overlapping those below. Very dwarf and compact bun.
- C. obtusa* 'Contorta'  
15" x 11" in 12 years      Terminal tips twisted. Pyramidal in outline; very dwarf and compact.
- C. obtusa* 'Intermedia'  
6" x 7" in 12 years      A typical miniature Hinoki cypress. Very dwarf.
- C. obtusa* 'Nana'  
7" x 9" in 15 years      The true plant is very rare. Most plants under this name are form 'Gracilis Nana.' Grows horizontally in billows of very dark green foliage.
- C. obtusa* 'Spiralis'  
10" x 8" in 12 years      Terminal tips all upright, forming miniature "spires."

The following forms, although gems, are recommended only for the collector willing to give winter protection. They are best grown in pots and wintered over in a cold frame. They are not reliably hardy on Long Island except possibly if sited in the proper microclimate:

*C. obtusa* 'Caespitosa,' 'Juniperoides Compacta,' and 'Minima.'

CHAMAECYPARIS OBTUSA forms  $\frac{1}{2}$ " to 1" annual growth

- C. obtusa* 'Mariesii'  
13" x 12" in 10 years      An irregular bush eventually conical. Foliage variegated with a white fleck. Very slow.
- C. obtusa* 'Nana Aurea'  
29" x 29" in 15 years      An irregular pyramid. One of the best golden forms.
- C. obtusa* 'Nana Compacta'  
43" x 33" in 30 years      Irregularly pyramidal plant, but no two grow alike. Dark green foliage, very oriental in appearance.
- C. obtusa* 'Nana Kosteri'  
10" x 12" in 10 years      Overlapping branches, slightly pendulous. Bright green in color. Distinct.
- C. obtusa* 'Pygmaea'  
14" x 17" in ten years      A horizontally tiered dwarf bush, brown-green in appearance. Form 'Pygmaea Aurescens' is said to be suffused with gold in winter, but I have not been able to detect this difference.
- C. obtusa* 'Lycopodioides'  
55" x 45" in 20 years      A very irregular upright-growing plant. Foliage extremely adpressed to stems, some terminals ending in small fasciations. Very distinct and unusual. Form 'Lycopodioides Aurea' has new growth golden.

## CHAMAECYPARIS OBTUSA forms annual growth to 3"

- C. obtusa* 'Coralliformis'  
24" x 28" in 12 years      Young plants cushion-shaped, eventually sending up a leader and becoming an irregular pyramid. Leaves adpressed and branches filiform. Branchlets on older plants coloring reddish.



- C. obtusa* 'Ericoides'  
50" x 30" in 25 years  
Stiff juvenile foliage with three color changes during the year. A distinct purple in winter, new growth soft green hardening off to gray-blue. Upright grower.
- C. obtusa* 'Filicoides'  
4' x 8' in 20 years  
Two different plants depending on the propagating material used. Terminal tip cuttings propagate a pyramidal plant of faster growth. An inner branchlet propagated becomes an irregular arching shrub. The fern-leaved Hinoki cypress.
- C. obtusa* 'Tetragona Aurea'  
5' x 4' in 20 years  
An excellent golden form of pyramidal outline. Branchlets sometimes quadrangular.
- C. obtusa* 'Torulosa'  
10" x 10" in 4 years  
An irregular pyramid of tangled foliage. Adpressed leaves, some branches ending in small fasciations.
- C. obtusa* 'Tsatsumii'  
10" x 10" in 4 years  
A rare form. I have only young plants. Branches filiform and pendulous.

CHAMAECYPARIS PISIFERA forms to 1" annual growth

- C. pisifera* 'Squarrosa Aurea Pygmaea'  
12" x 15" in 10 years  
A very dwarf roundish plant of yellow-green juvenile foliage. Duplicate variants appear under the names 'Plumosa Compressa Nana Aurea' and 'Aurea Compacta Nana.'
- C. pisifera*  
'Plumosa Compressa'  
7" x 11" in 6 years  
A very dwarf depressed globe. Tips of branches crinkled like parsley.
- C. pisifera*  
'Squarrosa Pygmaea'  
12" x 14" in 10 years  
A very dwarf blue globe of extremely compact juvenile and intermediate foliage.
- C. pisifera* 'Plumosa Minima Variegata'  
14" x 22" in 12 years  
Dwarf bun of mixed gold and green leaves. Very compact.

CHAMAECYPARIS PISIFERA forms annual growth to 3" or more

- C. pisifera* 'Filifera Aurea'  
48" x 40" in 10 years  
An excellent golden pendulous plant consisting of filiform branches and branchlets eventually becoming pyramidal.
- C. pisifera*  
'Squarrosa Intermedia'  
30" x 30" in 25 years  
Similar in appearance to form 'Squarrosa Pygmaea' but more apt to revert. Clip out long shoots to keep intermediate foliage from taking over.

CRYPTOMERIA JAPONICA forms annual growth to 1"

- Cryptomeria japonica*  
'Compressa'  
9" x 5" in 10 years  
An ovoid bush of ascending branches and very short branchlets, dark green, stiff leaves, very dense, becoming flat-topped eventually.

- C. japonica* 'Vilmoriniana'      Globose form of equally slow growth.  
10" x 12" in 12 years

CRYPTOMERIA JAPONICA forms annual growth to 2"

- C. japonica* 'Albo-variegata'      A globose form, soft in texture, new growth pure white, very unusual. Needs a bit of winter cover to prevent burning the variegated foliage. Form 'Knaptonensis' appears identical as does the Japanese counterpart form 'Mejire-sugi.'  
11" x 14" in 12 years
- C. japonica* 'Monstrosa Nana'      An irregular upright form, some branches growing a very little. Other branches bolting a few inches. Leaves of varying sizes.  
36" x 20" in 12 years
- C. japonica* 'Pygmaea'      A globular bush of light green, rigid foliage, some branches ending in small cockscombs.  
2' x 2' in 15 years
- C. japonica* 'Spiralis'      An extremely distinct flat-topped plant. Leaves twisted spirally around stems. It grows very slowly. Form 'Spiralis Falcata' is similar, but branches and branchlets more elongated.  
6" x 12" in 8 years

JUNIPERUS

- Juniperus chinensis*  
'Aurea Spica'  
30" x 36" in 20 years      A vase-shaped plant of mostly scale-like foliage interspersed with variegations of gold. Very attractive.
- J. chinensis* 'Plumosa Aurea'  
23" x 29" in 15 years      Bright golden conifer with arching sprays of mixed juvenile and adult foliage. Grows slowly in the East, but I understand it can attain large proportions on the West Coast.
- J. chinensis* 'Shimpaku'  
12" x 20" in 15 years      An irregular but mostly horizontal-growing dwarf juniper of good green color, all foliage scale-like. I find it best to pinch out the long shoots to maintain compactness. This plant resents an overly acid soil by prematurely dropping its older foliage.
- J. chinensis* 'Procumbens Aurea Variegata'  
16" x 35" in 12 years      A horizontally-spreading plant of juvenile foliage mixed with golden leaves of mostly adult foliage. It grows quite a bit more slowly than its white variegated counterpart, form 'Procumbens Albo-variegata.'
- J. procumbens* 'Nana'  
3" x 15" in 5 years      A ground-hugging slow-growing juniper of apple green color. Very handsome. In spite of many opinions to the contrary, I cannot detect any appreciable differences between this plant and *Juniperus* 'Squamata Prostrata.' Undoubtedly time will prove me wrong.
- J. communis* 'Alpina'  
10" x 20" in 10 years      An attractive gray-blue juniper of low arching growth easily recognized by the glaucousness on the upper sides of the leaves. Duplicate variants include forms 'Nana' and 'Saxatilis.'



- J. communis* 'Compressa' 8" x 44" in 15 years A very dense fastigate plant of slow growth. Resents poor drainage and overly acid soil. There are so few dwarfs of fastigate outline, this one is well worth growing.
- J. communis* 'Echiniformis' 4" x 6" in 10 years The hedge-hog juniper, very sharp-pointed leaves; of extremely diminutive growth. Cushion-shaped or globose in growth habit.



*Tsuga canadensis* "Cole's Prostrate"

This group of the most prostrate of all hemlocks in cultivation has the original plant (in the lower right corner) which is about 20 years old and about four feet in diameter and only a few inches above the soil in the center.

The surrounding plants are propagations from the above parent plant and they are over twelve years old and between 24 and 30 inches in diameter. In the immediate background of the group is another 12 year old plant whose leader was trained and staked upright so that the plant is now over 5½ feet high. The height may be increased by merely extending the leader along a taller stake. With tongue in cheek and in complete disregard of the rules of nomenclature, we have called this form "Tsuga canadensis prostrata fastigiata pendula"—a rather vivid descriptive title.

## PICEA

Dwarf forms of the Norway spruce, *Picea abies*, are numerous but few are distinct, and nomenclature is in complete confusion. A few that are generally found true to name and are distinct are listed.

- Picea abies* 'Gregoryana' 11" x 24" in 15 years A gem, if found true. It grows in billows, forming a humped-up bun-shaped bush. Very dense. Sometimes found under the name, 'Echiniformis.'

- P. abies* 'Maxwellii'  
15" x 30" in 25 years      A cushion-shaped plant of dense habit. Very sharp-pointed large leaves.
- P. abies* 'Pumila'  
11" x 12" in 6 years      A flat-topped, dark green plant of good color.
- P. abies* 'Pumila Nigra'  
30" x 30" in 10 years      Very dark green color. Short needles suggest *Picea orientalis*. Eventually throws up a leader and becomes a squat pyramid.
- P. abies* 'Pygmaea' ?  
5" x 6" in ten years      I do not know the correct name of this plant. It is the dwarfest spruce in my collection. Foliage sparse and sharp-pointed, growing radically on stems. Buds reddish or brown and conspicuous. Some branches occasionally grow stronger than others. I have similar plants under the names 'Gregoryana Vietchii,' 'Pygmaea Nana' and 'Echiniformis.' I have also seen it labeled 'Brevifolia.'
- P. glauca* 'Conica'  
6' x 3' in 35 years      The dwarf Alberta spruce. Common in cultivation.
- P. mariana* 'Nana'  
10" to 30" in 15 years      A flat-topped gray-blue dwarf form of the black spruce. My plant is rather strong-growing for one reputed to be a pygmy. I suspect it may not be true to name. I now have very small plants under this name that seem to conform to written descriptions.
- P. omorika* 'Nana'  
15" x 15" in 12 years      The only dwarf form of *Pices omorika* known until recently. A new form from Holland called 'Expansa' has made its appearance. Both forms have typical *Picea omorika* foliage; the undersides of the leaves becoming very glaucous.
- P. pungens*  
'Glauca Compacta'  
30" x 36" in 12 years      A low pyramid of very beautiful blue foliage. Form 'R. H. Montgomery' seems similar, but so far is flat-topped. Form 'Glauca Globosa' is of similar foliage but globose in outline. All are rather strong growing for a small rock garden.

Weeping forms of spruce include *Picea abies* 'Pendula,' *P. a.* 'Inversa,' and *P. pungens* 'Kosteriana Pendula.' All are extremely irregular, pendulous plants and may be used to advantage in the background of the larger rock garden. They may grow up to one foot per year.

## PINUS

- Pinus nigra* 'Hornibrookiana'  
15" x 20" in 15 years      Typical Austrian pine; foliage dark green in color. Dome-shaped. Very slow grower.

- P. pumila*  
5" x 5" in 4 years  
This pine is sometimes grown from seed and the resulting plants are variable in growth habit. There is one form that is always perpetuated by grafting. This is a prostrate bluish-green gem of a plant. It is somewhat loose growing and the leaves have a "twist."
- P. sylvestris* 'Beauvronensis'  
8" x 10" in 8 years  
A very slow-growing Scotch pine. Short leaves dark green. A very compact dome.
- P. sylvestris* 'Compressa'  
18" in 12 years  
This Scotch pine equally slow in growth, pyramidal with very short blue-green leaves.
- P. strobus* 'Contorta'  
32" x 25" in 12 years  
A very odd, loose-growing white pine with every leaf being twisted. Annual growth about 3". It never fails to attract attention.
- P. densiflora*  
'Oculus Draconis'  
4' x 6' in 20 years  
The dragon's-eye pine. Rather a strong grower, but a very unusual variegated pine, its leaves being zoned with alternate bands of green and gold.
- P. densiflora* 'Pendula'  
8" x 30" in 10 years  
A ground-hugging form. Very effective grafted on standards. Fairly strong grower.

## PSEUDOTSUGA

- Pseudotsuga menziesii* 'Densa'  
12" x 25" in 20 years  
A horizontally-tiered, flat-topped plant. Very ramified branches with foliage yellow-green. Very slow growing.
- P. menziesii* 'Glauca Pendula'  
20" x 20" in 10 years  
Foliage typical; blue-green. Grows with a partially pendulous leader. Branchlets and branches quite pendulous. My plants are growing very slowly.
- P. m. var. glauca* 'Fletcheri'  
8" x 16" in 8 years  
My plants are small; so far, flat-topped and growing slowly. A favorite in England. Dwarf forms of the western Douglas fir are rare in cultivation.

## TAXUS

- Taxus baccata* 'Nutans'  
24" x 10" in 12 years  
A very slow, loose-growing, leaderless plant. Few ascending branches and almost no branchlets. Leaves of varying sizes.
- T. baccata* 'Pygmaea'  
8" x 4" in 5 years  
Probably the slowest-growing dwarf yew. Ovoid in outline. Dark green leaves. This plant did not survive the very cold winter of 1963-64.
- T. baccata* 'Buxifolia'  
20" x 20" in 15 years  
This plant is often found under the name 'Adpressa.' The parent plant was discovered in Massachusetts and is now growing at the Arnold Arboretum. The leaves are very short and broad and mostly radical. It was probably derived from a sport branch of form 'Adpressa.' Very unusual and well worth growing.



## THUJA

- Thuja occidentalis* 'Rheingold'  
2' x 2' in 12 years
- A squat pyramid in outline, of very soft juvenile foliage and very unusual coloration. I have detected combinations of pink and pale green! Plants labeled 'Ellwangeriana Aurea' are similar.
- T. occidentalis*  
'Globosa Rhindiana'  
12" x 12" in 7 years
- A very dwarf Thuja of typical foliage, somewhat tufted that imparts a pleasing texture to the plant. The best of similar forms are 'Minima' and 'Hetz's Midget.'
- T. occidentalis*  
'Silveriana Nana'  
12" x 15" in 10 years
- It is doubtful that this plant is a Thuja. It very closely resembles the dwarf, juvenile forms of *Chamaecyparis pisifera*. When grown in the East, it is of yellow-green color, the yellow being much more pronounced when grown on the West Coast.
- T. plicata* 'Hillieri'  
18" x 25" in 10 years
- An irregular, upright dwarf plant of deep green. Typical foliage.
- T. plicata* 'Rogersii' ('Aurea')  
20" x 10" in 10 years
- A very dwarf upright, pyramidal plant of dense texture and old gold color. A gem!
- T. plicata* 'Cuprea'  
6" x 6" in 6 years
- Similar to above but much more squat in outline.

## THUJOPSIS

- Thujaopsis dolabrata* 'Nana'  
9" x 11" in 7 years
- A very dwarf, loose-growing, flat-topped plant of flexible ascending branches. Grows outward. Foliage much smaller than the type.

## TSUGA

- Tsuga canadensis* 'Armistice'  
16" x 24" in 25 years
- A beautiful deep shining green, horizontally tiered tree. Flat-topped. I have seen plants so labeled growing with a leader.
- T. canadensis* 'Aurea'  
6' x 3' in 60 years
- In outline similar to the type, but very slow-growing. A six-foot tree may be sixty years old. Very compact. Young growth golden-yellow, deepening to old gold in fall. Form 'Aurea Compacta' is still slower and low-growing, but very rare.
- T. canadensis* 'Horsford'  
5" x 5" in 8 years
- A very tiny globular plant with minute foliage. It does not hold its needles long, so it is not as compact a plant as some of the other pygmies.
- T. canadensis* 'Hussi'  
45" x 30" in 25 years
- A very dwarf plant of short, twiggy branches with closely-packed, tiny leaves, dark green. It is very irregular but upright. Very oriental.
- T. canadensis* 'Jervis'  
30" x 20" in 20 years
- A very slow-growing hemlock, pyramidal in outline with very minute leaves and short congested growth. A gem!

- T. canadensis* 'Minuta'  
6" x 7" in 12 years  
One of the slowest growing conifers in cultivation; about 1/2 inch under optimum conditions. Very congested bushlet. Rare!
- T. canadensis* 'Pygmaea'  
2 1/2" x 3" in 6 years  
Similar form to 'Minuta,' but a bit slower!! Very rare.
- T. canadensis* 'Palomino'  
11" x 17" in 18 years  
This form was found by a fellow collector. One of the most beautiful dwarf hemlocks I have seen. Depressed globe, very supple branches, conspicuous brown buds, tiny thin leaves. I have this form under propagation.
- T. canadensis* 'Bennett'  
20" x 50" in 18 years  
A flat-topped plant of horizontal branches. Good color and pleasing texture; tips of branches slightly pendulous.
- T. canadensis* 'Cinnamomea'  
13" x 30" in 15 years  
A globular compact plant of very fine leaves; branches tipped with hairy cinnamon brown buds.
- T. canadensis*  
'Cole's Prostrate'  
3" x 30" in 15 years  
An inverted dish in outline. The center of the plant is devoid of foliage, showing its odd branching habit. Must be planted in shade!
- T. canadensis* 'Fantana'  
3' x 4' in 15 years  
Similar to 'Bennett' but possibly growing higher.
- T. canadensis* 'Greenspray'  
15" x 24" in 8 years  
This form found by Mr. Henry Hohman promises to be a gem. My plant is too small for description.
- T. canadensis* 'Minima'  
15" x 40" in 18 years  
Similar to form 'Bennett' in growth habit but a bit slower and of finer texture. A specimen in the Gotelli collection at the National Arboretum is truly handsome.
- T. canadensis* 'Nana'  
18" x 28" in 15 years  
Resembles form 'Cinnamomea' but with coarser foliage and more compact growth. Unfortunately many itinerant forms become so labeled.

#### PROPAGATION OF DWARF CONIFERS

Unlike many rock garden plants, dwarf conifers rarely set seed, however, if they did, the resulting plants would probably be arborescent.

For those inclined to try their hand at raising some of the conifers vegetatively, I have found that a good many root rapidly from cuttings in a mixture of one half sharp sand and one half moss. I treat the base of the cuttings with hormone powder of varying strengths, depending on the hardness of the wood; the older, harder wood with #3, and the softer wood with #1, or #2. Generally most do well with #3 hormone powder if larger cuttings are taken. *Picea abies* varieties may be an exception, where #1, or #2 would be adequate.

The propagating frame is best placed on the north side of a structure where no shading would be required. Find an old storm window and size the propagating frame accordingly. Dig out about twenty inches deep and construct a frame of redwood or similar non-rotting material to hold the sides. Place a four or five inch layer of coarse gravel on the bottom, then about four inches of rooting medium. Hinge storm panel to the frame for a cover.

Take cuttings after frost in the fall excepting *Tsuga* which usually does well taken in early September. Generally two-year wood is best. This is in contradiction to many propagators, but my experiments have borne out that cuttings of the current year's growth root feebly by comparison, and sometimes not at all. Keep frame open when raining lightly, otherwise water about once a week thoroughly. If wind and dry weather persist, water more frequently.

If you live in a cold area, cover entire frame with leaves and polyethylene plastic over winter. Alternate freezing and thawing would heave out cuttings. All species root well except *Pinus* and *Cedrus*. Pines are quite impossible, but some of the *Cedrus* will root.

## WITCHES'-BROOM HUNTERS

It has always been a pleasant experience to go "nursery-hopping" in search of some new or different plant, and a new acquisition is much enjoyed, however, this is tame sport by today's standards. In recent years there has been an upsurge of activity among conifer collectors, to discover new and unusual forms. I call this group the "Witches'-Broom Hunters". Some travel far and wide through coniferous forests seeking brooms, bud sports, dwarf seedlings, variegated or contorted growths, or anything that may be different.

Undoubtedly many dwarf seedlings occur in nature, but unless brought into cultivation, are soon suppressed by their big brothers.

Collecting these rarities is an enjoyable hobby in itself, and if some of our members engage in this activity I would be interested in learning of any interesting "finds". I have found a beautiful variegated branch on a plant of *Chamaecyparis obtusa* 'Nana Compacta' that is now on its own root, and have also located seedlings of a very prostrate hemlock, and a larger-growing globose form.

A fellow collector has discovered cones on his Hinoki cypress (*Chamaecyparis obtusa* 'Gracilis Nana') and will attempt to grow the seed. It was such an event that occurred at the Rogers Nursery in England many years ago that resulted in a batch of the most diminutive conifers in existence, namely *Chamaecyparis obtusa* 'Caespitosa', 'Juniperoides Compacta', 'Bassett', 'Minima', and 'Stoneham'.

The chief propagators of the National Arboretum and the Arnold Arboretum, Mr. Skip March and Mr. Al Fordham, respectively, are in quest of new dwarf material. I recently viewed a batch of seedlings at the National Arboretum grown from seed taken from cones on a witches'-broom of *Pinus strobus*.

Happy hunting!

## THE SMALL IRIS

DORETTA KLABER, *Quakertown, Pa.*

In the January *Bulletin*, we discussed the small bulbous iris. Other small iris can be divided into bearded and beardless species. I describe only those that have been permanent residents of my garden.

The little bearded *Iris pumila atrovioleacea* is the first to bloom, arriving on the scene in April. It is a wine-purple iris and when seen against the sun has the appearance of stained glass. I like to plant the grape hyacinth with it, the blue-purple flowers adding to the illusion.

*Iris pumila* and the rather similar *Iris chamaeiris* have produced innumerable hybrids which are all small versions of the tall bearded iris. They come in the rainbow colors of the big iris and vary in height from three to twelve inches,





*Iris flavissima* and *I. pumila atrovioleacea*

Doretta Klaber

with flowers in proportion. They are so prolific, both in variety and increase that, unless you have a very large garden, you cannot afford to grow more than a handful, for fear of having no space for other loves.

Given a good loamy soil and sun they multiply rapidly and yearly division is advisable. In wet soil they are inclined to get the iris borer. This nasty creature can be controlled by dusting the ground and the foliage with a 5% DDT dust from early April on during spring at weekly intervals, a dust called "Protexall" doing a good job. If your plants should fall prey to the beast, the infested parts can be cut out, the good fans divided, roots dusted with flowers-of-sulfur (or the

above mentioned), the leaves cut half way back, and the divisions replanted in good fresh soil.

Another bearded one is *Iris flavissima*, a delightful mite, sometimes called *I. arenaria* or, *I. bloudowii*, a larger form. It is not a fast spreader, but will increase pleasantly where happy, in such a position as the top of a wall or a well-drained slope in a rock garden in sun. Its flowers are a soft yellow, faintly lined, and are evanescent—butterflies for a day—but on succeeding days for quite a while new flowers open from the long pointed brown buds.

One other bearded iris, *I. aphylla*, from Russia and thereabouts, belongs in this category, for the rather large flowers rise to no more than about four inches, striking blue and red-purple with white; showy in spite of the fact that the shiny, half-inch wide, light green, ribbed leaves overtop them by several inches. It is growing in half-shade and seems extremely sturdy.

## SOME THOUGHTS ON PHLOX AND GRANITE

JOHN P. OSBORNE, *Westport, Conn.*

I suppose the best way to tell this story is to begin at the beginning. Four years ago, when I saw my first plant of *Phlox adsurgens* in bloom, I determined to grow it, although I knew of its bad reputation among eastern gardens. About all I knew to start with, was that it needed an acid soil, good drainage, and a certain amount of shade.

Casting about in my mind for a soil combination that would meet these requirements, I remembered some cartons of soil I had brought up from the Pine Barrens of New Jersey when I had built my Pine Barren Garden the previous year. This is a rather poor, sandy, granite soil, and quite acid.

The first planting was a partial success. Some plants flourished from the start, and I soon found out that the ones that were not doing so well, were getting too much sun, which was easily corrected. By this time, winter was upon us and I had to wait until spring for further tests. They all came through the winter, which was a rather severe one, although some survived better than others.

The plants that had been shaded from the winter sun by a rock or small bush, were fine, but those that had been exposed to the sun were burned quite badly—some right back to the ground, but they all survived, broke out below the burned part, and flowered.

Now in this second year, I wanted to find out why, after I had straightened out the shade problem, they had all done so well. I bought some more plants and started to experiment with them. I planted some in my regular rock garden soil; no good! I had run out of Pine Barren soil, so I used a combination of good, sharp, bank sand, leaf mold, humus, and rotted oak wood. They lived, but at the end of the summer, it was easy to see they were not doing too well.

So, the second fall came with the original plants still looking fine, and I did not know why; but I had all winter to think about it. I could get some more soil from the Pine Barrens, in which I knew they would do well, but I would still not know why. I began thinking about that Pine Barren sand. It is very fine and I was sure it was granite, so during the winter, I searched around and found a finely pulverized granite that was to be had from an eastern quarry.

The third spring came and I bought some more plants of *Phlox adsurgens* and went to work. I made a mixture of the new pulverized granite, sharp bank sand, rotted wood, leaf mold, and a little humus. It was pretty lean, but drained well, and was acid. The new plants liked it from the start, so it must have been the granite; but again, why?

So I started to find out something about granite. I talked to the people at



the quarry. I was told that the men employed there were all born in Italy, where for generations, they have known much of the properties of stone. It had been noticed, that after these men had finished their lunch, they filled their empty lunch boxes with granite dust to take home to mix with the soil in their vegetable gardens—and their gardens were the best around.

So, what properties does granite have? Well, granite furnishes a good, long-lasting supply of potash, as well as many trace elements. It is not readily soluble in water and does not leach out wastefully from the soil. It is a good partner of phosphate (rock or colloidal). The potassium silicate present in granite aids in maintaining higher percentages of both phosphorus and potash in absorbable form in the soil by "locking up" undesirable aluminium compounds. It has a mellowing effect on the soil, and probably, other properties that I will find out about that may well be over my head since I am a plantsman of sorts, and not a chemist. But it does help to grow *Phlox adsurgens*, which I like very much, and I suspect may prove helpful with other plants we have had difficulties with, but have not known why.

To get back to the phloxes, there is an opinion among many good gardeners that *Phlox adsurgens*, as well as many of the varieties of the stoloniferous phloxes, are short-lived. This may be so, but the more I work with them, the more strongly I feel that one of the reasons they are comparatively short-lived is that they are very strong feeders, and unless they are heavily top-dressed each year, they just starve to death.

## FLIGHT TO THE "LONG WHITE CLOUD"

Neill Hall, *Seattle, Washington*

### Part II

Large, old silver beech trees, *Nothofagus menziesii*, provided the forest cover on a hill near the lodge. This was the site of the Governor's Bush. Bush is the term used to designate their native timberland, and here it applied to a nature walk through native plant material.

*Polystichum vestitum*, the Prickly Shield Fern, formed handsome crowns beside the trail. The fronds are dark, glossy green and are set off by dark brown scales. *Blechnum fluviatile* is a very decorative fern with sterile fronds about two feet long. These fronds have round to oval pinnae similar to *Pellaea rotundifolia*, but the fertile fronds have the pinnae practically parallel to the midrib.

One of the spectacular plants of the subalpine and alpine areas near Mt. Cook is *Aciphylla*. The various species feature sharp, sword-like leaves that warrant the respect of the hiker. The common names of Wild Spaniard, Horrid Spaniard, and Fierce Spaniard will give some idea of the reputation this plant has acquired. The flower stalks arise from the center of the plant to a height of four or more feet, with the top foot a densely clustered mass of yellow flowers interspersed with long yellow spikes.

A southern hemisphere counterpart of our native yew, *Taxus brevifolia*, was growing beside a dry scree that sloped down from the mountainside. *Podocarpus nivalis*, called the Mountain Totara, is a spreading shrub three to six feet high. The needles are thick and succulent appearing and shorter than those of our native yew, closely set on the branches. The seed is solitary with a red, fleshy base.

Black beech, *Nothofagus solandri*, takes over as progress is made toward the southwestern part of the South Island. As we neared Milford Sound the tree fuchsias, *Fuchsia excorticata*, became plentiful. It grows to be a small tree up to



thirty feet high with a trunk four to five inches in diameter. *Fuchsia procumbens* is also included in New Zealand's flora. The large, persistent berries add to the beauty of this plant. It appears to be popular, as we saw it growing in several private gardens.

Milford Sound is approached by a beautiful mountain road that climbs beside lakes and streams until the summit is reached at Homer Tunnel. After traveling three-fourths of a mile through the tunnel and dropping four hundred feet, the road winds down the mountain at the base of sheer rocky cliffs to the luxurious Hotel Milford.

Milford Sound is the grandest inlet in Fiordland National Park. It extends about fourteen miles inland from the Tasman Sea. Sheer mountain walls of rock rise out of the Sound on either side to a height of a mile or more, culminating in perpetually snowclad and glaciated peaks a short distance inland. Majestic Mitre Peak dominates the skyline directly in front of the hotel, and its mass of rock towers 5500 feet above the waters of the sound. All the slopes are covered with trees or shrubs where there are crevices for a root hold. If shrubs cannot grow, mosses and ferns cloak the surfaces.

*Pyrrosia serpens* was encountered on the tree trunks at Milford Sound. This creeping fern has very thick, leathery, gray-green fronds. The under side is covered with minute, white, star-shaped hairs. The sterile fronds vary from nearly round, one inch in diameter, to four inches long and about a half inch wide. The fertile fronds generally range from two to six inches long with prominent, round, tan sori almost covering the under surface.

New Zealand has a very interesting bird that ranges throughout both islands. It is a versatile songster. The Maoris used the birds as pets and taught them to talk. The tui is smaller than a crow and at a casual glance appears to be basically black, but it is actually dark blue. It possesses a fancy collar of silver-gray feathers under the throat. The tui's tongue is adapted to feeding on flower nectar, being brush-tipped. These birds are useful in pollinating various native trees and shrubs, as they go from flower to flower, feeding on the nectar.

All the peaks were shrouded in clouds on the morning of our departure from the Sound. The cliffs were draped with waterfalls as the bus climbed toward the pass. This completely changed the picture, as these same cliffs were relatively dry as we entered the valley.

The voyage on Foveaux Strait to Stewart Island was a delightful experience. This stretch of water is reputed to be the roughest in the world, but for us it was on its good behavior. A few days later, the commercial oyster boats were driven into port because of the dangerous seas. Stewart Island is a beautiful spot where a week would have been too short a time for the enjoyment of its unusual ferns. Mrs. Willa, the director of the Stewart Island Museum, gave me ferns for my herbarium collection. These ferns had been collected in a boggy area at practically sea level, and they were all completely new to me.

*Schizaea fistulosa* var. *australis* is only two inches high. The common name is "Comb Fern", and this aptly describes it, as the fronds are terminated in the last quarter to half inch with a comb-like foliage.

*Lindsaea linearis* is a little gem three to eight inches high. The fronds are similar to *Asplenium trichomanes* except the sori are interrupted along the margin of the foliage, and the color is pale green.

*Gleichenia dicarpa* var. *alpina* is a small variety of the Umbrella or Tangle Fern. The fronds are only two or three inches high, branched several times and spreading in a horizontal plane, with the tips of the pinnae coiled like new fronds emerging from the ground.

As you can see, we found New Zealand, the "Long White Cloud", to be a beautiful country. All the people were unbelievably hospitable, and we came home with the memory of a host of friends whom we hope to see again. My herbarium is richer by about one hundred additional fern species and the Spore Exchange of the American Fern Society is enhanced with fresh spores of about one hundred species of choice South Sea Island ferns.

## MY SEVEN ROCK GARDENS

J. P. ZOLLINGER, *Kingston, N. Y.*

To begin with, let me confess that my venturing into our special kind of gardening was not prompted by any marked partiality for alpinists. I became a rock gardener simply because after thirty years of city life I felt a need for the country, and because the piece of land we bought, almost precipitately, hardly allows any other sort of gardening. It still seems incredible to me that it once was a hill farm. The ground is excessively rocky, the pickax and crowbar have probably been used more liberally than conventional tools. In many spots you simply cannot get a fork or spade into the ground.

I must further preface these notes by admitting that, though I have dabbled in botany and in painting, when it comes to any kind of country or garden, my first and main attention generally goes to the whole, not the details. In other words, horticulturally I am a "landscaper" rather than a "florist," which probably sets me down several notches in the estimate of the true devotees. Even the Alps were always in the first place good scenery to me and only in the second place a variety of habitats for a special flora, though I have known the latter since childhood.

Rock gardening then was, and still is, to me essentially an adventure in landscaping, and this, in our particular locality, means above all, knowing what to do with a superabundance of stones. I was able to build a terrace of considerable size with rocks and slabs taken out of the ground around the house merely to clear the way in a few patches for the lawn mower. Wherever, for any purpose, some digging or bulldozing had to be done, the problem always was what to do with the fresh crop of stones and rocks. We call our place The Stone Crop. The most logical solution usually was another rock garden, dry wall, or other stony structure. It is on these several rock gardens and the problems they brought with them that I wish to report today.

ROCK GARDEN NUMBER ONE is the main garden, and the one I built first. It covers about seven thousand square feet, or will cover as much once certain marginal sections are fully planted, and is part of a north-facing slope, generally referred to as the Slope. Local names are a necessity in this extended topography. On the Slope itself every major rock has its name: the Long Rock, the Lion Rock, the Cave Rock, the Woodchuck Rock, Mont Collon, the Moraine Rock, the Split Rock, etc., etc. From the point of view of terrain the Slope has some unusual features, being part of a long spur or low ridge, twenty to twenty-five feet high and forming a quarter circle whose geometrical focus is the house. We therefore sit, as it were, in the center of an amphitheater having, instead of the usual curving tiers of stone seats, a rock garden flanked by woods and over the horizon of which rise more woods.

These basic and unalterable data were bound to determine the character of the whole layout. More than one visitor has found it reminiscent of a stage setting, though there is nothing theatrical about it. The "stage" is the stone terrace referred to above, a free-form affair of curves and straight lines so as to harmonize with the irregular grounds, as well as with the house, and it did prompt





The Main Rock Garden — View from the House

J. P. Zollinger

an untutored neighbor, who helped me finish it, to remark, "You ought to put a grand piano out here." On the whole, however, the effect is soothing. From the house the eye thus glides first over the terrace, three steps higher than the porch, then over a piece of lawn, still a step higher, the thyme lawn, another step up, to the slope which dominates the whole scene. This fact is to be kept in mind. The main rock garden is our main view. We cannot escape it. It is always before our eyes, except in heavy fog. We're virtually married to it.

When I first began work on it, I was not yet familiar with Reginald Arkell's lines,

A garden should be rather small,  
Else you will have no fun at all.

They do not ring quite true to me, though. For one thing, if one is cursed (or blessed, if you like) with a sense of terrain, he cannot but build a garden so that its size is in proportion to all the rest. Any other kind would be a perpetual annoyance. In this particular setting the rock garden had to have the size it has now, the right size. For years I kept extending it up the slope, cutting trees, uprooting brush, and planting rocks until a balance was attained. Besides, building the skeleton for the first rock garden was pure, if arduous, enjoyment. The planting, though, was another matter, and I finally did reach the point where I was willing to admit that Arkell's jingle contains at least a half truth. Years of endeavor brought home to me the fact that, our horticultural, nursery, climatic, and other conditions being what they are, it is far from easy to stock a large rock garden with the kind of plants one imagines the efforts one has put into it deserve. It is one thing to have a handkerchief-size rock garden somewhere in an out-of-the-way corner, which after June 15 can be dismissed from the mind till



the following spring, and another thing to have a large one which is the dominant feature of the grounds, the main view to be faced day after day, season after season.

At the peak of my efforts to plant this hillside with worthy tenants, my card file (now discontinued) listed some four hundred species. All were represented by anywhere from three to a score of specimens. But they never filled the rock skeleton so lovingly built, and having never done any gardening before we came here, I was still possessed by the naive notion that a garden meant flowers. July, August, and September were sometimes positively depressing. A house painter who once worked here frankly called the rock garden "a patch of weeds and stones in an otherwise nice yard." (Of course, he took all the plants not then flowering for weeds). I still think that a garden of this kind should, at least through the growing season, have a few "showy" plants visible even from the house, else the planting easily assumes the character of jewelry with gems too small to be seen. There should be others, too, of course, making it worthwhile to take at least one daily inspection trip.

In recent years three specimens of *Asclepias tuberosa* strategically placed have solved part of "the summer problem." They flower in late July and early August and render the service of low flowering shrubs. Still, there are never enough of these good summer bloomers, and I finally realized that I had to change my policy. The new device was—ground covers. *Phlox subulata* (some varieties of which provide excellent green expanses after bloom) was allowed to spread to its heart's content. So were certain not too rampant thymes, *Geranium lancastricense*, hypericums, sedums, sempervivums, etc., and three plants of *Daphne cneorum* promise in time to cover several square yards. The very top of the slope was converted into a heather garden, which is still extended, year after year by means of cuttings. Both ericas and callunas were given room also in various lower sections of the slope. Unfortunately, of the ericas none has proved fully hardy here but *E. carnea*, its varieties, and *E. tetralix*. *E. × williamsii* is still doubtful, only one specimen having so far survived two winters under snow. All other ericas attempted have regularly been found dead after the snow had gone. Callunas, on the other hand, seem indestructible.

The more uncommon genera were, of course, not eradicated (though many always took leave voluntarily). A scree is still part of the main rock garden. Here, as in some crevices elsewhere, lewisias thrive wonderfully, as does *Gregoria (Douglasia) vitaliana*. But the scree's particular pride is two recently grown specimens of *Penstemon nitidus* (?), sky blue with a touch of pink on the tubes, which seem as good to us as the impossible *Eritrichium nanum*. In a somewhat shaded spot, *Gentiana acaulis* clumps show inclinations to run together into a small carpet, and in May provide ample compensation for various disappointments with their large trumpets of mystic blue.

More dwarf conifers, no doubt, would prove a great asset to the slope. However, my experience with them has not been too happy. Good ones are not obtainable locally. Most of those I ordered from distant nurseries I suspect to be misnamed, and some of the most expensive ones perished within a year or two.

Difficulties of a peculiar nature have plagued me in the westernmost corner. This section borders on the woods and is partly overhung by a butternut tree. The rock work here has always been most pleasing and natural looking to us, though every single rock was "planted." Yet this section has, through the years, proved a regular graveyard for numerous species. All rhododendrons tried there succumbed. One fine young specimen of *Rh. laetevirens* lost half its branches the first two summers, but picked up immediately when moved to another part of the grounds. Many heathers were lost here, and those still there look miserable.



*Lewisia howellii* against the "Bee Rock"

J. P. Zollinger



Primulas, various gentians, *Incarvillea grandiflora*, to mention but a few, proved extremely short-lived. The only thing flourishing in this corner is a bush of *Mahonia aquifolium*. I finally began to suspect the butternut tree (*Juglans cinerea*). Its cousin, the black walnut (*J. nigra*), is known to be poisonous to rhododendrons, tomatoes, and other cultivated genera, the damage resulting from a chemical in the fallen autumn leaves. Consulting the laboratory of a botanical garden was not very helpful, though it was conceded that it was possible that the butternut contained the same, or a related, poison. To us, though, after ten years of observation, the circumstantial evidence is fairly unambiguous, so that now we are faced with the alternative of cutting down one of our stateliest trees or abandoning the part of the rock garden near it. I think the rock garden will win.

Still, in spite of all disappointments and setbacks, Rock Garden Number One remains on the whole satisfactory, especially if considered within the entity of this man-made landscape. What particularly helps turn the yearly balance into a favorable one was quite unforeseen, something that may seem odd to those who think of a rock garden pre-eminently as a spring garden. The great hidden virtue of ours comes out in winter. In British publications we read of alpine flowering in December and January. I have not seen any of their gardens at Christmas time, but I have a feeling I would not give tuppence for the lot of them at the off season. You have to go out and search for those rare undaunted winter bloomers. By contrast, the glory of our winter rock garden is anything but floristic. Nor do we have to leave the house to see it at its best. At breakfast and lunch we feast as much on the Slope as on the menu. The scene is, to us at least, a remarkable landscape, a marvel produced by snow, sun, and shade. Its incline is such that for two or three months the sun just skirts the Slope, bringing out all the relief of what sometimes looks like a sculpture in snow. We are generally most careful not to spoil the immaculateness of it by our foot steps. Unfortunately no black and white photograph can ever capture this scene, though some color slides do. The spring show is less impressive by comparison. Still, after the drab months of March and April, we are always ready to welcome it.

ROCK GARDEN NUMBER TWO—This is a planting wall and part of the enclosure of what we call the Sunken Garden (it is "sunken" only on two and a half sides, though, the grounds close to the house having a gentle slope). It was built several years after the main rock garden as a way of making use of some of the flatter stones from old dilapidated stone fences encumbering the one-time farm yard. The whole is a modest affair, L-shaped and low enough to allow viewing the plants on top, as on a table. I soon realized that I should have built it at least three feet wide on top, instead of merely two and a half feet, for as it is it dries out easily when rain is scarce. The economy was, of course, prompted by the difficulty of finding enough soil to fill the interstices between the rocks. For, as already indicated, the "land" here, especially in the neighborhood of the house, consists mainly of stone, with a sprinkling of "dirt" in between, and "extracting" the soil usually brings up the problem of what to do with the residue of stones and the hole in the ground.

In this wall garden grow some campanulas, the best of which, no doubt, is *C. portenschlagiana*, some of the neater sedums, *Globularia cordifolia*, *Penstemon pinifolius*, *Corydalis lutea*, drabas, *Onosma helvetica*, *Linaria alpina*, *Cymbalaria pilosa*, and other small things. A few high alpine saxifragas are waiting in the cold frame to be transferred to the shady side of one wall. As a "garden" this planting wall is not impressive, but as an architectural feature, and as part of the rest of the stone work, it fulfills a useful purpose.

The next three rock gardens all came into being when we converted the old farm cottage, which for a decade had been our summer home and week end



refuge, into a permanent home. Part of the old building was torn down and the living space considerably enlarged.

**ROCK GARDEN NUMBER THREE**—Building and remodeling brought the new wing of the house about two feet below the adjacent undulating south lawn. In order to prevent heavy downpours and the big spring thaw from running into the cellar, the ground had to be dug back to the highest part of the lawn and a drainage channel installed between the new slope and the house. In this part of the grounds a huge and interesting rock has always cropped out. It contains two pot holes in which the rain collects, and where for a season or two the honey bees would gather thickly to take in water for their air conditioning systems. We therefore called it the Bee Rock Garden. It extends almost the entire length of the south front of the house, is shaded till noon by a large old sugar maple, now unfortunately dying, and from about three o'clock on by a younger maple farther west. Here plants are grown that must have shade, or at least in our hot summers fare better with some shade. There is still a good deal of unoccupied ground here which needs constant weeding.

The smaller section, west of the Bee Rock, is given over almost entirely to *Gentiana acaulis* and a few summer flowering ones of the *G. septemfida* relationship. East of the Bee Rock are more gentians; *G. gracilipes alba* (summer flowering and continuing into November), *G. sino-ornata*, also putting forth an occasional brilliant blue trumpet till after the first frosts, and more *G. acaulis*. Next to the Bee Rock is a Christmas fern giving extra shade to four young *Shortia galacifolia*, of those which T. S. Shinn in Asheville, N. C., was kind enough to distribute. *Cornus canadensis*, a contribution of Mr. and Mrs. North of Kingston, N. Y., makes a brave attempt to disregard the somewhat clayey and dry soil. Most spectacular, however, in this rock garden is a group of *Lewisia howellii*, planted at the foot of the Bee Rock, under which, apparently, they send their roots. One of the rosettes is ten inches across, and from June on regularly puts on four shows, the first always a real fireworks, the later ones diminishing in size. This is the rock garden which delights my wife most. It is only a few feet from the kitchen window, and slanting towards it, so that washing dishes and preparing meals have become the same as paying a lengthy visit to her special garden. In time its name will probably be changed to the Kitchen Rock Garden.

To be continued

## IRAN AND AFGHANISTAN, 1964

REAR ADMIRAL PAUL FURSE, F.L.S., *Ashford, England*

My wife and I had made plant-collecting journeys to Turkey and Iran with Patrick Syngé in 1960 and alone in 1962 for the Royal Horticultural Society and the Royal Botanic Gardens, Kew. In 1964 we were asked to go further east to Afghanistan to collect material for the new flora of that country which is being written. We planned a very early spring collection because this is the season about which least is known. Our sponsors were the same as before, and we were supported by the Percy Sladen Trust to which we are deeply grateful. We brought home a large collection and it has not yet been possible for Kew to name them all, so that many of the names quoted below are only guesses.

We left England in early February, with our Land Rover loaded very heavily for the long journey; a cold drive across Europe and Anatolia with snow and ice, our water containers frozen solid for a week under our sleeping bags in the back of the car. At the beginning of March we entered Iran and slithered through the snow in Kurdistan, with the first crocuses and irises coming into flower when there was any bare earth.

Spring began when we reached the Caspian shore although there were no



*Dionysia aretioides* near south shore of the Caspian Sea Paul Furse

leaves on the trees yet, only the first pink and white blossom on the prunus in clearings of the Hyrcanian Forest. Pink and white primroses were in flower, together with the blue *Scilla hohenackeri* which is common and beautiful, and which seems to be settling down well in gardens after our 1962 collection. Cyclamen were in full flower and exquisite, a curious species which has not been grown in Britain for many years, if ever: not *C. persicum*, but a cyclamen belonging to the Coum group which has had two names, *C. elegans* and *C. caucasicum*. The snowdrops were over, but the bulbs which we collected have flowered well and appear to be *Galanthus rizehensis*, which is a great surprise. On the cliffs of the gorges *Dionysia aretioides* was already in flower, its large cushions or mats covered with brilliant yellow flowers and looking like a golden androsace.

One plant which we wanted to find was *Crocus caspius*, which had eluded us in the previous journeys; it flowers in autumn making it difficult to find in spring and impossible in summer. This year our luck was in and we collected it in several areas with plenty of seed as well as corms. We were on tenterhooks until it flowered, fearing that it might be some well-known crocus, but it flowered at Wisley and was the true *C. caspius* which has not been grown here during the last thirty years or more. Most of the flowers were white with a yellow base; but some were stained or feathered with violet.

We had a good week east of the Caspian in the Gulestan Forest, at the end of March when the spring floods made the lower roads impassable; birds were singing, a few leaf-buds bursting on the parrotia trees, and more flowers were out. We had left the cyclamen and the primroses behind us as we traveled east, but the scilla was still with us in masses, of much paler blue or even pure white colour, unlike the Caspian plants. Tulips were coming into flower now, the yellow *Tulipa sylvestris* and small starry white *T. polychroma* with a golden centre. The species which interested us most was a tall crimson tulip of the Oculus-solis group which had up to twelve leaves instead of the usual four, but we have not yet been given a name for this beauty.



On a grassy bluff above the forest we first found *Iris fosteriana*, of the Juno section, which later we found all the way through to western Afghanistan. It is a beautiful plant forming tussocks with several flowering stems about six inches tall, each with one quite large yellow flower, except that the "standards" are pure dark violet and pressed downward around the stem. Sad to say, this beauty has in the past proved to be temperamental and difficult to grow here. Above the forest in stony, desolate country we found great masses of *Fritillaria raddeana*, a most beautiful plant like a graceful Crown Imperial with greenish-primrose-coloured flowers; hitherto only known in Russian Turkestan, and it has been very scarce in gardens, although it is a reliable outdoor plant and completely hardy.

Higher up towards the snow we found pink *Fritillaria gibbosa* in flower and we found it quite often after this, a beautiful plant which will grow well in pots and frames; with it was a large-flowered, dwarf, china-blue hyacinth which we had never seen before and which proves to be *H. sewerzowii*. A great excitement came when we saw yellow mats spread on the gray cliff faces, which turned out to be another dionysia, *D. tapetodes*, which we had not seen before; its flowers and leaves are smaller than those of *D. aretioides*, but in such quantity that they make a solid golden plate over the cushion.

In the Kopet Dagh, the frontier range between Iran and Russia, it was cold and the snow only just melting, but we collected *Crocus michelsonii* with nice little white and lavender flowers, pink *Merendera robusta*, and a really lovely three-inch hyacinth with deep cobalt-blue flowers, *H. kopetdaghensis*.

In east Iran between the Kopet Dagh and the Afghan border we got into warmer areas, and in mid-April we found many plants new to us; on rocky slopes there was a large-flowered golden corydalis (*C. sewerzowii*) with blue-gray, round-lobed leaves. In young corn *Tulipa micheliana* was flowering, deep crimson with a black blotch, and with purple-striped leaves like those of *T. greigii*; on bare sandy plains this was replaced by another crimson species, *T. borszczowii*, with crimped leaves and pointed segments, and a curious bulb whose tunic extends all the way from the bulb—which may be 18 inches deep—to the surface of the soil, looking like ragged black insulation on the stem.

There was a narrow-petalled, yellow iris of the Juno section which may perhaps be *I. drepanophylla*, and still more pleasing to us was the first Regelia iris which we have ever collected. This had small violet-and-yellow flowers with narrow sickle-shaped leaves, and is probably *I. falcifolia*. It was growing in rolling sandy country among a mass of eremurus plants not yet showing buds. In the same country was a sombre arum, or biarum, with tongue-shaped leaves and red-maroon flowers, and the seed capsules of a fritillary which flowered at Wisley this year and proved to be a close relation of *F. gibbosa*, with unspotted flowers and almost hairless filaments which identified it as *F. ariana*.

Then we were into Afghanistan, following on the tail of the spring floods in the third week of April; although the road had been washed out a week before, now there was a dust-storm blowing. In the Paropamisus Range between Herat and the Russian border we found the yellow Juno again and sapphire-blue *Gentiana olivieri* was already in flower; *Tulipa borszczowii* was still with us but we failed to find *T. kuschkenensis*, except that we did find a single tulip leaf of the right shape, but the bulb was so deep under a rock that we failed to get it out so that we will never know.

A little further south our chief prize was another tulip, the first of the Kolpakowskyanae section that we had ever found; a graceful slender plant somewhat like *T. ostrowskyana*, with crimson flowers and narrow leaves, which may prove to be *T. lehmanniana*. On the south side of the Hindu Kush, between Ghazni and Kabul, we came upon many new plants; the most interesting to us



were *Iris stocksii*, a pale lavender-coloured Juno with several flowers, and a splendid *Oculus-solis* tulip with large pale yellow flowers and startling black basal blotches. *Tulipa* "chrysantha" (a plant of several names!) was in flower and was quite exquisite when growing in jade-green young corn and catching sunset light.

North of Kabul in early May, on the southern slopes of Koh i Baba Mountains (the southwest extension of the Kush), the tulips were out of flower and coming into seed; *T. clusiana* and *T. stellata* have flowered at Wisley from this area, and a fritillary which we found with the winged capsules of *F. gibbosa* has turned out to be an oddly variant form of that species.

Then we headed up towards the main range of the Hindu Kush and collected on the Shibar and Salang passes, both at about 10,000 feet before we started to climb. It is wild, crumbling limestone country, the ridges rotting away, the rivers cutting deep gorges, and the slopes of eroded rock loose and sliding so that plants have a hard struggle to survive. On each pass we found Kolpakowskyanae tulips; the Shibar species was small, all yellow and only an inch tall with flowers opening as flat as a daisy or even reflexing; the Salang species was with capsules when we found it, but has flowered at Wisley with large golden flowers marked with red outside, a species entirely new to us. The Shibar had a small Juno iris with gold-and-bronze flowers which has not yet been named, although it was found by Wendelbo and Hedge in 1962; the Salang had a small yellow Juno of the "drepanophylla" group, and also a stronger-growing Juno that has flowered this year with grey-blue side-winged flowers, which we have never heard of. Another strange plant from the Salang was a *Regelia* iris with pale yellow-green flowers whose falls are stained and veined with reddish-purple, and whose standards have beards as well as the falls; this may be the Russian *I. darwasica*.

On these passes, out of flower, we collected *Crocus korolkowii* and *Colchicum kesselringii*; these went with us to the Oxus valley and the far northeast of Badakhshan. Both have flowered well at Wisley, the crocus with a great variety of colour from sulphur-yellow to orange, either stained or veined bronze outside or with only an olive-bronze basal stain; the colchicum has small white flowers streaked with dark purple, just like a crocus until the leaves appear, which gave it a second name, "*C. crociflora*" (not to be confused with *C. crocifolia* which we had already found in Kurdistan). In flooded grass beside the stream on the Salang, just below the melting snows, a small pale mauve primula was in flower and going into seed; this may be *P. capitellata*. As we dropped down the pass towards the Oxus we passed slopes thick with *Eremurus* ? *robustus* with eight-foot spikes of pink stars; we do not think of this as an "alpine" in our gardens, but below the great peaks of the Hindu Kush it fits the scene perfectly.

Down in the foothills above the Oxus it was hot and dry, the sky with an orange dust haze, and flowers going over; the pastoral tribes had moved up from the plain to the high alpine pastures, leaving the country grazed bare behind them so that the plant-collector has to search for islands in the cornfields which sheep and goats cannot ravage. It was in places like this that we found two Juno irises in capsule, and both have flowered this year. One, of which we collected a good batch and a lot of seed, has proved to be *I. nicolaei* (or *rosenbachiana*) with large showy flowers of purple, gold, and white; the other was a single bulb which produced five large lime-green flowers with white crests, and whose name I cannot guess.

We moved back into the hills towards our special object, the province of Badakhshan, squeezed in between the Pamirs and the Kush quite near to China;



*Anemone tschernjawei* found in Badakhshan

Paul Furse

it has not been easy to travel there in the past for political reasons, but now the Government encourages visitors.

Our track took us up an endless gentle valley from 3000 up to 8000 feet, hemmed in by ridges on each side which were low at first and gradually got higher till the snow peaks of the two great ranges climbed into the sky. At first in the lowland country there was ripe corn with pink *Convolvulus lineatus* in bare earth, a long way from its western home in Spain; there were tall pink hollyhocks, and the yellow spikes of *Delphinium zalil*. Then there were dry grass slopes with clumps of a pink acanthophyllum which the butterflies loved, and an acantholimon with long pink rats' tails, and here we began to find bulbs again; a tulip and a scilla and a crocus in seed, and leaves and seeds of anemones which flowering at home have proved to be the apple-blossom-pink *A. tschernjawei*, and also *A. bucharica* with ferny leaves and crimson or yellow flowers with black centres. These should be splendid acquisitions for the garden.

In the high mountains east of Faizabad we found a large crimson *Oculus-solis* tulip in flower, which is still waiting for a name, and one bulb of a *Kolpakowskyanae* which has not yet flowered. A wonderful *Regelia* iris close to *I. korolkowii* had large white flowers lined with purple-black, and there were plants of a big Juno in seed which have proved to be *I. orchioides*, ranging in colour from pale cream to deep gold. *Scilla griffithii* was in seed and flowered this spring at Wisley with amethyst-coloured starry flowers; *Crocus korolkowii* and *Colchicum kesselringii* were still with us, and both in seed.



In wet places near the Warduj River a small pink primula was in flower and going into seed, probably *P. warshenewskyana* ssp. *Rhodantha*, and on wet cliffs we found *Dionysia tapetodes* again, and *Aquilegia moorcroftiana* with pale cream flowers stained with soft blue. This was the end of the road for us, the snow only just above at the middle of June, and we had to turn around for home.

It was a wonderfully interesting journey and added a good deal to our knowledge of the Afghan flora, but it was only a scouting trip; much more work is needed and this would produce fine plants for gardens as well as valuable botanical information. We wish to say how good the Afghans were to us all the time, the officials, the village people, and the migrant tribes; they were hospitable and kind, they wanted to help and protect us, they were courteous and dignified; we left Afghanistan with a deep love of the wild country, and a profound respect and liking for the people.

## ASTER LINARIIFOLIUS

H. LINCOLN FOSTER, *Falls Village, Conn.*

Though the tribe of eastern American asters is vast, and botanically confusing, and though asters are a prominent and glorious ornament of roadsides and meadows and woodlands throughout the late summer and autumn, very few are of a stature or carriage fit for a place in the rock garden.

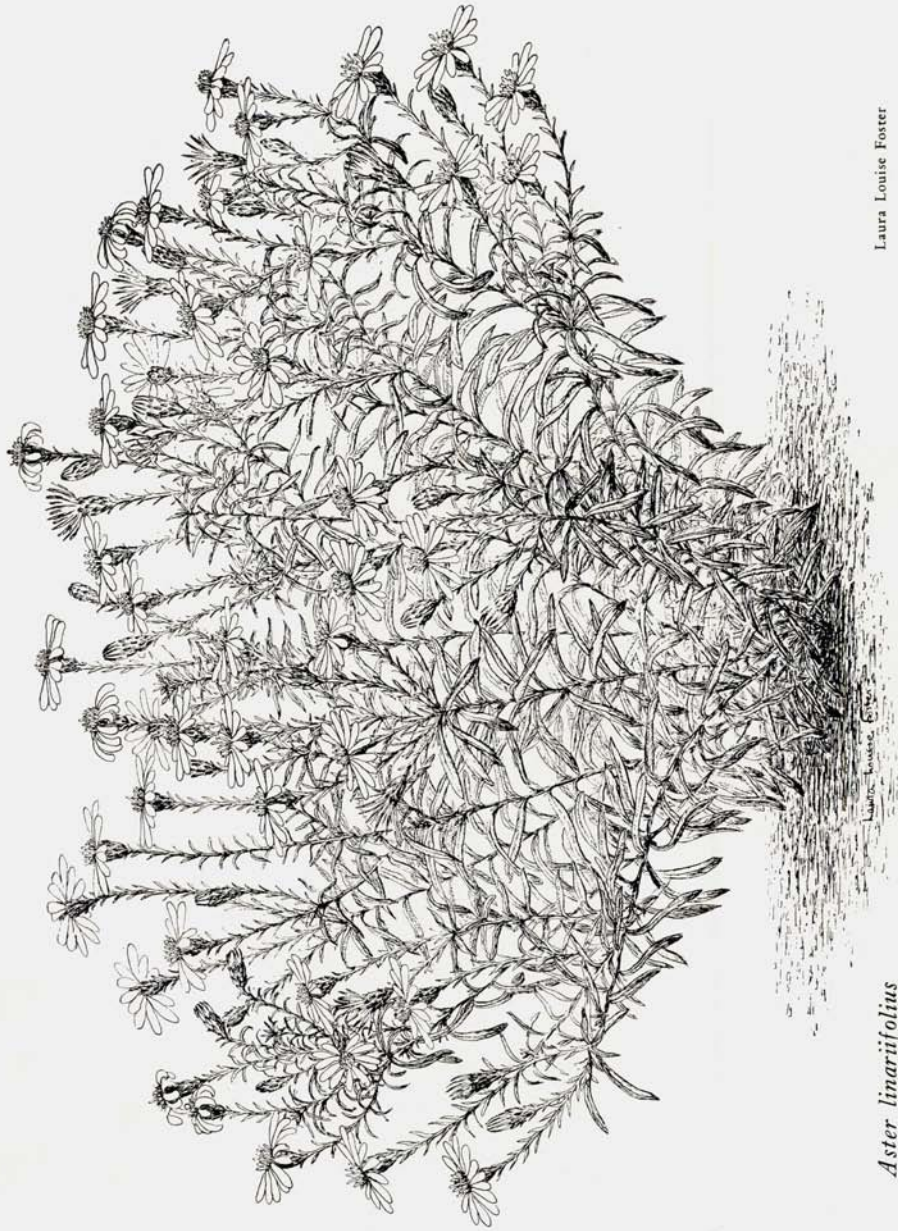
In recent years there have been developed some dwarf, showy hybrid Michaelmas daisies with much of the New England and New York asters in their genetic background. The blossoms are large and copious, ranging in color from deep lavender, through blues and pinks, to white. They have found their proper role as magnificent mounds of color in the foreground of the perennial border, in late summer, just before the early chrysanthemums. They have also been planted in rock gardens to bring some of the late color, eagerly sought, to carry along after the show of spring and early summer. But it must be confessed that, for the same reason that fat-faced pansies are ruled out where wild violas are admitted, these hybrid asters look dowdy and dumpy, over-dressed and ostentatious in the rock garden. They are also gross feeders and require almost annual division to keep them thriving.

None of these complaints can be lodged against *Aster linariifolius*, the Savory-leaved aster. Here is a composite that not only has the subtle mark of untamed breeding, but possesses many virtues as a rock garden plant. It blossoms at a time of year, from late August until frost, when there is little else flowering on the sunny ledges of the garden. It will grow in a variety of sites and soils, is reliably perennial, and yet never ramps or crowds its neighbors.

*Aster linariifolius*, with leaves like *Linaria*, the Toadflax, grows wild in dry, open soils, on ledges and rocky or sandy banks from New Brunswick to southern Minnesota, down through New England, and south to northwestern Florida and eastern Texas. It forms a rather stiff, raspy tussock of erect stems from four to twenty-four inches tall, with narrow, bristly leaves, somewhat on the order of the leaves of Summer Savory, but not pungent. The inch-broad flowers have numerous conspicuous rays, or ligules, generally lavender, but sometimes white, surrounding the golden disk in the center. There are usually from two to five flowers in a loose head near the tips of the stems.

Because this aster dies down to the ground in winter and is late to send up its sheaf of stalks, it may be grown generously amidst early-flowering and low plants, slowly to take its place as the season advances. If grown in ample numbers it will form a very pleasing lavender haze across the garden as the autumn days grow shorter. It appears to be indifferent to the pH of the soil, and will





Laura Louise Foster

*Aster linariifolius*

thrive in any well-drained site, even in the poorest, stony soil. In fact, a starvation diet keeps the stems short and dense, and the blossoms bright.

There are, moreover, inherent differences of stature, of blossom size, and color. Good, dense, dwarf forms with large and brilliant flowers occasionally appear in any large colony. Here at Millstream, where we have permitted this aster to self-sow abundantly, as it will do if the seed heads are not removed before dispersal, one or two plants of superior quality have appeared. When they are in bloom in September and on into October, I promise myself that I shall try propagating them vegetatively. Each spring, the proper time to divide them, or take cuttings, my attention has been distracted elsewhere. Next year I shall try to remember and I urge others who know this aster in the wild, or grow it in the garden, to search for fine forms. It may be quite easily transplanted in early spring, or while in flower, and it comes readily from fresh seed.

Here is another of our American natives infrequently seen in gardens. It is not in immediate danger of extinction in the wild, but it is certainly worth bringing into more general cultivation.

## INTERCHANGE

AN AMERICAN PHLOX — “There is a legend, a myth, a glorious hope, with some firm evidence such as Forrest medals and other awards in Scotland and England, that the most beautiful American phlox is *Phlox mesoleuca*, known in some books as *P. nana* var. *ensifolia*, and more recently as *P. trivulata*.” This is an excerpt from a letter from Mr. Henry Fuller, of Connecticut, who continues, “Quite the most handsome of the group when well grown, but not very easy,” writes Anna Griffith in her recent and useful *Collins Guide to Alpines*.” Then came Mr. Fuller’s questions. “But who in America grows this phlox? Where in America can it be observed? In New Mexico, west Texas, and Mexico, ‘they’ say. But who has seen it in these places, and who knows if it is still there?” Information concerning this phlox would make interesting reading in a future *Bulletin*. Who can help?

AFGHANISTAN AGAIN — Elsewhere in this issue you will have read with great interest of the adventures of Rear Admiral Paul Furse and Mrs. Furse, in their search for new plants in the vast stretch of country comprising Iran and Afghanistan. This English explorer writes, “It was an interesting journey for us, with rough going as well as smooth; it was far the toughest journey we have yet made; but the new country was exciting and lovely, and the flowers were mostly new to us (and to Kew), and it has been fun to watch many of them in flower at Kew and Wisley this year. Now we are preparing for another journey; we plan to start April 1st and to return to the same area as last year. We would then catch the summer season and also climb different mountains and valleys, and so extend the coverage of this botanically unknown country, both in season and in area. But there are many ‘ifs’ in the project.” It is hoped that nothing will prevent this contemplated journey and that after it is over, the Admiral may be persuaded to write about it for the *Bulletin* — *ARGS Bulletin*, of course!

SEEDS AND PLANTS WANTED — Mr. Seth Hastings, whose address is Bedford, New York, wishes information on possible sources of seeds or plants of the following species, which he says he has never seen in any nursery catalogue or seed list: *Aquilegia laramiensis*, *Arcterica nana*, *Arnebia echioides*, *Astrantia minor*, *Boykinia jamesii*, *Celmisia coriacea*, *Celsia acaulis*, *Crepis incana*, *Corydalis cashmeriana*, *Gentiana parryi*, *Hylomecon japonicum*, Species *Paeonia*, *Paraquilegia microphyllum* and *Tsusiohyllum tanakae*. Who can help Mr. Hastings?



## BOOK REVIEW

*A GUIDE TO ROCK GARDEN PLANTS.* By Anna N. Griffith. 320 pp., illustrated. E. P. Dutton and Co., Inc., New York, 1965. \$5.95. (Published in England as *Collins Guide to Alpines*).

While several excellent books on alpines have been published in recent years, *A Guide to Rock Garden Plants* has a freshness and enthusiasm that seems largely to be lacking in the others. After a couple of careful readings, and frequent consultations that have invariably ended in extensive browsing, the book is still as fascinating as when first opened.

In form, it follows rather conventional lines, although even familiar subject matter receives somewhat novel treatment: a brief survey of the history of rock gardening; a compact discussion of methods of cultivating alpines; a section on the life expectancy of rock plants (unusual and valuable, this); succession of flowering; propagating; a glossary, list of common names, bibliography, and sources of plant material. Each of these topics is compressed into little space, yet all essential points are included.

The main part of the text, devoted to brief descriptions of 1900 species in alphabetical order, is informal and untechnical, yet conveys in a few lines a picture of the plant, its desirability, and where necessary, its cultural needs, all delightfully done. All the better species in general cultivation are covered, as well as the more promising introductions of recent years; also some highly desirable species that have long been barely in cultivation in a few fortunate gardens. Nowhere else, not even in the *Bulletin of the Alpine Garden Society*, is there such complete coverage of desirable novelties. This is a "Who's Who" of the race of alpines currently in garden or alpine house.

Mrs. Griffith writes from thorough knowledge of her material. Long an exhibitor at the shows of the Alpine Garden Society, she has specialized in presenting new and little-known species to the public, and has developed a keen eye for assessing the merits of a plant.

Two hundred species are illustrated in color, six plants to a page. The superb photographs of Valerie Finnis have suffered in some cases by reduction in size, through loss of detail, and occasionally by poor color reproduction. But they are still more satisfactory, and less crudely garish, than those in the only other book on rock plants devoted to color plates, Mansfield's out-of-print *Alpines in Colour and Cultivation*, where one can form no idea of the foliage or growth habit of a plant.

Indispensable to the specialist, *A Guide to Rock Garden Plants* will be of enormous value to the less experienced enthusiast as an introduction to a vast number of species which, although growable, are rarely seen in American gardens.

C. R. W.

## NOTES FROM THE NORTHWEST

SALLIE D. ALLEN, *Seattle, Wash.*

**SKILLS, PROCEDURE AND ETHICS OF COLLECTING:**— Each year new members join the ARGS and many of them then experience their first plant collecting adventure. These members wish to know the rules, if any, the ethics, procedures, the "tricks of the trade," and what and where to collect. When it comes to rules and ethics, perhaps it does no harm to remind our more experienced members, too, of these things. A panel composed of Mr. Carl S. English, Jr., Mr. Joseph A. Witt, and Mr. Albert M. Sutton explored this subject thoroughly from the *what, when and how* to collect to the care of such plants en route, and their disposition upon returning home.



Collecting can be like a disease, some strange malady which turns reasonable and otherwise intelligent people into frantic grabbers of everything in sight. A bit or piece of everything seen must be taken home; many times whole plants, and large ones, at that, are snatched, regardless of whether or not there is the remotest idea of what can be done with them, or even if they are garden worthy. This malady is infectious and can be transmitted to another collector, or a group of collectors, and people so infected can leave one of nature's beautiful gardens in utter chaos as though a military battle had been waged on the spot.

Among the many things that motivate us to collect plant material from the wild is our wish to obtain desirable native plants that are not readily available from the nursery trade. When a wanted plant is obtainable from the fine nursery-men who have spent years working with natives and have learned how to grow them, they should be purchased—not collected. This way we profit by the experience of others and avoid the frustration of the trial and error method and the tragedy of the many dead plants that result.

*What to collect:* Small seedlings, the smaller the better, may be taken, but under no circumstances should the parent, or seed plant be disturbed. These large plants, obviously many years old, resent any disturbance, and would only linger and die in the garden. Cuttings and rooted sections, where possible, are also desirable, as they allow us to carefully select superior material as to color, size, leaf pattern and plant habit. Seeds are probably the best to collect as they can be propagated at home and with luck will result in many plants. Collecting should not be done at the convenience of the collector, but at a time when it is best for the plant, preferably after flowering when the plant is going dormant.

*Where to collect:* Collecting of seed, plants, cuttings, or cones, of any kind is prohibited in National Parks. Permission can be obtained to collect on National Forest lands; the Rangers are usually very willing to supply information concerning the plants one desires. There are a few simple rules set down by the U. S. Dept. of Agriculture Forest Service. These rules, as they apply in the area radiating from Portland, Oregon, are as follows:

Gather only:

1. For personal use.
2. Outside designated recreational and natural areas.
3. One hundred yards from any road or trail.
4. With special permission of a forest officer, the following rare plants:  
All lilies, orchids, *Kalmiopsis leachiana*, *Douglasia laevigata*, *Viola flettii*, and others.

On private property it is always best to obtain permission before collecting. It might be added that forethought and consideration for the plants and the landscape add much to the pleasure of collecting.

*How to collect:* Be prepared so that plant material may be collected carefully and knowingly, not merely pulled up by the roots. A small pick and shovel are invaluable tools. Mr. English prefers to gather plants with little or no soil on the roots, place them in plastic bags which he carries on hikes. These in turn are placed in airtight cans upon his return to his car. He does not recommend adding water, as plants will rot if kept in the can too long. If placed in the plastic bags inside the airtight can and left alone they will survive.

Mr. Witt stressed the importance of the restoration of the landscape after collecting. One should fill all holes made with soil, replace any displaced rocks, and be solicitous of neighboring plants disturbed where collections are made. There are two reasons for this: the esthetic and the practical. A scarred landscape is not a pleasure for those who follow, and unnatural holes can precipitate erosion which may eventually carry away the seed plants. So, replace your divots!

Beforehand knowledge of the desired plant, including its many preferences, and a prepared place in the garden for its reception as soon as one returns home is of great value, and may make the difference between its survival and demise. There is no such thing as having too much knowledge.

This was an excellent program, timely and important as we become more and more concerned with the conservation of our natural resources. The panel discussion was closed by Mr. Sutton, who left us with the following thought: "In all your collecting activities, take special care to leave the collecting area as nearly like you found it as possible. The people who follow you, be they other collectors, or forest or mountain wanderers, will find as much pleasure there as did you when you came upon the spot in all its pristine beauty."

**WELCOME! NEW MEMBERS:** — Several of our Northwest Unit members have been corresponding with our ARGs representatives in Czechoslovakia, enjoying the exchange of plant information and the warm, growing, personal friendships. We have learned much from our new friends, and about them; their devotion to their hobby, and their sharing of letters, seed, slides, and gardening information with other devotees in their country. The importance of our *Bulletin*, and like publications in the United Kingdom, was soon established when it became known that the English-speaking members translate articles that interest them, make copies and distribute them among their alpine gardening countrymen. These translations are used as subjects for discussion at the meetings of the Prague Regional Group of Rock Gardeners. This is surely the spirit of giving and sharing.

We also learned that there are many more people in Czechoslovakia who would deem it a privilege to become members of the ARGs, however certain restrictions there, as in some other foreign countries, forbid sending money out of the country, even for the payment of membership dues. This seems unfortunate indeed when membership means so much. The problem was discussed at a meeting of the Northwest Unit, and a plan was formulated to underwrite ten memberships for Czechoslovakian rock gardeners for one year, thus extending the benefits of our Society to at least a few of those people desiring them.

Surely there must be others in many lands who would warmly grasp the extended hand of friendship in similar gestures of good will from other individuals or groups in the ARGs. It is obvious from the pages of the January *Bulletin* that our Czechoslovakian members feel a keen sense of responsibility and are in every way contributing members of our Society. It is with great pleasure that we warmly welcome ten of their countrymen to the ARGs, and we sincerely hope that they receive bountiful rewards from this association.

**ALASKA EXPLORATION:** — A special meeting was arranged for our members so that they would have the opportunity to view Maxine Williams' latest Alaska wild flower slides. Her travels in the summer of 1965 took her to some familiar places and also to areas she had never before explored, including the remote Pribilof Islands. The slides were superb and the plant material seen created much excitement. Brief descriptions of some of the desirable plant material are as follows:

*Primula tschuktschorum* — Native to Pribilof Islands, Kurile Islands, and those of the Aleutian chain. It forms tufted masses of crowns composed of lanceolate, farinose leaves. The rather large flowers, violet to purple, are in umbels on stout four-inch scapes. Each umbel may have from ten to twelve of these blossoms.

*Primula parviflora* — Small and dainty with cuneate-obovate, sharply and regularly denticulated leaves. Flower white or creamy white with yellow at the mouth of the tube.



*Artemisia senjavinensis* — A very rare species, very beautiful with silvery, pubescent cushions and yellow flowers.

*Artemisia glomerata* — Soft leaves and tiny, maroon-brown tufts on four- to five-inch scapes.

*Androsace ochotensis* — Confused with *Douglasia arctica* and *D. formanii*. It is distinguished from *Douglasia* by leaves covered by short, stiff, simple hairs. It forms dense, pink clumps. Flowers smaller than *Douglasia*.

*Dodecatheon frigidum* — Found on both sides of Bering Straits. Two to three violet flowers on two- to ten-inch stalks. Beautiful slides showed entire fields of *Dodecatheon*.

*Campanula uniflora* — A single flower nods on each stem above clumps of leathery leaves. Dark blue.

*Ranunculus cooleyae* — Early-blooming, dwarf buttercup, found above timberline. It has strap-shaped petals and is fragrant.

*Rhododendron camtschaticum* white form — Found on high banks on Kodiak Island, overlooking the ocean. This was perhaps the most thrilling of all the plants seen at this meeting. It was growing in a small colony, the flowers were all a clean, pure white.

## OMNIUM-GATHERUM

Some hard case gardeners place birds, or some birds at least, in the same category as moles, slugs, stray dogs, aphids, cutworms, etc., and consider all as enemies that must be guarded against lest harm come to their gardens. These gardeners are intolerant of scratched out seedlings, damaged blossoms, blemished leaves, and, in the fall, the piracy of ornamental fruit so cherished by gardener and bird alike. It is true, also, that many gardeners are sufficiently well-adjusted to take them as integral parts of Nature — birds, of course, not moles or slugs. Certainly no one is that well-adjusted.

Most gardeners are not only flower lovers but nature lovers, as well. Birds are a part of nature, so while deploring their depredations in the garden, we can still love them. Without going into the pros and cons of the good birds do in our gardens vs. the harm they do, it is certain that when we venture forth into the fields, the forests, and the mountains, even to the seashore, we are going to be conscious of birds and the enjoyment they provide. When the geophysical wonders of the wild cast their beneficent spell over us, when gay flowers lead us upward to timberline, or above, we are ever on the alert to catch any fleeting movement that betokens the presence of birds, and our ears are attuned to catch the lovely music of which some birds are capable, as when meadow larks call from fence posts or grassy fields, or when the evening quiet is filled with the haunting sweet melody of a distant hermit thrush. Birds can be loved — starlings and English sparrows excepted.

So it is with this thought in mind that I bring to your attention (bird haters read no further) a book recently published that deals with birds — rather one bird — and a garden bird, at that. I refer to a small book written by Laura Louise Foster, wife of our Society's president. She called it *Keer-loo — The True Story of a Young Wood Duck*. She has illustrated it with her inimitable drawings. This duck was reported to be a garden worker, helping Laura Louise with her rock garden weeding chores, and especially *helpful* to Linc at transplanting time. Keer-loo was said to have a fine taste for precious gentian seedlings and sometimes disapproved of Linc's transplanting techniques.

Imagine! A duckling having luncheon at the Colony Club in New York City — not as part of the menu — but as a guest, albeit a sort of undercover

guest. This delightful book was published in 1965 by Naturegraph Publishers, Healdsburg, California and can be had at your local book stores, or by writing to the publisher. Paperback edition at \$1.25 and the hard cover one at \$3.25.

Today, as you read this, it is April and the sun is shining, or should be. There is work for you in the garden. It is better that you were out there among your flowers doing what needs to be done, or just quietly enjoying the beauty there, than remaining inside reading more lines in *Omnium-Gatherum*. Lay the *Bulletin* down and make haste to get out into the sunshine. April comes but once a year and is too quickly gone. No hour should be spent indoors that can possibly be spared for the garden. So, out you go, and may your pansies — pardon me, your shortias — flourish, and your spirits soar.



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