

ROCK GARDEN



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COVER: *Campanula tridentata*

by Cindy Nelson-Nold of Lakewood, Colorado

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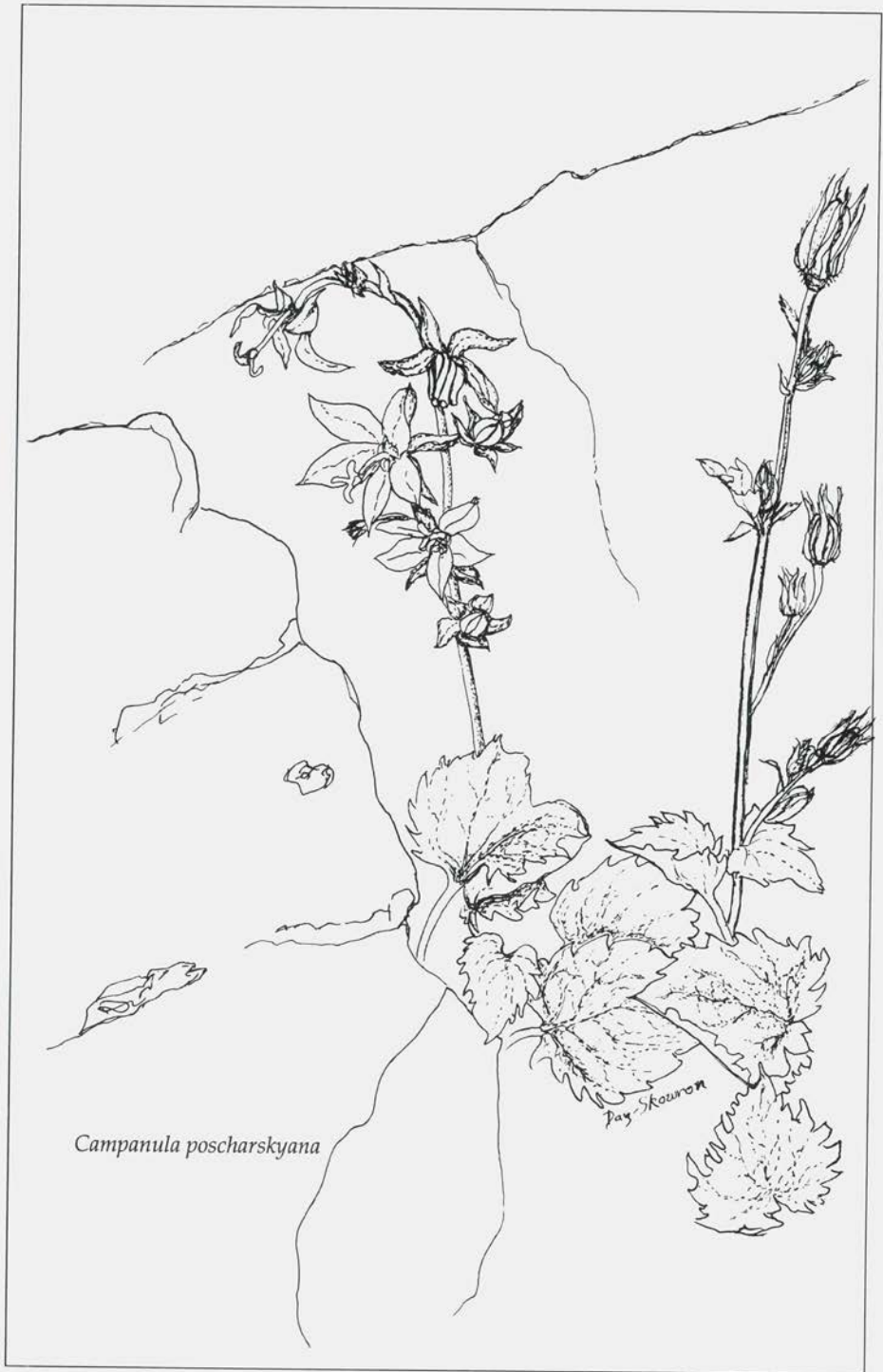
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Campanula poscharskyana

CAMPANULAS:

AT THE HEART OF THE ROCK GARDEN

by Panayoti Kelaidis

Rock gardeners grow wistful in early summer as the riotous display of spring color fades to various shades of green. Surely they need not. A wealth of alpiners and saxatile plants bloom throughout the summer months. The genus *Campanula* alone contributes substantially in this regard, just beginning to bloom as the end of spring approaches. There may be as many as 300 species of campanula in existence, and a lively clan of close relatives in the family offers a daunting arena for experimentation. These cousins include *Adenophora*, *Asyneuma*, *Craterocapsa*, *Edraianthus*, *Phyteuma*, *Symphyandra*, *Trachelium* and *Wahlenbergia*, not to mention the exotic and recondite genera *Petromarula*, *Lightfootia*, *Michauxia* and *Ostrowskya*. All wait for the warmer months to bloom.

It is notable that I have never encountered a garden that had more than a token sampling of the extraordinary family Campanulaceae. Many campanulas bear flowers in various subtle shades of lavender blue, and they combine wonderfully with almost any other color. There are many low-growing species. It is impossible to

overemphasize this family in our gardens—only the few irrepressible weeds, the rowdy black sheep to be expected in any large group of relatives, need be excluded at the garden gate. There are several species in the genus *Campanula* that can be weedy; the prime culprit is unquestionably *Campanula rapunculoides*. The problem with this "cancer of the garden" is not so much that gardeners go out of their way to grow it—even beginning rock gardeners are wise to that. It has such innocent-looking foliage at first, rather different from its mature form, that it can sneak its way into a garden without your knowing it. Before long, wide stretches of your woodland beds and borders will be filled with this most tenacious of garden thugs. I begin this article on this rather menacing note because seed of choice campanulas has been known to transform itself (mysteriously) into *C. rapunculoides* upon germination. I have come to dread the furry, scalloped leaves of *Campanula alliariifolia* almost as much—the plant is particularly fond of limestone scree where the only way I can get rid of seedlings is to discard whole cubic yards of soil where they grow and

start fresh. The elegant *C. kemulariae* has also challenged my trowel—and won. It's worth going out of your way a bit to study and learn these weedy taxa, to thoroughly reconnoiter the enemy, if only to have peace of mind to enjoy the restrained beauty of their many cousins.

The campanula clan may not offer the piercing blues of the gentians, nor the fantastic range of vibrant color of primroses, say, or the phloxes. What they do have going for them—in addition to the good sense to bloom so late in the season—is a quality one might call grace. Who hasn't admired the jaunty poise of harebells on a cliff? Or the clever way that fairy thimbles have of weaving their way through crevices? The starry sprays or nodding bells of this family invite inspection. They are as fascinating up close where they may offer a dainty quality or pure whimsy, as they are filling a meadow with luminous lavender color.

And the foliage of Campanulaceae has never been praised sufficiently in print. A large proportion of the family is evergreen or ever-silver. The leaves are neat, attractive, and often cunningly toothed, quite appealing when the plants are not in bloom. Some species even offer fall color. I value the starfish symmetry of the rosettes of the monocarpic Mediterraneans almost as much as their spectacular supernova blossoming—and am in no rush to see them bloom. Other campanulas produce trim, bright green, holly leaves that furnish crevices magnificently or have waxy, wedge-shaped leaves of deep green as shapely and neat as a carpeting willow's.

More than any of the other giant genera of rock garden plants, *Campanula* exudes character and charm. You may be delighted with *Dianthus*, or passionate about *Penstemon*, but campanulas are a little

different, a bit aloof and perhaps harder to approach. They are not all alike. Each species varies so much during the year, waxing at its time to unbelievable magnificence, and then sometimes sulking with near human pathos. On further acquaintance, campanulas may become your best garden friends (only in a few instances your nemesis!). To succeed in growing the most challenging campanulas, your time would be well spent studying them, paying them the respect and attentiveness that friendship deserves and inspires. Unless they are perfectly situated, or among the few tap-rooted ones, bellflowers need to be divided and moved about to fresh spots now and again. Some may self sow, but most (particularly the monocarps) need to have seed collected and re-sown regularly. Take a campanula for granted, and before long you find they have left you and only the weedy free-loaders remain.

Spring bellflowers

The earliest campanulas to bloom in the rock garden are that large and multifarious group usually characterized as the *Tridentata* section, since *Campanula tridentata* is its best known member. Several dozen names have been included in this complex: I myself have grown a dozen accessions from this group over the years. Every one has been different, distinctive, long-lived, and really smashing in bloom. All of these species produce compact clumps of foliage that vary as much as the flowers do—some forming downy tufts of tiny leaves, and others a mop of bright green herbage. Names you are most apt to encounter in this group are the following:

Campanula tridentata, which typically should have three distinct scallops (or dents) at the tips of the leaves. In some of our specimens the flowers are

produced at the tips of stems as much as 8" tall. Flowers are a deep violet blue and are borne for several weeks in May.

Campanula aucheri is similar, with more compact habit (under 4"), grayer leaves, and bluer flowers.

Thus far the most compact examples of this group I have grown have been recent collections from eastern Turkey, brought into cultivation by a number of Czech seed collectors. On some plants the leaves are little more than an inch long, forming very congested clumps of foliage less than 4" across. The flowers are almost stemless. The plants have usually been offered as *Campanula saxifraga*.

Campanula biebersteinii is also small, but with much greener leaves and flowers of rich violet-blue on 2" to 3" stems.

The blossoms of this group are held erect or slightly nodding. The seed capsule almost always nods, however, dehiscing along the base as the seed ripens, shaking out the seed as poppies do. Theoretically, a single plant can produce thousands of offspring, yet I have never had more than an occasional seedling appear in the garden. Since this group produces such neat, condensed clumps of growth, and since they are rather long-lived, the smaller forms are ideal for troughs or those intimate corners of the rock garden where you paint your most delicate pictures. The vivid blues and lavenders of this group look particularly beautiful combined with the smaller, yellow sunroses, such as *Helianthemum oelandicum*, or *H. scardicum*. Their clumping habit makes them perfect subjects to blend into the tapestry plantings of screes with the welter of late spring alpiners, including the first poppies, alpine chrysanthemums, and achilleas. These are definitely not hackneyed combinations.

A week or so after the Tridentata section finishes blooming, a similar complex of tufted bellflowers, this time from the Northern Pacific Rim, comes on stage. These are *Campanula chamissonis* (= *C. pilosa*) and its associates and cultivars from Japan, Kamchatka and Alaska. They make dense mounds—even extensive mats when perfectly grown—of rather thick, deep green, scalloped leaves quite attractive in their own right. Their flowers are produced on stems an inch or so tall—or are sometimes even stemless. They bear huge, violet-blue trumpets 2" or more long. Unlike the Tridentata section, whose members thrive on limy composts, these seem to do best in granitic scree and with a little more shade and moisture. They are outstanding rock garden plants, and some are small enough for troughs.

Taking over from *C. chamissonis* in Alaska, and extending southward in the Rockies and Coast Ranges to the northern continental United States, *Campanula lasiocarpa* superficially resembles the former, excepting that its sharply toothed rosettes are often glaucous and virtually glabrous. I have never managed to maintain *C. lasiocarpa* for more than a few years—perhaps it resents Denver's heat.

I have long been fascinated that the clump-forming, toothed-leaf *Primula cuneifolia*, similar in overall range to *Campanula lasiocarpa*, evolved a mat-forming species in the Sierra Nevada, namely *Primula suffrutescens*. Likewise, the tufted, dentate, boreal *C. lasiocarpa* has two mat-forming relatives in the cordilleras to the south, *C. piperi*, restricted to the drier east side of the Olympic Mountains of Washington, and the very rare *C. shetleri* from a few cliffs in northern California. Both of these narrowly endemic campanulas demand perfect drainage and very

cool aspects—and are as challenging to grow well as the dazzling Sierra primrose. They are very attractive to slugs. Thus far, I have managed to grow the albino *C. piperi* in cool crevices. Both species can be tamed by gardeners who grow plants well in pots, but wait to try these until you have mastered the easier, alpine mat-forming gems of Eurasia: you'll only be wasting your money and fattening up your local gastropods until then.

Waking from that dream of the most difficult American species, imagine that you have a wonderful mat of silvery, spoon-shaped leaves on your choicest scree. Now imagine this mat completely covered with stemless, full-sized flowers of Canterbury bells pointing up at the sky, and you have *Campanula alpestris* in a nutshell. You may have known this by its synonym of *C. allionii*, but by whatever name, this is surely the flashiest of true alpine bellflowers. It is often regarded as a challenging, high alpine gem that must be cosseted and fussed over. I have grown it in a variety of sites in the Rock Alpine Garden, and, provided it has sun and drainage, it quickly forms sizable mats and spreads at a rather alarming rate. It generally blooms the second year after sowing, continues to grow and prosper for another two or three years, and, if not divided just as it reaches its peak, disappears as quickly as it came in the first place. As with most of the widely rhizomatous campanulas, it divides best and establishes most reliably in the cooler months of the year, especially March and April.

Campanula alpestris blooms in the garden on the heels of the Tridentata group, just as the phloxes are fading and before dianthus have come into their own. It is a good plant to combine with compact selections from either of those two giant genera, since

its cool blue contrasts so well with their dominant pinks, and it likes much the same soil and exposure. Nor is it apt to overwhelm them.

I have never had the privilege of seeing this extraordinary plant in the wild, but I can assure you that a well-grown mat, studded with dozens of bubble-like blossoms, cheek by jowl, constitutes one of the most stunning spectacles I have ever seen in the garden. Considering that it is easily grown from its abundant seed and can be so easily propagated from divisions, I can only attribute its relative rarity in gardens and nurseries to a certain fatalism we have towards any choice campanula. Try it, you may be surprised. Incidentally, I have twice received seed of *Campanula speciosa* labelled *C. alpestris*. The former has similar flowers, but a dozen or more are produced in a short spike 6" to 12" tall. *Campanula speciosa* produces a softly hairy, gray rosette with leaves admittedly somewhat like *alpestris*; it is invariably biennial.

Another choice campanula that often blooms by the end of May is *Campanula oreadum*, a showy miniature endemic to the Thessalian Mount Olympus. This trough-scale plant has bright green leaves forming blunt clumps a few inches across. Several stems, with usually two or three comparatively large, flared, blue-violet trumpets at the tip of each, emerge at the end of spring. This has survived four years in the crevices of several rock gardens here in Denver, setting lots of seed. A characteristic I have observed on several specimens has been the doubling of the number of lobes on the corolla—eight or ten lobes instead of the customary five. Again, although the literature speaks of this as a difficult plant, it tolerates our summer heat and variable winters with equanimity.

A few weeks after the Olympic bluebell finishes blooming, its cousin from Parnassus and neighboring peaks chimes in. *Campanula rupicola* thrives under the same conditions—crevices of granite or limestone, or sharp draining scree. It forms somewhat wider, flatter mats up to 6" across of deep green, lightly scalloped leaves, and branching stems with deep purple-blue bells. Each plant may only persist for three or four years, but they have scattered seed about, so that a succession of their seedlings have maintained this colony for years. Both these classic, high-mountain perennials from Greece merit a place in the choicest crevice garden.

Early summer: sociable bells

With the first hot days of summer, as tall bearded iris come into bloom and peonies are at their best, a wealth of campanulas bring cool lilac color to the garden. Many of these are willowy meadow plants that thread their way through grasses, scabiosas, daisies, and the riot of subalpine wildflowers that make rock gardens and the mountains so inviting as the summer solstice comes around. The best known of these is undoubtedly *Campanula rotundifolia*, the harebell, which starts to bloom in June, re-blooming through much of the summer. The leaves of the stem are very narrow, but if you look closely you will see that the basal leaves are round, as the specific epithet suggests. Flowering stems can reach up to 10" or even twice that in rich soil. In a scree this plant can be a frightening menace, forming dense tufts, usually on top of some choice, tiny androsace or delicate saxifrage. There are undoubtedly shorter-stemmed and larger-flowered forms that may be more restrained, and even in the smallest garden there is often a wild corner where the harebell can be

let loose. I will not soon forget my smug skepticism the day a colleague planted hundreds of harebells from small pots into a riparian area bordering the Rock Alpine Garden. They were stuck willy-nilly among rather coarse native grasses like little bluestem (*Andropogon*). I thought they would be overwhelmed by the grasses and never show up at all. To my chagrined surprise, the bellflowers proceeded to explode in size and vigor with every rainstorm. Ten years later they have persisted, to my incredulity and delight, creating a mist of dark lavender blossoms that shimmer among the grasses for months on end. Not exactly intimate in scale, but a resoundingly successful planting.

In the Rock Alpine Garden's meadow bed I have used *Campanula patula* several years running to provide a cloud of upturned lavender stars. Unfortunately, it is biennial, and fails to reseed as prolifically as I would like, but the season of bloom is so protracted and the color so perfect among the random tapestry of meadow plants that I will continue to grow and try it here and there, hoping to find a spot where it will persist on its own.

This year *Campanula abietina* will finally bloom on a choice scree. This eastern European endemic is a larger-flowered and possibly perennial cousin to *C. patula*, sometimes classed as a subspecies of the more widespread biennial. Similar diffuse mats topped with upturned blue cups are produced by *C. spruneriana*, which is likewise making its debut here this year in late May.

I obtained a vigorous, nodding campanula under the label of *C. abietina* that fits the description of the widespread *C. sibirica*, making round rosettes of dark green, hairy leaves the first year. The second year it produces sheaves of dark blue, tubular flowers

on stems 12" or more tall. This has persisted for more than a decade, wandering here and there throughout the garden, never disappearing altogether, nor completely overwhelming any single area. Several weeks later, *C. rhomboidalis* starts to bloom, behaving in much the same fashion, only bearing even larger, more violet trumpets. It is a welcome naturalizer for the margins of the peat bed or loamy corners of the garden where it creates a spectacle of purple for much of June and July. It combines delightfully with the various *Anthemis* and gauzy umbellifers, such as *Athamantum* or *Tordylium*, that bloom at the same season.

Two medium-sized campanulas that hold their own in the meadow garden are *Campanula collina* and *C. sarmatica*. The former is much the more delicate of the two, with dark green, elliptical leaves 3" or so long. It forms small mats with numerous slender stems up to 8" bearing lovely, nodding, dark violet bells in midsummer. It is restrained enough to grow in a large-scale scree, although the plant will tolerate richer loam as well and grow larger there. *Campanula sarmatica* is a much huskier cousin of this last, with very thick, pointed, hairy leaves making robust clumps in any good soil. The flower stems are about 15" tall, with flaring bells of a silvery blue through mid July—a vigorous plant for the wild garden but easily pulled out where it mustn't grow and thus not by any means uncontrollable.

The most delightful surprise among these meadow campanulas has been an annual from the Mediterranean. *Campanula ramosissima* germinates in midspring, and by early June the first blossoms begin to open. On freshly prepared soil in a good year the flowers may be over 2" across, delightful cups of deep blue. A healthy plant can produce dozens of flowers, and a

colony can provide interest for half the summer. Like many annuals, this thrives on disturbance. On older scree it gradually disappears, but a few years after renovation and disturbance you can expect wide masses of this indispensable filler. I am so fond of this plant nowadays that I allow it free run of the garden and make sure to scatter old seed on any new beds that I refurbish—it has become almost a signature plant of this garden. If you can get it going, you, too, no doubt will give it free rein.

Classic early summer mat-formers

By the time of the summer solstice, many of the classic campanulas of the rock garden will be in full bloom. No matter how many novelties are introduced from the far corners of the globe, no plants will surpass *C. garganica* and *C. portenschlagiana* as mainstays of the rock garden. They have similar, bright green, ivy-shaped foliage that is as decorative in winter as in the long summer months. They tolerate almost any degree of sun or shade and bloom for weeks even in the hottest summer weather. There is no end of selections and cultivars of both these fine plants—with flowers of deeper blue, pure white, or with white-eyes. I never tire of acquiring new forms of these two indestructible Methusalahs of the genus. *Campanula garganica* is the more variable of the two and boasts quite a few synonyms into the bargain (*C. elatines*, *C. fenestrellata*). Its flowers are tiny starfish an inch or so across produced in prodigal clouds just over the glossy or slightly hairy leaves. *Campanula portenschlagiana* occurs in nature over much the same range around the Adriatic Sea, but has violet funnels of bloom, beginning usually a week or so after its cousin. Both grow quickly from seed or cutting and are widely available even from conven-

tional garden centers.

Garden centers still sometimes offer *C. portenschlagiana* under its euphonious synonym of *C. muralis* (of the walls). And gardeners still confuse its current Latin epithet with that of a similar, but much coarser cousin from the lower Adriatic, *C. poscharskyana*. Superficially, this resembles *C. garganica* on steroids. In maritime climates, *C. poscharskyana* can be a rampant spreader, swamping tiny alpines under a nebula of lavender stars. In Colorado, it is much slower growing and hasn't bloomed prolifically in any of several sites—not coming quite up to snuff.

Another complex of mat-forming, shade-loving campanulas occurs in Asia Minor and the Caucasus. These are the birchleaf bellflowers, related to *Campanula betulifolia*. The form best known in cultivation thus far has smooth, thin, green leaves and brittle wands of long, white, nodding bells on stems 5-8" long that usually trail near the ground. Occasionally the backs of the flowers are stained pink or purplish. It looks best on steep, north-facing slopes where the graceful, arching habit is more evident.

Two very closely allied forms or species have been introduced from eastern Turkey in recent years. Jim and Jenny Archibald collected *Campanula trogerae*, surely one of the most strikingly impressive introductions of recent years. Few gardeners would believe these two species are closely related since *C. trogerae* forms a dusty, lax, rosette-like cluster of leaves and doesn't spread rhizomatously, as does its more easterly cousin. The flowers are formed at the ends of brittle stems 6" long—huge white starfish that look as if they were carved from pale jade, very heavy in texture. This is a stunning centerpiece of the midsummer garden that deserves every effort

to tame and establish. It has spread about modestly from seed in our private garden and seems to be rather long-lived for such a dramatic horticultural statement. *Campanula choruhensis* appears to be intermediate between the previous two species, with bells of substantive texture on downy, gray rosettes. A pure pink form was collected in the wild and is considered the most beautiful of wild campanulas by some connoisseurs.

The theme of ivy-like or birchleaf shaped leaves forming evergreen mats appears again in western Asia, this time in the guise of two ground-covering bellflowers. *Campanula kemulariae* and the somewhat more upright *C. raddeana*. The first produces heavy clusters of nodding, violet cups that can completely obscure the leaves. The flowers last a long season in midsummer, and the plant tolerates a wider range of soil and exposure than any campanula I have grown. Unfortunately, the rhizomes spread inexorably and rather quickly, and worst of all the plant seems to be impossible to remove. If you must grow this plant, be warned that it should not be put near treasures or delicate alpines. This is a groundcover of the most permanent sort. I would not be without it and have found some niches between rocks and a path where it can do little damage. I ruthlessly eliminate seedlings that appear in nearby beds, since once this insinuates itself among rocks it resists herbicides, excavation, and Acts of God. *Campanula raddeana* hasn't been quite as vigorous, thank heavens.

Tiny mat-formers for scree

Next to the harebell, the most universally encountered campanula may be the tiny fairy thimbles that grow rather rampantly both in the mountains of western and central Europe

and in rock gardens around the world. Who hasn't been enchanted with some slightly larger-flowered or albino form of *Campanula cochlearifolia*, or a particularly dwarf blue clone? If you haven't yet succumbed, imagine a campanula that forms masses up to a yard across of leaves the size of your fingernail, completely obscured by dainty bells on stems 3-4" tall. The flowers are just the right size and shape not only for a fairy's thimble, but for a hat! Many forms are named, and many are eagerly (too eagerly) shared from garden to garden, and soon most of us find our screes overrun with the glossy, tight mats of this species. While moribund cushions of highly desired, choice, impossible-to-grow plants may be swamped by fairy thimbles, let's be perfectly honest: it coexists magnificently with most alpiners. If you are to have a weed, why not have such a cute one?

A few years after the Rock Alpine Garden was planted I remember noticing with horror that virtually every inch of a bed almost 400 square feet in extent (the Scree Mound) was filled with this irrepressible alpine. The mound was shrouded by late June in a cool dream of pale blue and white, a fine summer spectacle. A decade later I am surprised to notice that there are only a few small tufts of campanula left here—even though I have never intentionally removed it. The summer rock garden is poorer as a consequence, and I am scheming to see in what area this tiniest of garden gobblers will next be loosed.

For those of more delicate sensibilities, *Campanula excisa* and *C. caespitosa* are effectively more restrained versions of fairy thimbles. The former has linear leaves and rather constricted bells with five tiny holes between the lobes of the bells, a feature visitors find fascinating. I have found it much

more exacting than the commoner species, needing a well-drained, shady, acid scree or crevice to prosper—and when it does, watch out! It can spread alarmingly—in its own very delicate fashion.

Campanula caespitosa is very much like *C. cochlearifolia*, but remains a rather compact mat, never straying too far from a central crown. The stems are a few inches taller, the flowers somewhat more attenuated. I have never grown a form of this with the tightly constricted bells one sees from time to time in pictures; mine always have just a slight pucker. This species, too, lasts only four or five years before disappearing from the beds.

The last widely ramifying miniature from the Alps is *Campanula pulla* which can likewise cover several feet of scree. It will not tolerate nearly as much sun or drought as *C. cochlearifolia*, definitely a candidate for shady scree alongside *Lewisia cotyledon* and the like. The bells, much shallower and rather wider than fairy thimbles, are on stems a trifle longer. They are often a rather dark violet color in my experience.

Mediterranean monocarps

Just as the tiny mat-formers from the Alps are enlivening the cooler corners of the rock garden with their silky bells, the hotter crevices and aspects can be adorned with an extraordinary assortment of specimen campanulas, mostly emanating from the cliffs of the eastern Mediterranean littoral. Anyone who visits the ancient sites of Greece or Turkey in spring cannot help but be impressed with the stunning display of campanulas that have adorned these hills for so many centuries. In Greece, more often than not you will encounter one of the variations on the theme of *C. rupestris*, whose rosettes suggest dandelions in plush ermine. These transform by midsummer into a

mound of narrow trumpets that vary from cool blue to nearly violet—simply amazing. On the ruins of Delphi this April I saw it jostling in peak bloom against a wealth of other chasmophytes, including *Centranthus rubra*, a wonderful white *Nepeta*, and a welter of bulbs. I will never forget my chagrin at Mystra, among the exquisite late Byzantine churches, to find a latter-day nun busily scraping the rosettes of *C. rupestris* off the very walls where we had just been busy photographing and admiring it. She had accumulated quite a pile of her trash, our treasure.

In the Rock Alpine Garden we have grown *C. rupestris* for fifteen years in a variety of sites and soils. Some years it self-sows rather wildly, cropping up in the tightest crevices of the limestone monoliths. Other years it practically disappears. Every accession we have obtained (as *C. celsii*, *C. topaliana*, and so on and so forth) has been subtly distinct, and something to marvel at. In a rock it can take three to five years for a rosette to bloom. The flowers, of course, are stunning both from a distance and close up, where you can examine the often striped back of the petals and the fluted shapes of the corollas. I enjoy the rosettes so much I am always a little saddened when they reach blooming size. Botanically, these Mediterranean campanulas represent a number of rather distantly related groups within the genus. They are united by their rosulate habit—often taking three or more years to build up strength to bloom on a hungry scree—and by their graceful way of arching their flowers in a garland around the rosette.

Practically every island or mountain in the eastern Mediterranean has its own special form or species of monocarpic campanula that forms a starfish-like rosette with a cartwheel of blos-

soms. *Campanula hagielia* may be the most stunning I have seen or grown so far, with sumptuous white rosettes even more finely cut than those of *C. rupestris*, growing larger, often almost upright and covered with shaggy white hair. Its white or cool lavender, campanulate flowers are shaped like Canterbury bells. It grows abundantly on the ruins throughout Ephesus, which perhaps explains why it has appeared on seed lists in the past as *Campanula ephesia* (another graceful, but much less showy species that grows at the same site). I was particularly taken with this wedding cake of a campanula on the dramatic site of Priene, an Ionian city an hour or so south of Ephesus, on a steep hillside overlooking a vast sea of rich farmland from the very spot where Alexander the Great took residence and gazed upon what was then the sea. An extraordinary assortment of orchids and chasmophytes can entertain you here for many an hour with far fewer tourists than at most archaic sites in the Mediterranean. The Hellenic, Hellenistic, and Roman sites of Turkey are so numerous and rich that the Turkish government has not been able to be as generous with herbicide as Greece has done. I doubt if the occasional chasmophyte does more damage to the marble than the legions of tourists with their thundering cameras and indiscriminate boots.

The flowers of *Campanula incurva* and *C. formanekiana* are nearly as large and globular as those of *C. hagielia*; however, the general effect is rather more muted, and the rosettes are not quite as shaggily white. *Campanula incurva* grows wild in northern Greece, sometimes at lofty elevations. It has trim, rounded leaves with soft gray hairs a few lobes and indentations and forms symmetrical rosettes to 5" across the first year. The first form I obtained

was uniformly white-flowered, but a subsequent collection from the Archibalds was a lovely pale purple. The flowers last the entire summer if the weather is not too hot. Both *C. incurva* and *C. hagielia* will occasionally live to bloom a second year, although the show is never again as stellar. They prefer well-drained, sunny scree, and both have volunteered in tiny crevices of rock. In Colorado they can be grown on ordinary loam as well, provided it is not overwatered in summer.

Campanula formanekiana grows in northern Greece and southern parts of the former Yugoslavia. This has delightful rosettes with spoon-shaped, neatly pinked leaves with silvery hairs. It seems to do better in cooler aspects than its cousins and can put on a dazzling display of pure white or even pink cups of bloom in the summer months. Thus far I have had two plants bloom with distinctly pink flowers, although their offspring do not invariably hold this color. A pure pink race of this wonderful chasmophyte would be a set piece of the summer garden. Other rather large, monocarpic, rosetted campanulas that have persisted for a number of years include wonderfully rounded leaves and rather small, numerous blue bells of *Campanula lanata* in early summer; and *Campanula ledebouriana* with bristly, linear leaves and again rather dull, small, cup-shaped blooms produced in abundance in late June and July. It self sows vigorously in cool, shady scree.

An altogether different plant that has come to me both as *Campanula sartorii* and, incorrectly, as *C. calaminthifolia*, has a very different impact in the garden. The first-year rosettes are very tiny and delicate—sometimes only 2" across—silvery and lacy in outline. The flower stems extend 5" beyond the

rosette the second year, however, studded with hundreds of miniature funnels of pure white, each less than an inch across. This is the smallest, most delicate of the monocarpic sorts. It has re-seeded for several years.

Campanula tubulosa, however, produced an immense rosette of hairy, orbicular leaves almost a foot across. The violet trumpets were borne upright on the splaying stems—quite dramatic and distinct—but the plant didn't set viable seed and is only a memory and a photograph today.

Campanula orphanidea, *C. saxatilis*, and *C. thessala* carry the theme of starfish-like monocarps on a smaller scale. These can be grown in troughs in milder climates, although I have grown the first and last mentioned for many years in a variety of soils and exposures. *Campanula orphanidea*, widely ranging in the mountains of Greece, has dark gray-green, lyrate-leaved rosettes usually just 3-4" across. The flowering stems may extend to 6"—less than half the size of robust specimens of *C. incurva* or *C. hagielia*. The flowers, a fairly uniform, deep violet-blue, are slightly flared cups that can obscure the entire plant. It does well in deep shade as well as in ordinary sunny scree.

Campanula thessala from northern Greece is roughly the same size; however, its wonderful, congested rosettes are densely gray hairy, and the flowers are a paler lavender. I have never succeeded in growing the rather rare Cretan *C. saxatilis* for very long, although I have bloomed it once or twice. It is glabrous and more perennial than these other two miniatures where it condescends to bloom. I have likewise failed to grow the large, wonderfully filigreed rosettes of *C. laciniata* to blooming size. They have not made it through a Colorado winter with enough strength to bloom.

Perhaps the most pleasant surprise among the miniature rosetted Mediterraneans has been *Campanula heterophylla*: this makes a smooth, blue-green rosette 3-4" across and splays short stems another 2-3" out with pleasant lavender bells in midsummer. It returns year after year to delight with flowers, unlike so many of these Mediterranean gems that are so spectacular, but fleeting in their glory.

Late summer magic

Even in August and September campanulas continue to bloom in the garden. Three of the loveliest miniatures only bloom in August and September. All three grow in the former Yugoslavia and are closely related to one another—although quite distinct in the garden setting. They seem to thrive in any cool scree or crevice garden provided they are neither too wet nor too dry at any time in the year. They form twiggy mounds from 4-6" tall with lanceolate to lance-linear stem leaves. *Campanula waldsteiniana* has deep blue, upright flowers almost an inch across produced over dense mounds. It is one of the showiest, longest-lived alpine species for trough, choice scree, or the open garden.

Campanula hercegovina is rather smaller, with paler flowers that are half nodding. It blooms a few weeks earlier and has a more creeping habit with tiny, but distinctly ivy-like basal leaves. The form in general cultivation in the United States is probably *C. hercegovina* 'Nana'—since it rarely exceeds 4" in height.

Campanula tommasiniana has much the same form and habit as *C. waldsteiniana*—a distinct dome of twiggy growth 5" tall and somewhat wider, only here the flowers are distinctly tubular and nodding. It has not proven as permanent for me as the other two, though it is easily raised

from seed or division. The ease with which all three of these Balkan gems can be grown, their restraint, and their late season of bloom qualify them for the very smallest and choicest of gardens. I consider them indispensable.

Superficially like these in habit, only densely hairy and gray, *Campanula cashmeriana* may have the longest season of bloom of any campanula I have grown. Its first flowers open in June, and it continues to produce more and more, forming a wonderful mound of pale blue bells the entire season into fall. This is the commonest representative of a number of high alpine Himalayan species often considered challenging to grow well in the garden. Its protracted bloom period makes this one of the very best plants for the small garden, well worth growing again every few years from seed if need be.

Two classic, giant-flowered species from Italy are more often seen in hanging baskets than rock gardens. *Campanula isophylla* and *C. fragilis* are reputed to be quite tender, but both overwinter most years in Colorado, and their giant, waxy blossoms much of the summer season are worth any effort. They form basal mounds of foliage rather like those of the *C. garganica* group, only their flowers splay out in a cartwheel more like the monocarpic Mediterraneans.

Possibly the very showiest late summer campanula is *C. versicolor*, once again from southeastern Europe. This produces a lax, deep green mound of large, smooth, holly-like leaves that are attractive in their own right. Then in August it produces stems as much as a foot long that splay gracefully, like the arms of an octopus, along the ground, with comparatively huge dark-eyed, star-shaped flowers identical to those of *C. pyramidalis*. Unlike its giant cousin, however, *C. versicolor* is

long-lived in the garden: one of my specimens is ten years old. It has self sown modestly, and a few specimens have established permanently in solid rock. Keep in mind that although it is prostrate, this plant can occupy several square feet.

A few eclectic campanulas

Although it's possible to generalize about the need some campanulas have for scree conditions, or group some by their monocarpic habit, there is so much variability in the genus, and so many distinctive plants that a few need to be considered individually, since their personalities are so far apart from the rest.

It's true that *Campanula thyrsoides* has bell-shaped flowers, yet they are so tightly packed in their dense, cylindrical thyrse that the plant resembles some exotic *Echium* far more than it does other campanulas. And it comes in a pale yellow into the bargain. The typical form of this may reach more than 2' tall, but a form I obtained once as *C. thyrsoides* var. *carniolica* grew barely a foot tall and made a wonderful exclamation point on a warm scree. H. Clifford Crook, who produced the finest treatment on campanulas, had a peculiar aversion to this delightful plant, proclaiming that "fortunately, it is only monocarpic."

Campanula glomerata also produces rather coarse thyrses of deep violet or pure white flowers in the summer. This mainstay of the perennial border can look lovely in a wild garden setting, too—under aspen or battling with golden banner (*Thermopsis*). Be advised, however, that even the compact form 'Acaulis' towers in the rock garden and spreads through screes at cataclysmic rates.

The first time I obtained seed of *Campanula hawkinsiana*—a rare endemic of Northern Greek serpentine bar-

rens—I was worried it would spread through the entire Rock Alpine Garden. Each seedling I put out formed neatly shingled ranks of leaves a foot more across that looked as if they were ready to swamp the entire 19 acres of Denver Botanic Gardens. The next year, each rosette produced a stem 6-8" tall with a lovely, saucer-shaped blossom of shimmering purple. It set a ton of seed—and then all the plants promptly perished. I was very disappointed, especially when no self-sown seedlings appeared to spare me the effort of growing this wonderful plant all over again. So a few years later I sowed seed again, and the process was repeated: the seedlings went here and there all over the rock garden, and neat mats of leaves appeared, and the second year a mass of spectacular blooms. Once again every plant that bloomed perished and I was back to ground zero, although I managed to collect lots of seed again. I am very curious to find this in the wild one day and see just how it maintains itself as a perennial in Greece. Perhaps we have to hire the itinerant goat to keep it perennial in the garden.

Campanula parryi looks something like a paler, smaller version of the last, although the basal foliage is not nearly as substantial, and the habit is rather more perennial. This distinctive sub-alpine campanula from the Rocky Mountains and the Intermountain region grows most commonly in gravelly moraine meadows near the terminal moraines of the last glaciation—usually at 7,000-9,000'. It has a widely rhizomatous habit in a scree garden, but in richer, loamier soils it can form dense tufts with lots of lavender color through the summer months. Again, this is not a plant made for fastidious gardeners, since it is guaranteed not to stay next to a label longer than a toddler can be expected to cling to his

mother's skirts in the toy department.

And what to make of *Campanula alliariifolia*? Can there be a more graceful, distinctive, and welcome garden pest? First of all, its basal foliage is rounded and gray, altogether different from other campanulas. It makes compact mats only a foot or so across at first. But then the flower stems shoot up in midsummer, 2', 3', even 4'. And it just keeps going, drooping and dripping the whole way with glistening white funnels of bloom that simply glow in the backlight. Plant it in the border, you may say, but you know the impact of a graceful thing like this in the border is nil. Swaying from a crevice or perched on a ledge, it is irresistible. Until you notice seedlings here, there—and everywhere. They're innocent enough at first, but soon their carrot-like taproots and wider and wider rosettes smother anything short of a shrub. One year in midsummer I noticed hundreds of those graceful wands emerging all over the garden, in every bed; I knew that the time had come. Many years of ruthless digging finally removed the bulk of them, but if a sufficiently large piece of root is left behind, the entire plant will regenerate in a matter of months, if not weeks. I have left this species in only one wonderful crevice in one far corner of the garden (and I deadhead promptly): weed it may be, but no cancer of the garden, and the long spires of pure white are irresistible.

Finally, there are three eclectic campanulas that are on everyone's wish list. *Campanula zoysii*, *C. cenisia*, and *C. morettiana*. These are the ultimate in challenging, choice campanulas from the high mountains of central and eastern Europe. It is sheer masochism (and a waste of both money and germplasm) to attempt these before you have sampled a wide spectrum of the genus. They not only constitute the

preferred food of all gastropods on earth (veritable herds of slugs will leap into action the minute you plant any of these in the garden), but their seedlings are tiny and very slow to mature under most growing methodologies. If you can procure these as mature plants in pots, and if you have your slugs and snails under utter, complete, ruthless control, all three of these are quite growable in the crevices of a steep, north-facing crevice garden. They love a rich, well-drained scree and granitic mulch. Both *C. zoysii* and *C. cenisia* appear to be short-lived in cultivation, but they do produce copious seed before they melt away. As fabulous as this trio of choice plants may be, there are dozens of Greek, Turkish, and Caucasian bell-flowers every bit as tiny, flashy, and magnificent—and more importantly, much more growable. Tackle those first!

Eventually, most rock gardeners encounter the peculiar dwarf offered as *Campanula planiflora* in either its waxy purple or white manifestation. This plant seems more likely to be from an antique store or a wax museum rather than any wild habitat—it is so stiff, succulent, and seemingly artificial. And yet, those short spires of blossom, usually well under a foot tall, bloom on and on through the summer doldrums. A year later, it gradually loses vigor and dies out if not lifted, divided and replanted in fresh soil. If you let it go to seed, you may be surprised to find the peachleaf bluebell, *C. persicifolia*, showing up when you might not even have the usual form of it in the garden. This Mr. Hyde of the rock garden, properly termed *C. persicifolia* 'Planiflora'—a spectacular plant for the back of the border or the wild garden—manages to have each and every one of its two million seed germinate in the perfect medium of stone

chip mulch. These two very different plants are apparently just distinct genetic phases of one another—the 'Planiflora' being a Mendelian recessive that largely reverts to the tall border species in the next generation. So be advised to deadhead promptly and with gusto.

And so it is with the whole genus. A few pernicious seeders or plants with unbelievably vigorous root growth like *Campanula rapunculoides* have managed to discourage some gentle souls from trying the hundreds of noble species that otherwise populate the genus. Every year more campanulas swell the inventory of our gar-

dens and weave their way through our collections. Can you imagine a border without *C. lactiflora* or *C. pyramidalis*? A rock garden without campanulas is quite boring after May. Of stunning diversity in foliage, size, and habit, this is the most protean of the major groups of rock garden plants. And those lovely flowers! From spring to late summer, drought or flood, they prosper under every sort of regimen. Under duress—nay, torture—you might hear me whisper their euphonic name in response to that cruel Grand Inquisitor when he sneeringly demands "What if you could only grow one genus of rock garden plant?"

Drawings by Rebecca Day-Skowron

Panayoti Kelaidis is curator of the Rock Alpine Garden at Denver Botanic Gardens, USDA zone 5. He purchased his first campanula (*C. garganica*) from Nuzum's Nursery in 1962. The campanula lives, the nursery is gone.

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Bailey, Liberty Hyde, *The Garden of Bellflowers*. 1953. The Macmillan Company: New York.

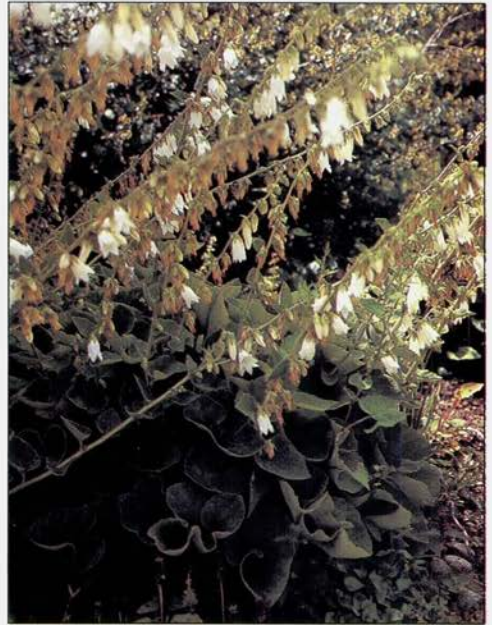
See also Farrer's *The English Rock Garden*; Clay, *The Present Day Rock Garden*; the Alpine Garden Society *Encyclopaedia of Alpines*. A recent book on campanulas is not recommended.

Campanula alpestris





Campanula aff. *sibirica*
photo, Panayoti Kelaidis



Campanula alliariifolia, in cult. at Denver
Botanic Gardens

Campanula alpestris (= *C. allionii*)
photo, Panayoti Kelaidis



Campanula americana, in cult.
photo, Ted Cochran





Campanula alpina, probably ssp. *orbelica*, in cult. at Singer-Charlesworth garden
photo, Ted Cochrane

Campanula alpina var. *bucegiensis*
photo, Sandy Snyder





Campanula betulifolia, in cult.
photo, Todd Boland

Campanula carpatica var. *turbinata* 'Ahrend's Form' (= *C. turbinata*), in cult.
photo, Ted Cochrane





Campanula 'Glandor'
photo, Todd Boland

Campanula carpatica var. *turbinata* 'Alba'
photo, Todd Boland



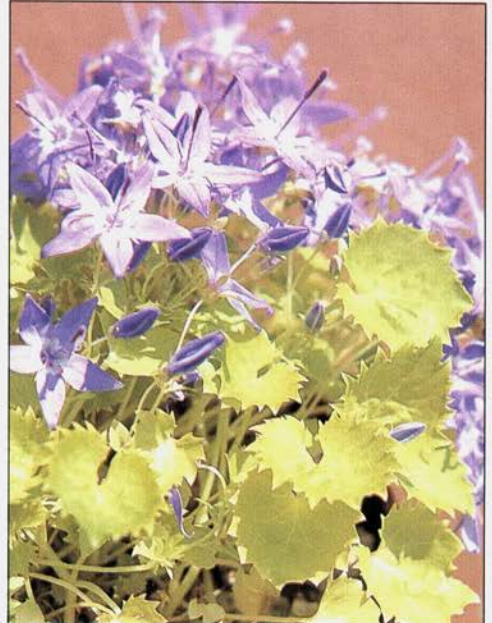


Campanula carpatica 'Blue Clips'
photo, Todd Boland

Campanula carpatica 'White Clips'
photo, Todd Boland



Campanula 'Dickson's Gold'
photo, Rick Lupp





Campanula arvensis
photo, Todd Boland



Campanula cenisia
photo, Panayoti Kelaidis

Campanula collina
photo, Ted Cochrane



Campanula caespitosa
photo, Robert Heapes





Campanula chamissonis
photo Ted Cochrane

Campanula cachmeriana
photo Ted Cochrane





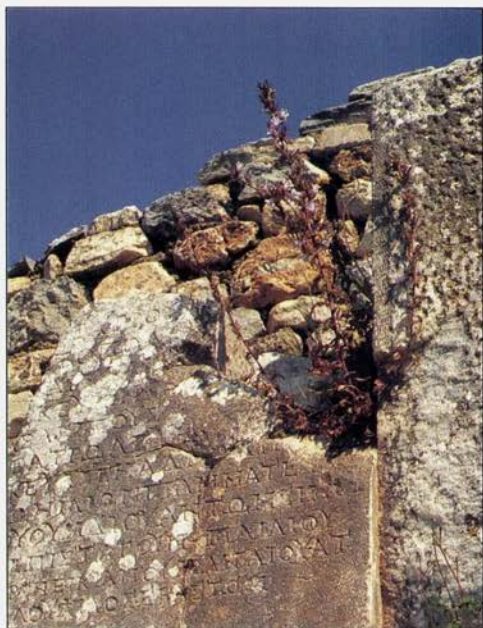
Campanula cochlearifolia
photo, Todd Boland

Campanula formanekiana
photo, Todd Boland





Campanula ephesia
photo, Ted Cochrane



Campanula ephesia at Ephesus, Turkey
photo, Panayoti Kelaidis

Campanula glomerata
photo, Ted Cochrane



Campanula glomerata var. *acaulis*
photo, Ted Cochrane





Campanula garganica
photo, Robert Heapes

Campanula incurva and *C. rupestris* rosettes
photo, Panayoti Kelaidis





Campanula hagielia in cult.
photo, Gwen Kelaidis



Campanula hagielia in Priene, Turkey
photo, Panayoti Kelaidis

Campanula kemulariae
photo, Ted Cochrane



Campanula hawkinsiana
photo, Sandy Snyder





Campanula incurva in cult.
photo, Ted Cochrane

Campanula isophylla 'Stella White'
photo, Janna Belau



SLUG-PROOF CAMPANULAS

FOR THE ROCK GARDEN

by Rick Lupp

Slugs are truly the bane of growers of alpine campanulas and, aside from aphids, are about the only real pest that attacks these plants. They generally make a meal of such morsels as *Campanula piperi* and *C. raineri* by the dawn of their first morning in the open rock garden. Fortunately nature and keen plantmen have provided rock gardeners with a rich variety of species and cultivars from this great genus that are largely immune to the ravenous attacks of these pests. The campanulas recommended in the following paragraphs are those that I have grown in the open rock garden or scree here at our home and nursery on 17 acres of prime slug and snail habitat. These plants have provided us for many years with long summers and autumns of bloom. There has been some damage to the flowers, but very little to the plants themselves.

Campanula garganica and several of its forms stand at the top of this slug-resistant group. Nothing looks better nestled down amongst the rock work. All forms of this species produce adventitious shoots that can be cut and grown into new plants with ease. *Campanula garganica* is a neat, compact,

evergreen plant with a very long display of star flowers held on very short stems. The leaves are small, finely toothed, and tufted. First flowers are borne in May in our garden.

I especially like the cultivar *C. garganica* 'Dickson's Gold' with its yellow-green foliage and bright lavender, five-pointed-star flowers held above the leaves in eye-catching contrast. Another fine form is *C. garganica* 'W. H. Payne', which is distinguished by the prominent white eye that sets off each bright blue flower. The cultivar *C. garganica* 'Glendura' is very close in appearance to 'W. H. Payne' and is equally deserving of space in your garden. Others in this group of closely allied species include *C. elatines* ssp. *elatinoïdes*, the entire plant more compact than *C. garganica* and densely hairy, and the foliage with an attractive gray cast. *Campanula fenestrellata* is another close cousin with larger, bright green, heavily toothed foliage. In all these forms the flowers are held erect and produced in great abundance. All do well in sun or in part shade in the scree, rock garden, or trough, and all are of the easiest possible culture.

Most of the fine Turkish campanulas succumb quickly to slugs. An exception is *C. betulifolia* with attractive, wedge-shaped foliage, usually infused with a touch of bronze. The large flowers are pink to wine-red in bud and open to white or sometimes a flushed pink. This is the perfect campanula for a wall and also looks good in a trough. It does especially well for us in a lean scree and makes an excellent potted plant. A customer of ours grows *C. betulifolia* in masses by the entryway to his house where he especially likes to view the flowers by moonlight!

Another fine candidate for the wall is *C. portenschlagiana*. Particularly lovely is 'Resholt's Variety' with large, rich lavender flowers that cannot avoid attracting plenty of attention. This plant has the longest, most reliable bloom of any campanula we grow, with bloom lasting from the end of May to mid-November. While we have heard growers complain of this cultivar becoming too vigorous for their gardens, we have never had the least problem with it getting out hand.

Campanula portenschlagiana is one of the parents of another outstanding plant, *Campanula* 'Birch Hybrid', a wonderful product of Will Ingwersen's famous nursery. This plant features a long season with many large flowers of rich purple. The attractive leaves are reniform and heavily toothed; basal leaves are held on long petioles. Both plants are compact and of moderately spreading habit quite suited to the rock garden. Both thrive in full sun or part shade. Both are very easily propagated from divisions or green cuttings in spring or early fall.

While many rock gardeners think of *C. poscharskyana* as being much too vigorous for the rock garden, we have found it to be well behaved, spreading

at a manageable rate, when grown in a lean scree. We grow our cultivars of this species in pure, coarse sand with excellent results. There have been a number of cultivars selected, all of which have their charms in the right situation. *Campanula poscharskyana* 'E.H. Frost' is a great favorite of ours for use in shadier parts of the rock garden, where it looks wonderful with its large, milky-white blooms often still in evidence in November here at the nursery. *Campanula poscharskyana* 'Lisduggan' is of a much more restrained habit and makes a more compact plant with flowers of a lovely mauve-pink, which is, I think, unique amongst dwarf campanulas. Well worth growing for the unusual flower color alone, it makes an excellent companion for white-flowered campanulas.

Campanula poscharskyana 'Stella' features a very long season of flowers in a stunning shade of deep, rich blue that stands out from the crowd. The blossoms are borne in great abundance on stems of up to 18" tall and last well into autumn. We have recently introduced a curious form under the cultivar name 'Multiplicity', with mid-blue blossoms and extra petals, mostly six or seven, sometimes even eight, although a few flowers will have the more normal five. It looks much like a little blue clematis in flower and draws a lot of comment in the garden.

Japan gives us two plants to add to the slug-resistant group. *Campanula chamissonis* (*C. pilosa* var. *dasyantha*) features huge, up-facing blue flowers with white markings that give the effect of stripes. These very showy flowers are set off by attractive mats of small, shiny green foliage that creep along the ground. A close cousin of equal beauty is *C. chamissonis* 'Oyobonii', differing only in its solid blue flowers. Both forms are easy and long-lived in the rock garden.

Although in the range of 10"-12" tall in flower, *C. barbata* is a real charmer for the rock garden. This is a tap-rooted plant with strong stems bearing many inch-wide, blue flowers in varying shades. The interior of each pendent bell is strongly pubescent, giving the plant its name, which means bearded not barbed. You can expect a long bloom season from this plant, and it tends to self-sow a bit, forming small colonies where happy. Another similar plant is *C. collina* which Reginald Farrer called "one of the most gorgeous campanulas we have." This modestly spreading plant features very large flowers of rich, satiny-purple on 12" stalks in summer and is an unforgettable sight when viewed in full bloom. Both plants like a good dose of sun and reasonably good drainage.

Double campanulas can be real eye-catchers in the rock garden; we grow three that seem to have very little appeal to slugs. *C. x haylodgensis* is a cross between *C. cochlearifolia* and *C. carpatica* that was developed at Hay Lodge, Scotland, in the late 1800s. The plant is very hardy and blooms in late summer and fall with very fully double, rather large, rich blue flowers held over a mat of small, green leaves with just a touch of bronze in new growth. *Campanula x haylodgensis* does best for us and produces the heaviest bloom when grown lean and in part sun. A fine seedling of this is *C. 'Warley White'*, quite different in appearance with its sparse, yellow-green foliage and large, double, white blooms that go on for a long period during late spring and summer. A softer, powder-blue flower can be found on *C. 'Elizabeth Oliver'*, a cultivar of *C. cochlearifolia*, and a very easy, reliable rock garden plant. Even purists are charmed by these modest little doubles. All are easily increased by division.

We have found that all forms of *C. carpatica* and most of its hybrids are quite resistant to slug attack, with the exception of *C. carpatica* var. *turbinata*, which we could not recommend for areas that have a problem with slugs. Two plants that we can highly recommend are *C. x pulloides* (*C. pulla* x *C. carpatica* var. *turbinata*) and *C. 'pseudoraineri'* (*C. raineri* x *C. carpatica*). The former makes a low-spreading mat of small foliage with many 1 1/2", upfacing blooms of rich purple in summer; the latter bears many long-lasting, very large blossoms of mid-blue over a mat of hairy, yellow-green foliage. Both plants do especially well in scree and are very nice in a large trough. I find the foliage of *C. x pseudoraineri* particularly attractive in a trough.

Campanula x tymonsii is a terrific cross between *C. carpatica* and *C. pyramidalis* and makes a low, slow-spreading mat covered with 1"-wide, rich blue bellflowers all summer—even in the worst heat. This is a very easy, trouble-free plant that will please most any rock gardener.

Many forms of *C. rotundifolia* and its close allies make wonderful plants for the rock garden. These range from the tiny forms such as *C. rotundifolia* ssp. *arctica* 'Mt. Jotunheimen', a little jewel (originally found by Henrik Zetterlund, we learned when he was surprised to find us growing the plant during a recent visit to our nursery) with prostrate habit and pendent bellflowers held on very short stems. This cultivar contrasts with *C. rotundifolia* 'Ned's White' with giant white blooms held on 10" stems. This was discovered by Ned Lowry on Mt. Townsend in Washington's Olympic Mountains some years ago. Another form that I find especially useful in the rock garden is *C. linifolia* (*C. rotundifolia*) var. *bertolae*, featuring bright violet-blue flowers for months on end in late sum-

mer and fall. All forms of *C. rotundifolia* seem to add a special natural, wild look to the garden that no other campanula provides. The smaller forms look absolutely at home in any rock crevice.

Campanula rotundifolia is a parent of one of our favorite hybrid campanulas, *C. 'Lynchmere'* (*C. elatines* x *C. rotundifolia*). This campanula has quite a different look from most mentioned so far as it forms a small, rather shrubby plant with many procumbent, branching stems. The leaves are small and it bears a heavy terminal inflorescence of rich deep blue flowers all summer. It is shown to great advantage clambering over a rock or the edge of a large trough.

Campanula tommasiniana looks for all the world like a miniature *Campanula rotundifolia*, but it is tap-rooted instead of spreading. This trouble-free darling bears many small, tubular bells of soft blue for weeks beginning for us in early July. Its delicate beauty is sure to win it a long-term spot in your garden. A plant of very similar habit, only a bit smaller, is *C. waldsteiniana* with many up-facing star flowers of rich violet-blue. This makes the ideal trough campanula with its small-scale beauty. It requires careful placement in the rock garden to show to best advantage. Try a small mass of five or six plants to make a statement.

Another fine campanula with its own very distinctive look is *C. excisa*. This endearing little plant loves to ramble about through the rock garden or scree with little pointed leaves and pendent violet-purple blooms held on short, wiry stems. Each petal is deeply cut almost to the base giving the plant its name. It is a very good doer for us if given sufficient space to move about in a very open growing medium. Grown at the top of a wall, it will sprawl over the edge, adding a charming touch to

the rock work.

If I had to choose a favorite dwarf campanula it would be *C. pulla*. This is a plant with much the same habit as *C. excisa* and is most at home running about the scree or rock garden, popping up as a little bunch of three or four flowers here and a solitary bloom over there. The large, pendent, rich-purple blooms are solitary on wiry, 3" stems and are borne in late spring and early summer. This plant has a tendency to ramble off into the sunset and disappear if you don't pull it apart and replant it once in awhile. It's well worth a little trouble. Even a solitary bloom popping up unexpectedly is exquisite.

Our final recommendation is a most unusual plant. It looks great year-round in the rock garden or trough, forming wonderful small mats of crinkled, dark-green rosettes. *Campanula persicifolia* forma *planiflora* is a Mendelian recessive form of *C. persicifolia*. There are both blue- and white-flowered cultivars, and both feature huge blooms held on stout, 9" stems. You can expect heavy bloom in early summer and again in early autumn.

Stack the odds in your favor, and choose some of these terrific plants in your battle with the relentless slugs!

Rick Lupp became attracted to alpine plants as a result of his interest in climbing, which exposed him to the often stark beauty of many wonderful plants growing at high elevations. He developed special interest in *Androsace*, *Campanula*, and *Primula*. He and his wife operate Mt. Tahoma Nursery; this year they have over 40 dwarf campanulas for sale. They grow without artificial heat in Graham, Washington, a winter-wet climate where temperatures may drop to -12°F.

CAMPANULAS

FOR WINTER-WET CLIMATES

by Todd Boland

Certain genera of plants are mainstays in most rock gardens; *Saxifraga*, *Primula*, *Penstemon*, *Phlox*, and *Dianthus* immediately come to mind. Another popular genus for the rock garden is *Campanula*, the bell-flowers. Many novice gardeners think all *Campanula* species are alike—nodding bells in shades of blue. Indeed, blue is the predominant color, but purple, white, pink, and even yellow flowers do exist. And while most have flowers based on a bell-like theme, these flowers may be large or small, single or clustered, nodding or upright, narrow or wide, or even five-pointed stars. For the connoisseur, *Campanula* offers a wide and enticing range of plant and flower forms.

My earliest experience with *Campanula* occurred when I was a child walking along the coastal headlands of Cape Spear, Newfoundland, the most easterly point in North America. Rugged and windswept, with very acidic soil, even the trees have a hard time surviving there. Yet among the carpet of low, ericaceous shrubs and creeping juniper, there arose delicate stems, each topped by a few nodding, porcelain, blue bells.

These exquisite blooms belonged to the common harebell, *Campanula rotundifolia*, the only *Campanula* native to the island portion of Newfoundland.

Since then, I have found harebells across the island, always close to the sea. Flower color varies from deep blue to a pale ice-blue and rarely to pure white. Depending on exposure, the height of the flowering stems ranges from 5 cm to over 30 cm.

Early in my university years I was fortunate to visit Labrador, the mainland portion of the province of Newfoundland. Along the coastal stretches grew the familiar harebell, and I was surprised to find another species. Scattered in natural limestone screes and tucked in cracks grew the diminutive *C. uniflora*. From tight rosettes arose very slender, 5-cm stems, topped by a oversized, single, blue flowers. The delicacy of this arctic gem was a stark contrast to the surrounding landscape; the ocean was ice-covered, snow still lingered in the valleys although it was late July, and the air was a chilly 12°C.

Having been exposed to the fragile beauty of these native bellflowers, I



decided campanulas were a must for my rock garden, so in the past five years I have experimented with many species. In Newfoundland, growing any plant could be considered an experiment, since plants that should survive here in USDA zone 5 often perish, yet others supposedly only hardy to zone 6 or 7 have survived. Hardiness listed in some reference for a particular plant is little indication of whether it will survive in Newfoundland. Our main challenge to plant survival is alternating freezing and thawing during the winter and our long, wet springs. Growing any alpine that dislike wet winter weather is definitely a challenge.

The selection of locally available *Campanula* species is strictly confined to the ever-popular Carpathian harebell, *Campanula carpatica*. Consequently, this was the first non-native species I tried. The species itself along with its cultivars, the dwarf, 8-10" 'Blue Clips' and 'White Clips', together with the slightly larger, 12-15" 'Blue Gem', and 'White Gem' presented no problems at all and, in fact, all would self-sow throughout my garden if not for judi-

cious removal. I find the variety *turbinata* is my favorite of these. The flowers may be half the size of the type species *C. carpatica*, but many more flowers are produced.

All the other species I have tried have been grown from seed. Generally germination is easy. In total, I have discovered 16 species of *Campanula* that can survive our winter-wet climate. Several species thrive in our naturally acidic (pH 5) soil. As

suggested above, *Campanula rotundifolia* and *Campanula carpatica* are care-free. Another easy species is *C. linifolia*, a taller, wiry version of *C. rotundifolia*. It is apt to be short-lived in our climate, so I allow it to self-sow. The dwarf version of the clustered bellflower, *C. glomerata* var. *acaulis*, is very tough and resistant to our ever-present winds. The trailing, robust *C. poscharskyana* and *C. portenschlagiana* may have names difficult to pronounce, but they are very desirable for their long season of flowering and for the starchy quality of the blooms. The cultivar *C. poscharskyana* 'E.H. Frost' is particularly attractive with its ice-blue flowers. The fairy bellflower, *C. cochlearifolia*, while dainty in stature, is perhaps too prolific, and it can quickly invade docile neighbors if left unchecked.

The bearded bellflower, *C. barbata*, is short-lived and perhaps best treated as a biennial. Fortunately, it will gently self-sow. The unusual *C. thyrsoides* is definitely a biennial. This species has 30-cm stems that produce a wand-like display of fragrant, straw-yellow flowers, quite unique in this genus of typi-

cally blue- or white-flowered plants. It, too, can be perpetuated if some plants are allowed to go to seed.

Many *Campanula* naturally hail from limestone areas, and thrive in cultivation when supplied with extra lime. By adding powdered lime and crushed limestone to a portion of my rock garden, I have been successful with several species which sulk under more acidic conditions. *Campanula pulla*, with its large, purple bells, is one of these. A favorite species is *C. pilosa*. Its tight rosettes produce light green leaves with a metallic sheen. These contrast with large, light blue bells whose opening is frosted with white. In limestone cracks, *C. garganica* thrives, producing small, star-like flowers intermittently all summer. Perhaps even lovelier is its variety 'Hirsuta' with felted, grayish leaves. Some may consider *C. raddeana* a little large for the rock garden, but if space permits, you will be rewarded with 30 cm mounds bearing scattered open, purple-blue bells.

Several of the lime-loving campanulas also require exceptional drainage. If scree conditions are provided, even winter-wet climates can house several campanula species. Perhaps the most floriferous is *C. saxifraga*. This is our earliest-blooming species, with flowers in mid-June. The upright, deep purple-blue bells literally cover the entire plant. The dainty *C. arvensis* is another that prefers scree. This species produces mats of small leaves and star-like blossoms of a rich vio-

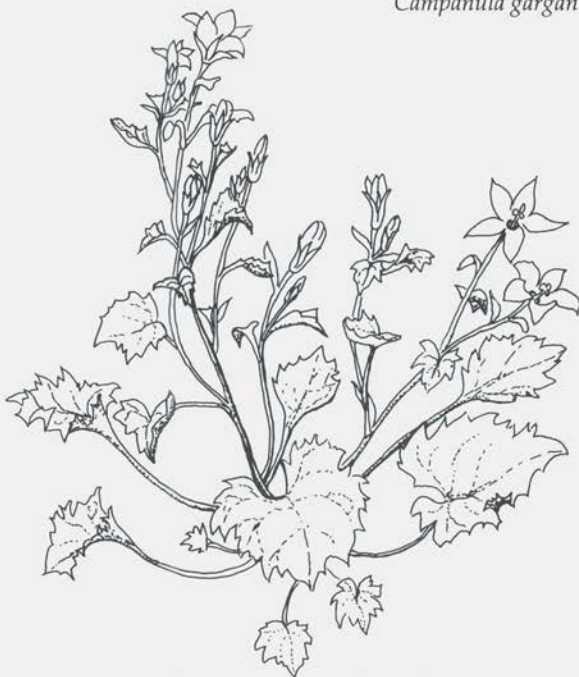
let-blue color. Borderline hardy in Newfoundland, I find it can survive if planted on the leeward side of a large rock.

For something a little different, try *C. betulaeifolia*. This species has dark green, often red-tinted leaves and radiating, semi-procumbent stems that end in clusters of large, cream-white to soft pink blooms. The buds are often wine-red in color.

Although I have concentrated on the species, there is one hybrid I should mention. *Campanula* 'Glandor' is by far the most floriferous bellflower I have grown. Although I cannot find this cultivar listed in books, it appears to be either a variety or hybrid derived from *C. poscharskyana*. Plants are vigorous and produce semi-prostrate stems covered with innumerable mid-blue, starry flowers from late June until frost.

It may seem that all the species I have tried are successes, but in fact, there are a few which have been dis-

Campanula garganica



mal failures. *Campanula hawkinsiana*, *C. herzegovina*, *C. fragilis*, and *C. excisa* are among those which have succumbed to our wet winters. These species may be better suited to an alpine house or to coldframe culture.

Of course I am still experimenting with *Campanula*. Plants of *C. calaminthifolia*, *C. allionii*, and *C. kemulariae* have successfully overwintered in a coldframe. Next year they will experience our real winter in the open garden. This spring saw the sowing of *C. incanescens*, *C. trogerae*, and *C. microdonta*. Whether these species are added to my list of *Campanula* tolerant of winter wet remains to be seen. The species I have had success with so far have proven to be relatively easy, if a few amendments are made to the garden. Certainly, if they can survive the winters of Newfoundland, then they should be suitable to others areas with wet winters, including the Pacific Northwest and the northeastern United States and Canada.

Drawings by Lynn Janicki

Todd Boland has been cultivating alpine plants in the challenging climate of Newfoundland, Canada for over 15 years, concentrating on *Campanula*, *Geranium*, *Penstemon*, *Primula*, and *Saxifraga*. He is especially interested in the native Newfoundland alpines, having tried his hand at many of them. Together with a friend, he is now propagating many alpines in preparation for the opening of a mail-order alpine nursery in the spring of 1996.

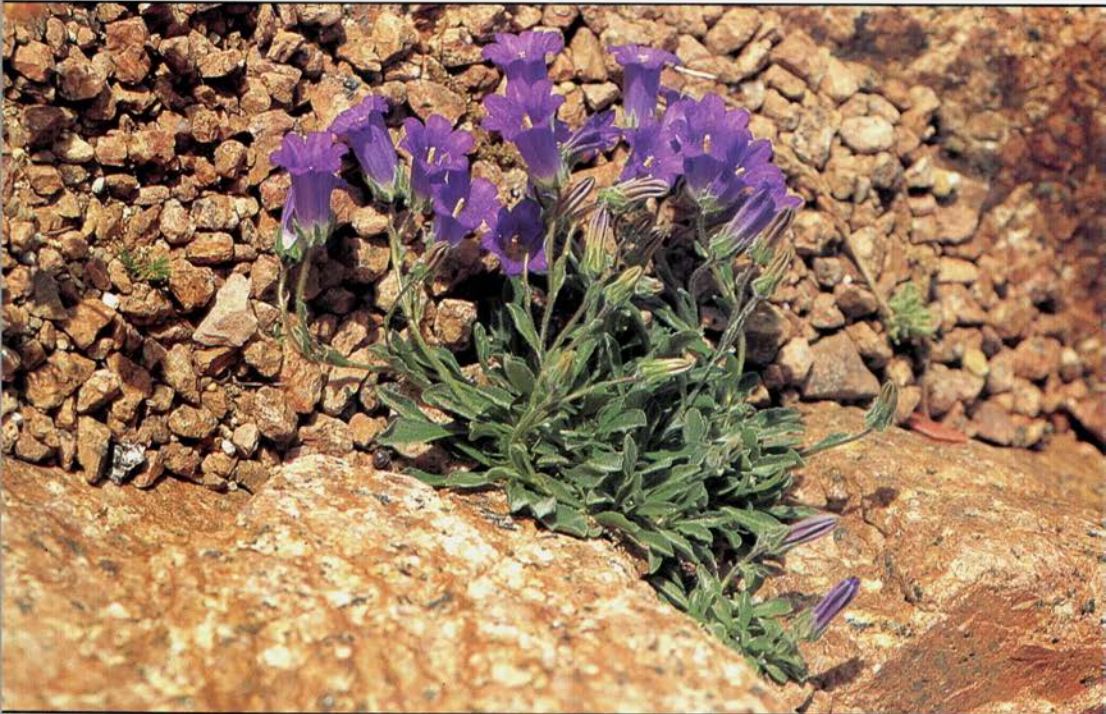


Campanula trachelium



Campanula linifolia
photo, Todd Boland

Campanula oreadum
photo, Panayoti Kelaidis





Campanula planiflora
photo, Ted Cochrane

Campanula patula
photo, Todd Boland





Campanula portenschlagiana
photo, Ted Cochrane

Campanula poscharskyana, white cultivar
photo, Panayoti Kelaidis





Campanula pulla
photo, Todd Boland

Campanula punctata
photo, Panayoti Kelaidis





Campanula punctata
photo, Ted Cochrane

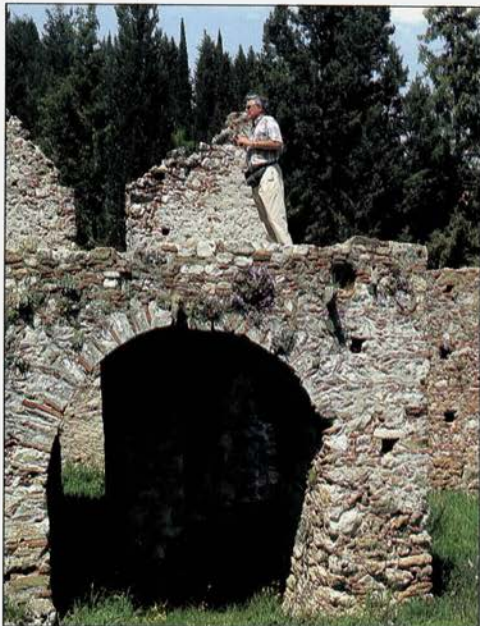


Campanula parryi
photo, Panayoti Kelaidis

Campanula rupestris, in cult.
photo, Panayoti Kelaidis



Campanula rupestris, in Mystra, Greece
photo, Panayoti Kelaidis





Campanula cf. raddeana
photo, Ted Cochrane

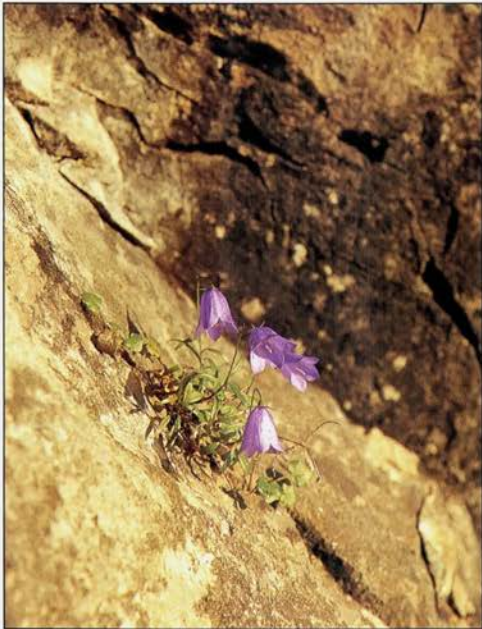
Campanula ramosissima
photo, Robert Heapes





Campanula rotundifolia, in cult. at Allen Centennial Garden, Madison, Wisconsin
photo, Ted Cochrane

Campanula rotundifolia, Point Riche,
Newfoundland; photo, Todd Boland



Campanula rotundifolia in Glacier National
Park; photo, J.S. DeSanto





Campanula rupestris
photo, Panayoti Kelaidis

Campanula cf. *saxifraga* / *tridentata*, in cult. at Stavos garden, Minneapolis, Minnesota
photo, Ted Cochrane



CAMPANULAS

AROUND THE CONTINENT

A Symposium

1. *How did you get interested in campanulas?*

Janna Belau—I like blue flowers, and I like the wildflower look of these plants. Our climate in Glenwood Springs, Colorado, elevation 6,000', is similar to the environment where many species originate in the mountains of Europe, Turkey, and former Soviet Union, so they are quite happy in our climate. They are also such a good addition to any garden, with various species creating a succession of bloom throughout the seasons.

Mike Slater—Purple is my favorite color, and for some reason I like dangling, bell-shaped flowers. They seem exotic to me since there are so few shaped like that growing naturally around here in Pennsylvania, other than *Vaccinium*.

Ev Whittemore—I became interested by seeing them on the Connecticut Chapter show bench, read up on them, saw photos and articles. The photos will sell them, won't they? I like them because they are beautiful and a bit of a challenge to grow successfully, especially here in North Carolina.

Allan Stavos—I am interested in the small ones and the ones that most people can't grow. I like things that are challenging. They go well with other small rock garden plants, cushion plants.

2. *What campanulas would you recommend for beginning rock gardeners?*

Janna Belau—*Campanula cochleariifolia*, *C. collina*, *C. garganica*, *C. carpatica*, *C. glomerata*, *C. medium* (this is the first one I grew, as a child). Also *C. poscharskyana*, *C. portenschlagiana*, *C. rotundifolia*. All of these do well in a wide range of climates.

A little harder is the *C. tridentata* group (*C. aucheri*, *C. bellidifolia*, *C. saxifraga*, and *C. tridentata*). They are not difficult to grow, and they make little mounds

with big, upturned bells. They are very tidy and contained, not sprawly, and they make no mess.

Mike Slater—*Campanula carpatica* cultivars. I have had the best luck with the larger ones. *Campanula turbinata* was nice, but it didn't seem to last long. *Campanula portenschlagiana* (= *C. muralis*) is a good one. *Campanula chamissonis* (= *C. dasyantha*, = *C. pilosa*, *C. chamissonis* is its new name in the AGS *Encyclopaedia of Alpines*) does really well for me in troughs, where I can take rooted rosettes off the edge of the clump when it starts to take over. I haven't tried it yet in the open ground. *Campanula cochleariifolia* does well but tends to die off, so I keep propagating it vegetatively and always have some in pots. The cultivar 'Miranda' is also nice, with smaller flowers. All the members of the *Campanula tridentata* group (I've gotten all kinds of things from the seed exchange under various names. I just keep trying them until I get one I like.). Members of this group include *C. aucheri*, *C. tridentata*, *C. bellidifolia*, etc. They all have large, purple flowers, for me so far ranging from 3-8" tall. *Campanula rotundifolia* is a good one for beginners but seeds around. It hasn't gotten out of hand yet but would if I didn't keep digging it up and potting it for plant sales.

Campanula tommasiniana is a really nice little one, but it didn't spread, and then it died after four or five years. It would have been good in a trough. It didn't set seed (perhaps having only one plant meant no cross-pollination, I don't know), but I have new seedlings coming from seed obtained from the Exchange.

Campanula sartorii is the only monocarpic one I've tried, and it was easy and nice. Larger campanulas I've grown well include *C. persicifolia*, *C. latifolia*, and *C. poscharskyana*. *Campanula takesimana* and *C. punctata* obviously also grow well. I finally evicted the former from the bed where I had put it after someone gave it to me; it's now relegated to a hanging basket.

Ev Whittemore—*Campanula chamissonis*, *C. persicifolia* 'Planiflora', *C. saxifraga*, *C. carpatica* var. *turbinata* and 'Lynchmere'.

Allan Stavos—*Campanula fenestrellata* (syn. *C. garganica* ssp. *fenestrellata*) is an easy one, but it does jump around. *Campanula garganica* and its relatives. These are hardy and easy in Minnesota. *Campanula carpatica* 'Blue Clips' and 'White Clips' spread like crazy, and they are hard to remove from the garden. The roots are thick, and you really have to dig them out. They crawl underneath things, and they re-seed forever.

'Birch Hybrid' is easy. Also 'Stella' (blue flowers) and *Campanula cochleariifolia*. Those are all easy. We have 'Doonan's Giant White', which is real easy, and we like that, too.

3. Are there any good cultivars you can recommend?

Janna Belau—There aren't that many cultivars; the genus isn't very corrupted. The campanulas have more of the qualities of wildflowers. *Campanula glomerata* 'Acaulis' is overlooked, especially the 'Alba' form. It's nice, although the flowers don't recurve much.

Mike Slater—The only ones that have grown well for me are *C. cochlearifolia* 'Miranda' (which the AGS *Encyclopedia* says is questionably in cultivation) and *Campanula* x 'Birch Hybrid', which grows well but doesn't seem to be anything special. So, no, there don't seem to be any great cultivars, at least not that I've tried.

Ev Whittemore—Check Rick Lupp, Siskiyou, and other catalogs advertising in the NARGS *Quarterly*. In this area I recommend that gardeners buy from mail-order nurseries and seed collectors.

Allan Stavos—No, I don't grow any.

4. Which campanulas are used less than they should be?

Janna Belau—The following are good but still easy to grow.

C. cashmeriana, with gray foliage, small leaves, and powder-blue bellflowers. It's smothered with bloom from midsummer (July) until snow covers the plant, for us in Glenwood Springs, Colorado. This species is a little persnickety; specifically, it needs really good drainage. You may need to grow it as an annual—it will bloom the first season, and it's worth it.

C. collina is easy. It has a basal rosette of leaves, nice, little stalks of deep violet flowers on 9" stalks. It blooms very early, in May here.

C. punctata 'Nana Alba' is not aggressive like the straight species. The flowers are creamy white rather than maroony white. It will bloom for a long period.

C. betulifolia has very pretty foliage with burgundy-colored stems and leaf venation.

C. sarmatica is one of the easiest gray-foliaged varieties, with velvety, gray-blue flowers.

Many of the biennial varieties have a long bloom period and will self-sow for future seasons. Some of my favorites are *C. argaeus*, *C. incurva*, *C. orphanidea*, *C. patula*, and *C. petrokovia*.

Mike Slater—I think a lot of people have had really good campanulas, but once they lose them don't bother to get them again. These gardeners just admire campanulas when they see them in someone else's garden. So, MOST campanulas are underused in my view, except perhaps the *C. carpatica* types like 'White Clips' and 'Blue Clips', which are widely available in garden centers.

Ev Whittemore—*Campanula argyrotricha*. Gosh, that's a good one, and it flowers. Two other favorites are *C. chamissonis* and *C. carpatica* var. *turbinata*.

5. Which species work well in rock walls?

Janna Belau—It's hard to beat *C. garganica*, *C. portenschlagiana*, and *C. poscharskyana*. Another to try is *C. kemulariae*. It blooms for a long period. The flowers have an iridescent quality, and the foliage is very attractive. The plant tends to sprawl, so it would be pretty viewed from below if you had a tall wall.

C. cochleariifolia is very nice. Don't let it dry out or you can actually kill it. This is a particular danger in sandy soils.

For zone 5 and south, try *C. fragilis* 'Jewel' (Actually, I have never had any other *C. fragilis*). 'Jewel' makes a foot-long cascade of starry flowers each 1-1 1/4" wide. It blooms mid to late summer. It is difficult in colder climates.

Mike Slater—The longest lived and the best around here is definitely *C. portenschlagiana*. *Campanula cochleariifolia* looks great and does all right for a while, but then either moves itself or dies out. It's hard to keep replanting it into the wall. I haven't grown *Campanula betulifolia* in a wall, but I would think it would do well.

Ev Whittemore—I have only one in rock walls, and that's *C. chamissonis*. I tend to grow campanulas under controlled conditions in the hoop house, because that's the only way I can be successful. I haven't put money into rock walls and don't have much experience with them.

6. With which of the difficult campanulas have you had success?

Janna Belau—I've had success with all of the following, which I would divide into two categories:

Category 1—The first group are more difficult to germinate and nurture beyond the seedling stage: *C. alpestris*, *C. excisa*, *C. oreadum*, *C. raineri*, *C. tommasiniana*, *C. trogerae*, *C. waldsteiniana*.

None of these has been difficult to maintain once established. *Campanula excisa* does great as long as it's given lots of room to roam. I've had it cover more than a square foot in one season, but if you try to confine, it you'll be lucky to keep it alive. I'm particularly fond of *C. tommasiniana*. It's a very attractive plant that puts on its show of pendent, tubular, pale lavender blooms from late summer until snowfall.

Category 2—This group of campanulas has been easy to propagate but more difficult to maintain over a period of time: *C. arvatica*, *C. elatinoidea*, *C. tomentosa* (syn. *C. ephesia*), *C. hawkinsiana*, *C. barbata*, *C. lasiocarpa*, *C. hagielia* (incorrectly distributed by Rocky Mt. Rare Plants as *C. sporadum*), *C. formanekiana*.

With both *C. barbata* and *C. lasiocarpa*, I believe the problem lies with soil pH. They seem to do better with a lower pH than most of the others. They appear to be doing just fine, only to drop into rather sudden decline.

The other species mentioned can be difficult to over winter in our climate (zone 4-5).

Mike Slater—I've tried many from seed. I've never gotten true *Campanula raineri* from a seed list, a nursery, or seed vendor. I've gotten nice plants, but not *C. raineri*. I've grown *C. alpestris* from the NARGS Seed Exchange. I got four healthy, happy seedlings potted up. One bloomed, a gorgeous, huge flower. Then they all died in August. No others in the choicest of the choice group have made it through the cotyledon stage for me. But I've got more pots of seeds out back.

Allan Stavos—*Campanula zoysii* and *C. raineri*. I grow *C. zoysii* in a 2' x 8' trough about 30" off the ground. Nothing bothers it. It is in a scree mixture with tufa

rocks nearby, not directly on the tufa. It just keeps increasing and flowering and is now about 7" in diameter. I also have *C. alpestris* (syn. *C. allionii*) in that trough. It moves about via runners. It does keep coming back, although not always in the same area. It does creep.

I have *C. raineri* in a tufa bed. The leaves are kind of mealy looking and dusty. From one plant it has formed a nice clump but so far hasn't bloomed. I have had it three years. *Campanula ledebouriana* is on a limestone, north-facing crevice, and it's doing fine and about to flower. It's in bud now at the end of May.

I have *Campanula trogerae*; it's come through one winter and is in bud.

Ev Whittemore—All of these are good and healthy and looking great right now. I am growing *C. zoyisii* right in front of the fan in hoop house 2 in gritty humus. *Campanula piperi* and the Townsend Ridge form of *C. piperi* from Rick Lupp are spreading so beautifully in much the same conditions. They are not potted but in the ground. The fan air sweeps over them constantly, day and night. For some reason this makes them grow; it keeps the humidity off the leaves, keeps the leaves drier. Growing successfully are *C. trogerae*, *C. herzegovina*; also doing well are *C. aucheri*, *C. betulifolia*, *C. allionii*, *C. alpina*, *C. raineri*, *C. x pseudo-raineri*, *C. rotundifolia* ssp. *arcticus*, which runs a little but not bad. I have seedlings of others, but not enough to say that they are successful. I like nice leaves and leaf form. Can you beat a *C. zoyisii*? And the *C. piperi* selections are very pretty.

7. Are there any native North American campanulas that you recommend?

Janna Belau—Only a handful of the hundreds of species of *Campanula* occur naturally in North America. My favorite native campanula is *C. rotundifolia*. Not too original and not uncommon but beautiful just the same. It's very adaptable and has a long period of bloom.

Campanula parryi is a little weasel, popping up in unexpected places. Sometimes it appears in the middle of another plant, where it goes unnoticed until it blooms. *Campanula parryi* doesn't have much foliage ever, so it's hard to know just what's going on with it. It comes and goes and runs about underneath the ground. I'm not sure this is a recommendation; it depends on your point of view.

Mike Slater—No, there aren't any native ones I'd recommend from around here, but I covet *Campanula shetleri* from northern California. It's gorgeous the way it just grows out of the cliff.

Ev Whittemore—*C. piperi*, of course, probably the best native American, and *C. rotundifolia*, and *C. raineri*.

8. Do you have any tips on growing campanulas?

Janna Belau—Cold, wet conditions at the crown will kill any campanula. Most are very hardy if they have good drainage. I use a basic soil of 1/3 sand and

gravel, 1/3 loam, and 1/3 organic matter, such as peat, compost, or manure. For some species, drying out during bloom will end flowering for that year, whereas if the plants are kept evenly moist they'll keep going and going.

Mike Slater—For the choicest, it is necessary to control slugs. This is true even for some of the not-so-choice. Slugs don't seem to bother *C. portenschlagiana* or *C. takesimana*. Most seem to like relatively constant soil moisture, so don't let them bake dry during the summer drought.

The smaller campanulas do best for me in troughs, although if they are happy even the little ones like *Campanula pilosa* or *C. cochlearifolia* 'Miranda' are small-scale thugs and will crowd out other plants. I dig up lots of rosettes around the edges to pot up for sales.

My final tip is: keep propagating, either from seed or cuttings, because you never know when a patch that has been happy for several years and was threatening to take over may suddenly die out.

Ev Whittemore—Shady hoop house and fan for air movement. I control the water, i.e., all my choice campanulas are under cover of hoop houses. I think it is necessary to feed them. I use liquid feeding of Miracle-gro about once a month. I have tried so many outside and lost them all. Even in other parts of the country I would grow campanulas under protection and wind ventilation. Don't give up; just keep trying. You've just got to find what works for you

9. What's your biggest problem with campanulas?

Janna Belau—I can't get enough of them!

As far as germination goes, I've found that when it seems that you've done everything right, and you get no germination, it may not be poor technique but a bad batch of seed. Some species I've tried to germinate have failed repeatedly, and I've later had great success with seed from other sources, harvests, etc.

My other problem is winter-kill. I can't overstate the importance of good drainage. Many species are much hardier than generally reported as long as crown rot does not set in.

Mike Slater—Getting properly named ones, and slugs, in that order. I have gotten a number of misnamed seeds from seed exchanges. People should at least check a little bit to see if a plant is correctly identified before they donate seed. I once got *Campanula allariifolia* (18" tall with white flowers) from a seed packet labeled *C. aucheri* (3" stems, purple flowers). I've gotten some nice, completely unknown campanulas from seed exchanges and a few nurseries; I like them very much, but I haven't been able to put a name on them using the books at hand. This includes using Crook's *Campanulas* (1951), the best book, the only close to comprehensive book I know of. We need a book with keys. Crook has a short key to the *tridentata* group, which even he says is pretty hopeless. And there are only black-and-white photos. It's badly in need of updating.

My parting advice: Get seed where you can, and keep the ones you like and that the slugs don't eat.

Allan Stavos—I don't have any particular problems with them. There are some things you can't grow, that aren't hardy. A white one with huge, upfacing bells never came through the first winter.

Ev Whittemore—I don't really have any problems in the hoop house. Outside I have slugs. In the hoop house maybe the slugs don't like the fan blowing on them. I also have sharp little rocks for mulch; don't use chopped leaves or such as mulch around campanulas. I check my hoop houses every day when I'm tired at the end of the day or when it's raining.

Preventive medicine. I occasionally use a systemic insecticide to prevent problems getting started. I use Orthene 75% soluble powder, applied according to directions, if there are aphids on plants nearby. Sometimes I use Raid House and Garden Bug Spray made with pyrethrin if I'm in a hurry. I don't wait to get a big problem but try to nip things in the bud.

Janna Belau lives in Glenwood Springs, Colorado and operates a mail-order nursery, the Campanula Connoisseur, 702 Traver Trail, Glenwood Springs, CO 81601. The next shipping period begins in September.

Mike Slater gardens in Mohnton, Pennsylvania, with his wife Jan. They operate a small nursery, also.

Allan Stavos gardens in Minnesota. He is particularly interested in difficult and unusual alpine.

Ev Whittemore gardens near Penrose, North Carolina. Her garden is remarkable for its large size as well as its comprehensive collection of rock garden plants.

SEED EXCHANGE 1995

1. **Seed listings will be accepted only until November 1, 1995. Mail before that date please.** Later ripening seed will be accepted *only* if an alphabetical listing or disk has been received before that date. **Overseas members—** please air-mail before October 15th.
2. **Any amount of seed is appreciated.** Less than 5 seeds will **not** be listed. To receive donor privileges (10 bonus packets) send a minimum of 5 different kinds of seed suitable for the rock garden.
3. **Send clean dry seed as early as possible.** We appreciate several mailings as

the seed ripens. You will be issued a 1995 donor number with your first submission. Please include this number with subsequent mailings.

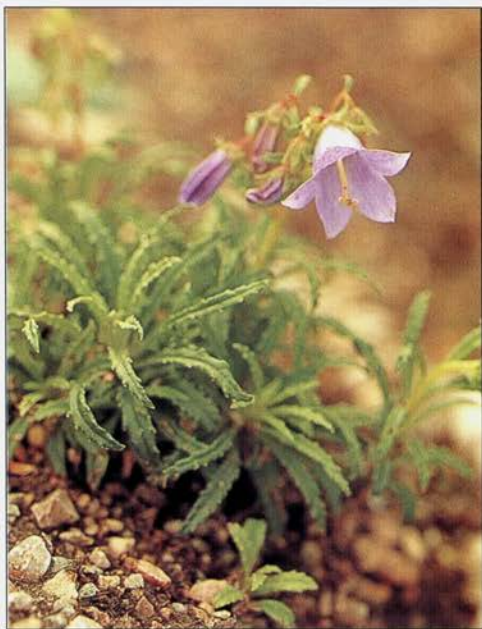
4. Use **paper envelopes no larger than 2" x 4"**. Use separate envelopes for each kind of seed. One small envelope is usually sufficient, except for such large and frequently requested items as *Arisaema sikokianum*, *A. backii*, *A. candidissimum*, *A. purpureogaleatum*, *Glaucidium palmatum* or *Trillium simile*. Besides the preceding, the following smaller items are always in short supply: *Campanula zoysii*, *Aquilegia jonesii*, *Eritrichium nanum*, *Dicentra peregrina*, *Lewisia tweedyi*, *Campanula piperi*, *Shortia soldanelloides*, *Shortia galacifolia*, *Paraquilegia* sp., *Jeffersonia dubia*, *Phlox hoodii* and *Dionysia involuocrata*.
5. **Mark, legibly, each envelope with the botanical name printed in block letters.** If collected in the wild, state the location. **Please include your name on each envelope.**
6. **On the Seed Donation Form provided (as an insert) list the botanical name in alphabetical order,** followed by: the class, **A**nnual, **B**iennial, **P**erennial, **B**ulb, **F**ern, **S**hrub, **T**ree; the approximate **height**, including flower, in metric; the flower **color**, red, blue, bi-color, mixed, etc.; the **location** if collected in the wild; the reference book or **Flora** if this is a new listing for the Seed Exchange. Be sure to fill out the donor name and address. If you are listing very many, you may send this information on a computer disk (3.5") instead.
7. **Group envelopes alphabetically. Check that seed envelopes sent match the list.** Secure the envelopes with a rubber band and enclose in a padded mailing envelope with the Seed Donation Form. Be sure your name and address are clearly written on the outside of the mailing envelope. Ask the postmaster to *hand cancel* the envelope.
8. **All members of NARGS will receive a seed list.** After you receive the list, please return your order promptly. Remember, this is not a commercial operation.

Mail seed early to:

Elisabeth Harmon, Director
1995 NARGS Seed Exchange
75 Middlebury Road
Watertown CT 06795, USA



Campanula rupicola
photo, Panayoti Kelaidis



Campanula sp., from the Caucasus
photo, Panayoti Kelaidis

Campanula stevensii ssp. *stevensii*
photo, Phyllis Gustafson



Campanula thyrsoides
photo, Panayoti Kelaidis





Campanula sartorii, in cult.
photo, Ted Cochrane

Campanula sarmatica
photo, Panayoti Kelaidis



Campanula sartorii
photo, Panayoti Kelaidis





Campanula saxifraga
photo, Todd Boland

Campanula scabrella
photo, Phyllis Gustafson





Campanula shetleri at Castle Lake, California
photos, Phyllis Gustafson





Campanula tommasiniana
photo, Janna Belau

Campanula tridentata
photo, Panayoti Kelaidis





Campanula trogerae
photo, Panayoti Kelaidis



Campanula tubulosa
photo, Panayoti Kelaidis

Campanula sp., Newfoundland
photo, Todd Boland



Campanula speciosa
photo, Panayoti Kelaidis





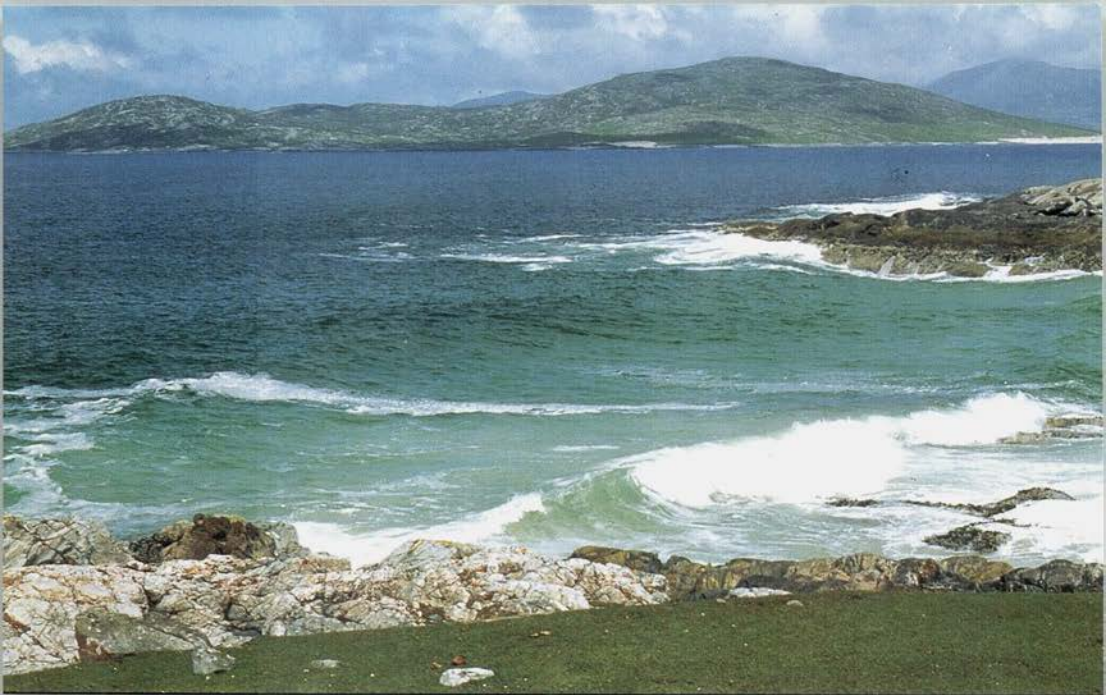
Campanula waldsteiniana
photo, Panayoti Kelaidis

Campanula zoysii
photo, Josef Stibic; show plant of F. Hejzman





Saxifraga 'Tumbling Waters' (p. 228)
photo, John Good



Southwest coast of the Isle of Harris, Scotland (pp. 225-7)

Machair with *Dactylorhiza purpurella*

photos, Martha Prince





Dactylorhiza fuchsii ssp. *hebridensis* (p. 227)



Platanthera bifolia (p. 227)

photos, Martha Prince

Dactylorhiza fuchsii hybrid (p. 227)



Dactylorhiza purpurella ssp. *purpurella* (p. 227)





Listera ovata (p. 227)



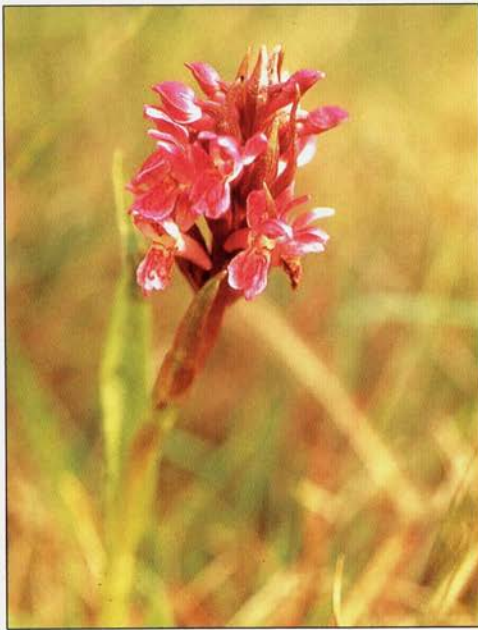
Gymnadenia conopsea ssp. *borealis* (p. 227)

photos, Martha Prince

Dactylorhiza fuchsii ssp. *fuchsii*



Dactylorhiza incarnata ssp. *incarnata*





Machair with *Dactylorhiza fuchsii* ssp. *hebridensis* on Isle of Harris, Scotland
(pp. 225-7) photo, Martha Prince

Orchid Hunting

in the Outer Hebrides

by Martha Prince

To first-time visitors, faced with mounds of forbidding gray rock, an ominous sky, and probably swirling fog and a chilling wind as well, there may seem no warmth to a Hebridean welcome. Our first visit was in June of 1991. We shuddered as we stared at each other, "What on earth have we *done*? Why did we come *here*?" We had left the Scottish mainland (a three-hour ferry ride) from pretty Ullapool Harbor, whose picture-perfect row of sunlit white cottages reflected in quiet blue water. We landed hopefully at Stornoway, on the Isle of Lewis. Parking by a sullen gray pond, we sadly ate our luncheon sandwiches, in the car, with sinking hearts. The only living plants in sight were some bedraggled wisps of cotton-grass. However, before the day was over we fell permanently in love with the place!

It is now four years later, and the Hebrides, especially the west coast of the southern half of the Isle of Harris, is our idea of Heaven. Lewis and Harris are really one island, divided by rocky mountains, customs, language (more Gaelic in the north), and the strictness of religious observance. Together, it is called the Long Island

and has a sad and desperate history. It is too much to attempt to explain, in a short article on plants, but during the last century the crofters on the more gentle and greener side were "cleared" by heartless landowners to the rocky and desolate east. They were left with almost no arable land (a few pockets called "lazy beds"), and only a desperate hope of raising a few sheep and finding adequate fish in the sea. But the Scots are a hardy lot. Although many left for faraway lands (America, Australia), others love and treasure their islands still. We can see why.

We have a favorite tiny inn, at Scarista on the west coast of South Harris, above a three-mile stretch of untouched beach. Other guests have occasionally asked us, "Why on earth did you come here? There's nothing to do!" But if you love wildflowers, birds, solitude, and beauty, you can have a breathtaking stay; if you want "entertainment," stay away! The beach, a long, lovely crescent, is formed of various kinds of shells, but it is the tellins that give the color and the shimmer. Yet we have met "people"—one staff member from the Glasgow School of Art and his wee,

black dog, Shug—walking there exactly once. The bright, if rare, sunsets over the Atlantic silhouette a lovely island, Taransay, as a foreground. Watch the changing light on the glorious, soft blue mountains of North Harris, or the seals that may be cavorting in the turquoise sea, as there is a breeding colony on nearby Shillay Island. Oyster catchers, shrill birds with red bills and red legs, chase you from their nesting sites. Admire the glistening radiance of wee tellins at your feet, the waving Marram grass (*Ammophila arenaria*), with its red bases, and THE FLOWERS. The whole world seems carpeted with flowers.

The ground-up shells and the peat have contrived to build up grassy coastal areas called "the machair," covered with various species of *Ranunculus*, wee white daisies (*Bellis perennis*), deep blue *Polygala vulgaris*, clumps of rosy *Thymus serpyllum*, various yellow members of the pea family, silverweed (*Potentilla erecta*), two early heathers (*Erica tetralix* and *E. cinerea*), tiny white eyebright (*Euphrasia officinalis*), and dozens of other treasures. Most of the flowers on the islands are tiny ones, although here and there in some grassy roadside ditches one finds bright yellow *Iris pseudacorus*, and there are acres and acres of tidal flats paved with *Armeria maritima*. The prettiest of these we found were soft lavender tufts growing above the stone wall on an ancient, ruined chapel, high on a bluff above the sea. Most exciting of all, to us, was the profusion of orchids. These brought continual delight and constant photographic misadventures.

I have been photographing wildflowers for years and fancied I knew how to do it. Ha! I have an appropriate camera (a Nikon FE2 with a 55mm Macro lens), a small tripod, a right-angle viewer, a cable release, and we

even brought along a windbreak of clear plastic attached to metal stakes. The very first time we set up this contraption, the wind promptly bent the metal stakes right over! Snap! And you imagine you can use a proper f-stop of 22 or 32 to get detail and depth of field? Just try it with the wind—and the often gray days. One fine photographer cautioned blithely, "Just wait patiently for the wind to stop." On a few days' holiday, one cannot wait a few weeks! A professional photographer, on assignment for a book, has time—we had little.

We were unfamiliar with Scottish orchids, very few of which are shared with America. I have enjoyed photographing the white form of our *Cypripedium acaule* here on Long Island; but it grows peacefully in quiet woodlands and poses, motionless, for its portraits. I've photographed masses of *Spiranthes cernua*, in Georgia, quietly sitting along a highway. Our gorgeous *Habenaria psychodes*, with its delicate fringes, poses placidly for its portrait in the North Carolina mountains. But nothing prepared me for these acrobatic and windblown Scottish plants.

In 1993 we discovered an excellent new book, from the Royal Botanic Garden, Edinburgh, *Wild Orchids of Scotland*, by Allen, Woods, and Clark, with beautiful photography and an excellent, yet simple, key. But things continually went awry with our identifications—the number of flowers, the bracts, the leaves...The most reliable characters are in the lip, which in *Habenaria* and segregates is generally of three lobes of varying sizes and shapes, especially of the center lobe. The leaves are also identifiable guides—unless an errant lamb has bitten them off. But when there should be 20 or so flowers, there might be 80! Bracts listed as hardly visible might be long, pointed, and very noticeable indeed. I keep careful

notes, with little sketches, but how does an amateur assess a possible hybrid? Dactylorchids, so I read, can be indiscriminate hybridizers. We puzzled over book and notes every evening by the inn's cozy peat fire, then later at home. All were most inadequate. True, some identifications are simple; it is easy to tell a *Dactylorhiza maculata* ssp. *ericetorum*—center lobe is shorter than the outer two—from its relative, *Dactylorhiza fuchsii* ssp. *hebridensis*, the Hebridean spotted orchid (photo, p. 222). Neither resembles the very fragrant, pale pink *Gymnadenia conopsea* ssp. *borealis*, with a long and very slender flower tube (photo, p. 223). Pale cream-colored *Platanthera bifolia* (the lesser butterfly orchid; photo, p. 222) has a strap-shaped lip, and greenish *Listera ovata* (twayblade, photo, p. 223) is unmistakably distinctive, too, as is *Coeloglossum viride* (the frog orchid), although it may be either brown or green. However, a few slides still puzzle me, and I have sent them to the Royal Botanic Gardens at Edinburgh—with no response as yet. These plants simply match no description in the book—or they grow in the wrong place.

I like one photo I took which seems to be of a hybrid of *Dactylorhiza maculata* ssp. *ericetorum* by a *D. fuchsii* of unknown subspecies. Whichever hybrid it is, it is very handsome, tall, and sturdy (photo, p. 222). Perhaps some taxonomically knowledgeable reader can identify it for me?

There is so much to learn! It is always fun to explore, in depth, something new. There are supposedly more than 20,000 species of orchids in the world, yet here I am trying in vain to find, identify, and photograph the mere eighteen or so native to the Hebrides of Scotland! So far I have found only ten (with variations in color, etc., of course), and their hybrids. I suppose all this should be

called a serendipitous adventure; we had no intention of seeking orchids, and we had never even heard of the word "machair." One lesson I have learned is of the urgent necessity of conservation. These orchids have mycorrhizal connections, that is, their roots have special associations with the local soil fungi, and they cannot be "dug up and taken home." That just kills them. Also, think with awe of a *Listera ovata* taking up to 15 years to reach flowering. Or a *Gymnadenia conopsea* blooming only once or twice before dying. I was fascinated to learn that some of these orchids, *Dactylorhiza* for instance, are deceptive. They lure the insect pollinators with an elaborate lip pattern promising a banquet of nectar when there is none. Also, a classic book on orchid pollination is *On the Various Contrivances by Which British and Foreign Orchids are Fertilized by Insects*, the rather forbidding title of a work by Charles Darwin, published in 1862. I think facts like these would interest all but the most blasé. I hope they interest you.

This summer we are headed back to Harris, as you might have guessed by now. As usual, we will pack waterproof boots, anoraks, old sweaters, and something sturdy to sit on, to avoid the muck. This time, however, we are flying in from Glasgow to the little Stornoway airport. There one is met by thousands upon thousands of purple orchids (from the plane window they all seem to be *Dactylorhiza purpurella*, photo, p. 222) lining the grassy runway. For a wildflower person, what could be a happier greeting? We will try again—and again—and again—to make the acquaintance of all the beautiful orchids these islands have to offer. This will be our fifth holiday in the Outer Hebrides.

Martha Prince is an artist/writer/photographer who gardens on Long Island.

PLANT PORTRAIT

Saxifraga 'Tumbling Waters' (*S. callosa* x *S. longifolia*)

This outstanding silver saxifrage was raised by Symon Lejeune in 1913 and received an Award of Merit from the Alpine Garden Society in 1920. It is very similar to *S. longifolia* in most respects but has the priceless advantage, gained from its other parent, of making offsets and thereby avoiding the certainty of death after flowering. These side rosettes offer the only means of increase, and it is prudent to have a supply of plants coming along, since older specimens lose vigor and produce less handsome flower spikes than youngsters. This is easily achieved by detaching the rosettes with a sharp knife in June and rooting them in pure, sharp sand, which should be kept only slightly moist. They will grow to about 20 cm in diameter over two to four years before flowering. The development of side rosettes is stimulated by the formation of the flower bud. The rosettes themselves are very beautiful, consisting of numerous strap-shaped leaves heavily encrusted with lime. They look very weather resistant, as indeed they are; I would venture to hazard a guess that this selection would flourish in most, perhaps even all, parts of the US and Canada.

The quality of the plant and the veracity (for once!) of its cultivar name may be gauged from the accompanying photograph (p. 220), taken in my garden a few years ago. Some of these cascading, snow-white plumes of light were nearly a meter long and comprised more than 300 flowers. The effect was achieved by placing the plants on their sides in rock crevices near the top of a 75-cm-high raised bed. The soil was a freely drained, rather poor mixture of silty loam, grit, and peat, supplemented with dressings of three parts bonemeal and one of sulphate of potash each spring. The plants were facing north and protected from the hottest sun by shade cast by the house. I have never achieved such good results in more sunny situations.

This plant will never be common or cheap in commerce because of the inevitable slowness in raising a stock from offsets. When offered in Britain, it is usually quickly sold out, and it may be several years before the same nursery is able to offer it again. Therefore, if you see it, buy it, and once you have it, treasure it and propagate it, for few alpins can promise such a memorable floral spectacle.

—John Good

THE SEED EXCHANGE

View from the Inside Out

by Geoffrey Charlesworth

This year our chapter did the Seed Exchange. I was one of the faceless stooges that package seed and fill orders, and as I did this I had plenty of time to think about both the mechanics of the operation and the attitudes that participation engenders.

First you have to visualize what the Seed Exchange looks like when seed orders are being filled. At the outset of the order-filling period there are perhaps 40 or 50 "banana boxes" (flat, cardboard trays with dividers that accommodate, comfortably but snugly, the width of a seed envelope). In the boxes there are a total of 7,000 or more bundles of seed envelopes separated by colored cardboard markers. Each group of envelopes has the same number stamped or written on the outside, and they are stuffed in the boxes, separated by markers with the same number. The boxes are arranged on tables around the room so that the numbers flow consecutively inside and between the boxes from 1 to 7800. Anyone filling an order goes through all the boxes selecting one packet of seed with the correct number for each of the numbers requested. Very easy! You would expect that an order could be filled in five minutes. And that a ten-year-old could do it. Then it is just a question of stuffing the seed envelopes into a mailing envelope, pasting the address on the outside, licking a stamp, and trotting off to the post office to mail it. So you should get your order back in four days—generously allowing two days each way for the US mail to handle everything efficiently.

There is a lot of love involved in this operation, and the course of true love seldom runs smoothly. Here are some of the problems an order-filler might face:

1. Reading Numbers

Have you ever stopped to think about how troublesome some numbers can be? Europeans tend to write the number 1 with a 'flag' that makes it resemble an American 7. And they often write a 7 with a horizontal bar through the vertical, probably to distinguish it from their elaborate 1s. But if the flag touches the horizontal bar you have an old-fashioned 4. A US seed orderer can also lengthen the vertical bar on an 'ordinary' 4 to easily imitate a 7. And if the bar is reduced to a vestigial dot you are left with a misshapen 2. And think of a 2 with a final

curlicue; this could masquerade as a 3. A 3 with its upper curve foreshortened becomes a 5. A 5 with its vertical slumped and its horizontal curved is a 6. Many people start their 6s with a curled top ending up with a figure that gets close to an 8. Careless 9s can also be read as 8s and 7s; zeros can become 6s.

The other side of the coin is: I was brought up to write the way I do. I am too old to change. No wonder banks require checks to have the amount written in words as well as numerals.

2. Order.

Sometimes the fact that the numbers are in ascending numerical order enables a reader to decipher numerals. It is usually clear, since 2,000 precedes 3,000, which hieroglyph represents 2 and which 3. Now numerical order is essential for the smooth filling of a seed order. Imagine an order which starts at 2342 and continues 150, 3714, and so on. The envelopes with these numbers are in totally different parts of the room, and even if you were alone in the room it would be a time-consuming nuisance to flit around the room like a drunk butterfly trying to locate the right boxes; with nine other people milling around also trying to fill orders at the same time the out-of-order order becomes an abomination. Even one number out of order is an excuse to grunt and snort with indignation, (though it rarely matters if the offending number is close to where you are standing). The other side of *this* coin is: there are simply too many boxes on the application form to fill; I just forgot to include this very important number—it happens to be a *Draba* I have been trying forever to get hold of...so I *had* to put it out of order.

3. Physical problems

Without wanting to whine about my own failing eyesight or my clumsy handling of small objects I have to face certain brutal facts of life. I sometimes pick out the wrong number! I sometimes pick out two envelopes with the same number, because static electricity or some other gremlin makes the packets stick together. Well, no big deal—except that every mistake has to be rectified, and that wastes time and more grunts. The system has checks for both these errors. We have to check our own work, of course, but somebody else also checks it too. Of course that may also be another 74-year-old man or a younger man who has fumbled objects and misread numbers from childhood. Why are these people allowed to do this important work if they are so incompetent? Well, those people are us. There isn't anybody else to do it, and if we make too many errors it may mean that a different chapter with bright-eyed, acrobatic, young enthusiasts should take over. But meanwhile it is us, and errors take time to correct. This means an average good time to fill an order is 30 minutes, not five.

4. Organizational problems

Don't imagine for a moment that everybody filling orders is over 70 with nothing else to do the entire week but fill orders. Most of us are working people and can only spare weekends with possibly one day during the week. In our case, we have two chapters involved: on Saturdays all the boxes of seeds, the orders, the envelopes, the scissors, the pencils, the trays, the glue, the paper clips, the rubber bands, the cardboard boxes, the sticky tape, and anything else needed is taken to the Berkshire Botanical Garden. There it is unloaded out of Elisabeth

Harmon's car into two rooms already set up by Duke with tables especially for us. The boxes are laid out on the tables in the right order so that as soon as people begin arriving they can start filling orders. At 3 p.m. the set-up is dismantled and bundled back into Elisabeth's car ready to be taken on Sunday to the Connecticut "office" in the meeting room of a generous local nurseryman. On Monday the Seed Exchange is back in its home on the top floor of Elisabeth's house, three flights up. There anybody over 70 or with a few hours to spare can continue the good work through the week. People from Albany, Boston, Hartford, and other parts of New York State, Massachusetts and Connecticut and even Vermont and New Hampshire have driven great distances to be at one or another of the filling stations.

Why do we care about pleasing you? About trying to fill your order? About getting the seed out in reasonable time? (Is early March reasonable time? It would be in Massachusetts, where winter is far from over and there is still plenty of time to sow seeds effectively outside. But what about California or Georgia? Mid-March is almost summer there). I suppose the main reason is we want to do a good job. We promised to deliver by volunteering in the first place, so there is a little bit of reputation at stake. A second reason is that we have benefited from some other chapter doing this work for several years, and it's now our turn. Third, we want to show off a little and announce that our chapter is not too quarrelsome to do a communal thing, not too proud to do a little drudgery (otherwise we wouldn't be gardeners), and slightly megalomaniacal in wanting to wield all this power (giving out free stuff makes you feel good).

In order to have a Seed Exchange at all we have to have seed. This is necessary even before any organizational exchange can be contemplated. Private people will always send out their own seed lists to their friends, whether or not societies do it. So we have to persuade people to collect and send seed to us. This is not done by grovelling but by promising them the best deal when they themselves apply for seed. When we sponsor foreign members there is always this thought at the back of somebody's mind: they are good gardeners; they will want to share; the best way is to send us seed. With all our members there is a little of this: we get three things from our membership subscription: #1) the *Quarterly*; #2) the Seed Exchange; and #3) meetings and fellowship at various levels. People who get their kicks from #3 will want to please their out-of-state gardening friends by supporting their #2 needs. The same reasoning would apply to writing articles for #1, but that is another story.

Having agreed that donors should get a good deal, non-donors will probably agree that donors should both get more seed and get it first. This complicates the time schedule a little. Not only does it take longer for the Seed List to reach Czechoslovakia and New Zealand donors, it takes longer for their requests to come back. So everybody has to wait until the magic date when the first orders arrive from Japan or Sweden or whatever the last donor country may be. This is a bit hard on California non-donors who are longing to get their seed before summer starts and must wait until the lusts of the Princes and Princesses of Donordom have been assuaged. The solution would seem to be to become a donor oneself and cut the waiting-in-line period by two or three weeks.

What other ways are there of speeding up the process? The best ways are ways in which customers also help themselves. For brief moments during their

back-breaking, eye-dimming, brain-addling ordeal, order-fillers think bad thoughts about seed-orderers. When seed-orderers receive their orders and realize they don't have 25 first choices and sometimes don't even get 25 packets of seed, they may have bad thoughts about the Seed Exchange. These negative feelings may only last until the seed is sown. By the time the first seedlings emerge gardeners tend to forget the coveted seed that didn't arrive and concentrate on caring for the ones that did. But there are short periods of time when Seed Exchange workers and Seed Exchange beneficiaries cast themselves in the role of enemies. But once again the enemy is US. When people take on the Exchange, they understand the anguish of fillers; when the same people go back to being at the mercy of a new Exchange, they again understand the resentments of those on the receiving end. Most of this hot air dissipates with the first breath of spring, but sometimes a few hot-heads will want to resign in a huff.

So here are a few ways to make everybody's life a little happier.

ORDERING SEED

1. You are a donor; you send your order in the same day you receive it; you know exactly what you want. O.K., this is the easiest type of order to fill and the kind that gives seed-order-fillers great pleasure, especially if they can satisfy all the first choice requests. Most of the good seed is still available; however, many donations of collected seed and seed of currently fashionable plants (*Arisaema*, *Trillium*, *Androsace*) are minuscule. There may be only two packets of seed available, and even if there are as many as ten, these are quickly exhausted. Therefore, don't pin all your hopes on these rarities. Offer a few other numbers that you would be happy to have. It isn't just altruistic to be less greedy—orders which consist *only* of wild-collected arisaemas are very unlikely to be filled completely at any time. At the time the Seed List is completed, the quantity of seed in each donation is unknown—systematic packaging cannot begin until every donation has a number. If it is then realized that some groups of seed are in short supply, they will be rationed in the interest of fairness. The principle of "first come, first served" is subordinated to "the greatest good for the greatest number."

2. You are a non-donor: You have paid your subscription, and you have paid for your seed; you sent in your order early. Why is it so late in getting back to me? Why didn't I get everything I wanted? Why didn't I even get 25 packets?

It's clear that if you are a non-donor there won't be much rare seed left by the time your order is filled. All the on-the-ball donors will come first, no matter when you sent in your order. You should, of course, order exactly what you would like most—but most of your order should be non-special, i.e., not all wild-collected seed. If you want an *Arisaema* but don't mind which one, why not offer a whole range of numbers in one box? This is far better than wasting ten choices on ten different arisaemas that you won't get anyway.

The next piece of advice will be very unpopular to many people: Fill out the entire order form. As a person on the brink of dotage, I know full well how tiring and tiresome reading page after page of small print on thin paper can be and how wearisome it is looking up *Gentiana gracilipes* in *Hortus III* for the tenth year in a row to see if it is something I must have or something I must avoid. But now there are brief descriptions of height and color in the Seed List itself which may

be all you need to know. Satisfying a customer makes seed-order-fillers very happy, and the more choices you give, the more likely it is this will happen. If you really WILL NOT fill in the whole form, why not write a note saying you will be satisfied with as many or as few packets as are available. Don't leave the order-filler with the guilt of not being able to oblige and the frustration of not being able to explain. Don't think of ordering as a chore, but as a learning experience; don't think of your order as a right, but as a privilege. This last admonition sounds smarmy and self-righteous, but actually what you are paying for when you send in \$12.50 is not the seed at all but all the printing, postage (including airmail postage to foreign members), stationery supplies, phone calls, transportation costs, etc. that the Seed Exchange involves. The surplus cash goes back to the organization; the surplus seed goes to the chapters. So there isn't any quid pro quo vis-à-vis cash and seed. The whole operation is a failure as a capitalist enterprise. If "true value" were attached to the seeds "sold," there would have to be a whole range of prices with an astronomical top price for seed new to cultivation, popular rare seed, and seed that no other dealer sells. Of course, if you buy seed from a commercial source and want to pay the "astronomical" prices you can expect to get exactly what you paid for. But at the moment the Exchange is non-competitive in that sense and comparisons with private enterprise are inappropriate.

3. You are a beginner:

The Seed List is really daunting to a first-time user. One suggestion is to follow the path of many before you. Don't read the list from beginning to end—except for pleasure. Instead select a few standard genera such as: *Alyssum*, *Aquilegia*, *Aster*, *Campanula*, *Draba*, *Dianthus*, *Dracocephalum*, *Gentiana*, *Erigeron*, *Lewisia*, *Veronica*, *Scutellaria*. No garden is complete without some of these. Choose about a dozen genera and investigate the species of each, one by one. If even this causes too much stress, order a few numbers from each genus blindfold. The first time you sow seeds you will be overjoyed when they germinate no matter what they are. If you can raise them into plants you will value them far beyond their value as nursery-bought plants. One Scottish gardener said: The plants you raise yourself are more rewarding than the ones you buy at the nursery. She lived very close to Jack Drake's famous nursery! In two years' time when you realize what a treasure-house the Seed List actually is, you will be able to exercise more selectivity. Many "beginners" are perennial border specialists. You will find many excellent and rare taller plants among the lists of *Eryngium*, *Verbascum*, *Lychnis*, *Iris*, *Clematis*, *Delphinium*, etc. These are less likely to be snapped up by the confirmed bun-lovers and therefore are a good bet for a satisfying order.

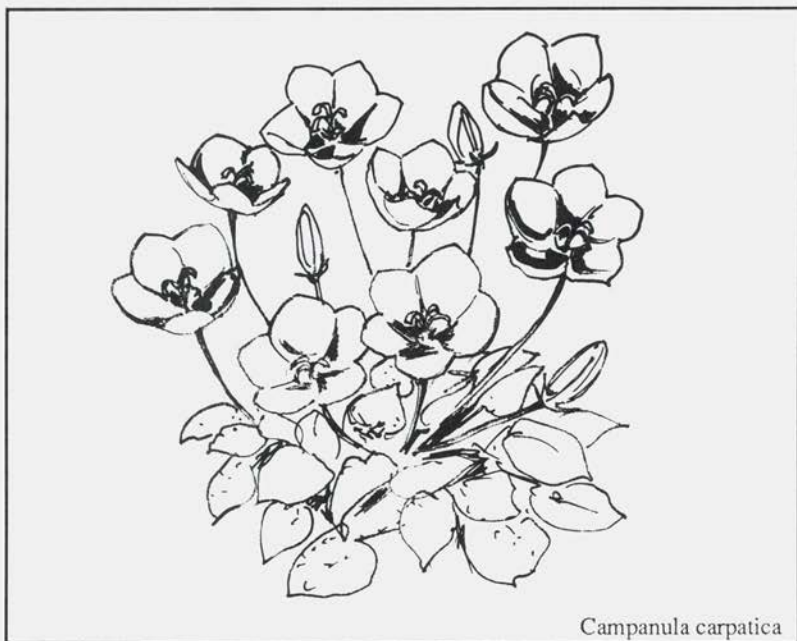
4. Whether you are a beginner or species-literate and very busy, please don't ask the seed-order-filler to do the work of species selection for you. It looks easy enough to say: Fill out my order with wild-collected seed. Please send anything from North America. Please fill out the order with small cushion plants. Please send any *Helleborus orientalis* form or hybrid bearded iris. However nobody has the time to do it. If it would take you a couple of hours to do it yourself, a volunteer would have to take just as long. Now I have explained what the Exchange looks like, you will realize that referring to the Seed List is not part of the opera-

tion. The fillers are looking at numbers not names, and the act of searching for a Seed List, thumbing through it to try to attach numbers to the loose descriptions of your request is a time-waster that nobody wants to undertake. Of course there is always one nice person who will try to honor even the most absurd requests, but mostly unreasonable requests just add to the stress on the us-versus-them complex that constantly wants to take over whenever you have A working for B.

Well, I ended up whining, but I also want to say that the hours and hours of seed-packaging, order-filling, name-confirming, the miles of travelling, the endless discussions about procedure have all been worthwhile for me. When I contemplate Elisabeth Harmon's involvement—every day of every week for twenty weeks—hundreds of envelopes opened, thousands of names typed into the computer, hours of instructing, pleading, and other verbal exercises, buying supplies, loading cars, travelling in bad weather, mollifying post-office employees, giving up every vestige of private life, as well as two floors of her home, plus assuming total responsibility for all our deficiencies (and some of yours), I am filled with awe and admiration.

Perhaps in 1995-96 the group—no longer neophytes—will run into fewer snags and difficulties. There will be newcomers to teach, and anybody now 74 will be 75 by then, so "us" will have changed. Will the Exchange continue to grow? Will the number of people requesting seed grow? How will "them" change? Like good gardeners, we will not anticipate too specifically what next year's pleasures and disappointments will be. Just enjoy one year at a time.

Geoffrey Charlesworth gardens in Sandisfield, Massachusetts. He is a great appreciator of seed and sows as many as 2,000 pots every year.



Campanula carpatica

TECHNO-GARDENING

Alpine Gardening Forum Debuts on Internet

by Bobby Ward (biblio@nando.net)

Those of you who may have been lurking in cyberspace over the last few months will likely have noted the appearance in early February of a new communications forum called the Alpine-L touting itself as an "electronic mailing list on rock gardening: dwarf and alpine plants, including their botany."

The mailing list is the cyber-brainstorm of Harry Dewey of the Potomac Chapter of the North American Rock Garden Society. It is a project that he has pushed for years to see formed, and when there were no takers by NARGS or others, he took on the Sisyphean task himself. The emergence of Alpine-L in late February was the result of the need for a "list-server," a sort of automatic "air traffic" communications control. The list-server function (usually shortened to Listserv) has been picked up and managed by Eric Gouda, curator of the Botanic Garden of the University of Utrecht, the Netherlands, over Surfnet, the Dutch arm of Internet.

What is Alpine-L all about? For starters, it is a communications forum for members to post notes, announcements, questions, seed and plant requests, etc. The uses are infinite. But in addition, the indefatigable Harry Dewey has set up and is sponsoring two new rock garden societies:

The Association of Rock Garden Organizations (ARGO) —ALPINE-L seeks the cooperation of all alpine garden societies and proposes to serve as host to their officers via the ALPINE-L-sponsored ARGO, an electronic clearing house in the process of formation, including, as its first member, ALERT (the ALPINE Editors Round Table). "We hope to put officers of existing alpine garden associations in touch with one another by asking all our subscribers to alert society officers to our clearinghouse. Alpine and rock garden associations in all countries are invited to post announcements and publicity on ALPINE-L," according to Harry.

It is expected that ARGO will shortly be organized as a permanent society in accordance with internationally recognized parliamentary procedure.

ALERT—The first societal member of ARGO is ALERT. Rock garden magazine and newsletter editors may join ALERT by announcing themselves on ALPINE-L or by writing to Harry saying "I want to join ALERT." This will put you on a special E-mail list, and you can thereafter exchange correspondence with other alpine gardening editors via E-mail lists.

The SRGR—Each Saturday morning Harry is also publishing the Saturday Rock Garden Review. SRGR is listing the table of contents of each of the rock gardening periodicals received by its editors. Harry hopes to find a replacement as Permanent Editor but plans to remain a Contributing Editor. "I receive currently 27 rock gardening periodicals. And their contents, starting with their

January 1995 issues, will be listed in SRGR, as reported to me by SRGR's Contributing Editors. At the end of each issue of SRGR will be a list of other Alpine-L periodicals now in the planning stage," he says.

True to his word, the first posting of Volume 1, No.1 of the SRGR occurred on Saturday, March 4, 1995 at 3:53 am!

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As of May, 1995, the Alpine-L had 152 subscribers; subscriptions are free. To
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ERRATA

Rock Garden Quarterly Vol. 53(2)

p. 97, top. Garden in late summer. Plants include annuals, pansies, *Portulaca grandiflora*, *Celosia spicata*, *Sedum spectabile*, Rosa 'Nearly Wild', a *Lavatera* hybrid, *Oenothera caespitosa*.

p. 97, bottom Late summer. Plants include johnny jump-ups, *Aster* cf. *ericoides*, *Lobelia syphilitica*, *Stachys lanata*, *Daucus carota*, *Ballota* sp., *Gazania*.

p. 100. Caption should read: Tatroe garden in early spring. Plants include tulips, *Alyssum montanum*, veronicas, phloxes, *Aubrietia*, and *Euphoria mysinites*.

p. 120. Photo, upper right, *Talinum brevifolium* was taken by Elizabeth Neese.



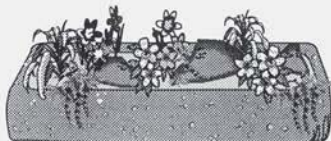
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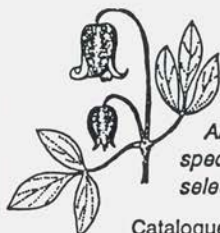
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