Bulletin of the American Rock Garden Society

Vol. 34 Summer 1976 No. 3

The Bulletin

Contents Vol. 34 No. 3 Summer 1976

FRONT COVER — *LEWISIA REDIVIVA* — drawn for us by Jarmilla Haldova (Mrs. Josef Halda). The other drawings in this issue are, as heretofore, by Laura Louise Foster (Mrs. H. Lincoln Foster).

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THE COMPOST PILE

IMPORTANT NOTICE

The First Interim International Conference and the annual meeting of the Society took place in Seattle while this issue of the *Bulletin* was going to press. Accounts of both events will appear in our Fall issue. Meanwhile, note our new officers as listed in the Directorate (back cover) and, most particularly, the new schedule of membership fees, effective immediately, and the new business address of the Society (inside front cover, bottom).

Dr. Wherry's comments in our spring issue on the 1976 Seed List have elicited considerable correspondence. One member was rather indignant at what was considered to be criticism of the seed exchange director and his committee. I'm sure, though, that Dr. Wherry never intended any such criticism. There will always be misprints and differences of opinion about nomenclature and about the desirability of this or that plant. Dr. Wherry's vast experience lends weight to his opinions.

As for the seed exchange, it is clear that there is a universal consensus that this important and exacting function of the Society is in exceptionally competent hands.

There was more concern to rescue some of the "keep out" plants from ostracism. Elmer Baldwin, the Director of the Slide Collection, contributes the following:

"Invaders in the Rockery"

"The following is prefaced with a note of agreement with the remarks of both Dr. Wherry and of Paul Boswell, on invaders in the rockery.

"Conceding the basic function of the ARGS, one is moved to say a word in defence of certain of the condemned — the thought occurring that we have many flower- and garden-lovers among our friends. Some are youthful gardeners (of whatever age) who may not have a rock garden within the confines of today's understanding, who may interpret the warning of the Keep Out Department as applicable to their garden whether it be an herbaceous border or a 'flower' garden.

"With the hope that it is neither inappropriate nor too redundant, may it be said that while some of the forbidden are not for the rockery they can be most desirable when used in other surroundings, in either of the other two types of gardens. To mention several in Dr. Wherry's list:

Belamcanda chinensis, 2½', with its showy black-berry-like seed heads later in the season; *Campanula persicifolia*, 3', both blue, and white forms, as well as many other campanula species; *Chrysanthemum maximum* (Shasta), to 3', snow-white 3" daisies; *Coreopsis lanceolata*, 2', golden-yellow 2½" daisies; *Hibiscus trionum*, 18", creamy-white with a purple center; *Papaver rhoeas*, 2', the better forms include single and double white through pink to red flowers. Light soil; *Penstemon digitalis*, 3', white flower effect with red-bronze fall colored foliage. Grow in sun; *Rudbeckia hirta* (x Gloriosa) 2 to 4', orange-yellow 4 to 6" daisies with contrasting dark zoned centers; *Rudbeckia (Echinacea) purpurea*, 30", long lasting 4" pink daisies; *Silene armeria* (in moderation) 12 to 16", deep pink heads to 2"; *Verbascum blattaria*, slender, to 5', self-supporting stems in both white, and yellow forms with purple centers; and countless others not included in this list.

"DO AVOID in any garden, the use of:

CAMPANULA RAPUNCULOIDES, CONVOLVULUS JAPONICUS (CALLYSTEGIA), HESPERIS MATRONALIS, POTENTILLA VERNA NANA (charming and most invasive), *SAPONARIA OFFICINALIS* (Bouncing Bette). Care should also be exercised in using certain species of artemisia and epilobium.

"As I look at the seed list, there are perhaps 50 to 75% which are not rock garden plants. Shall we have two lists, one for rock garden and the other 'All Else'? An impossible task! Should we have a symbol as a prefix to all rock garden subjects in our regular listing? Or should we accept only rock garden seeds of proven merit, in a rock garden club exchange? Should we reject all INVADERS at the seed exchange level? Or include a warning in the seed list calling attention to these infiltraters by name or number?

"A warning in 1976 will in all probability not be seen by the new or not so new gardener in 1978 or '80.

"Is the answer to be 'live and learn' as has been the custom for how many years?"

If Mr. Baldwin is set on rescuing some of Dr. Wherry's "Keep Out" plants for our delectation, I would like to continue the process by saying that his first, third, and fifth plants to be avoided are among my favorites. *Saponaria officinalis* keeps me company along the railway tracks when I take the train to New York. When *Hesperis matronalis* blooms in the spring in great drifts of white to rich lavender flowers and scents the air far and wide with its spicy sweet fragrance, it puts to shame my poor horticultural efforts. And as I write — in early July — *Campanula rapunculoides* is blooming in a narrow strip beside my driveway where my neighbor's maples make a dry shade in which nothing else will grow except pachysandra and the like.

So grown, and for a brief period, *Campanula rapunculoides* can be very beautiful. There are perhaps half a dozen spires, two feet or so tall. The leaves, large at the bottom, get progressively smaller until they disappear entirely about two thirds of the way up. Halfway up, from the axils of the now small leaves, the flowers begin. Above them are buds ready to burst and still higher the buds get smaller and smaller until at the slightly nodding tip they are almost no size at all. It is this overlapping, double series of diminishing elements that gives the plant a fugal structure, as it were, that I find appealing. I admire the plant both for its valor and for its grace.

Which is more than I can say for *Campanula zoysii* which is blooming a few feet away in a pot in the alpine house — blooming for the first time after having been cossetted for years. It is, to be sure, a charming little plant, a truly alpine member of the genus, with tiny, glossy, entire leaves looking like paddles for the most minute of canoes. But the flowers are disappointing — the color is good, an unusually good blue for a campanula, but they look like little sausages, hanging over the edge of the pot with no satisfactory visual relationship to the foliage. In other words, the plant would seem to have been put together by a committee, as someone said of the camel. I begin to think that the real reason for growing it is so that one can boast of one's success to fellow rock gardeners — which, of course, is what I am doing right now.

Actually my favorite campanula I cannot keep, *C. cochlearifolia alba*. It is supposed to disappear and pop up somewhere else, but with me it takes only the first step.

But to get back to our subject. If we talk about plants to be excluded we must define what they are to be excluded from. If by "garden" one means one of those artificial kitchen middens we dot around our houses — deeply spaded areas enriched by compost and manure — I would agree with Mr. Baldwin's list of plants to avoid. But if by "garden" one means the whole area within which one gardens, even if in some parts of that area the gardening amounts to little more than a slight editing of what nature produces, then I would insist that within that area there is room for my beloved invaders.

The question of the "rock garden" from which Dr. Wherry would exclude so much is more complicated. Dr. Wherry has in mind, I should think, one of those constructions of hills and valleys and winding paths made of stone and special rock-garden soil. And of course his "keep-outs" should be kept out of the rock garden so defined. But rock gardening

has escaped the rock garden. Our passion is to grow the most beautiful wildflowers of the world, and to do this we must provide the widest possible range of conditions that our climate and land can offer, or be made to offer. We cannot assemble our treasures in a single area but must exploit every possibility of sun and shade, wet and dry, acid and limy, And in fact when I visit a rock gardener I never ask where is the rock garden. It is all around me: on one side heathers and dwarf conifers, on the other a shady peat bed, a little beyond a scree and downhill a sphagnum bog. There are troughs and planted walls and perhaps an alpine house — certainly a cold frame.

Our semantic problem might be solved were we to rename the traditional rock garden "the scree" (and some cultural problems might be solved were it to become a scree in reality) and use "rock garden" as a more general category, reflecting the actual interests of present-day rock gardeners, who are often as much concerned with enormous hostas or arisaemas as with minute alpines. A rock garden, then, would be a garden where, in its various areas, the widest possible range of growing conditions would be provided to accommodate the widest range of plants. From such a garden there could be no "keep out" list.

My own sense is that we should answer Elmer Baldwin's concluding rhetorical question in the affirmative, excluding only toxic plants such as *Rhus toxicodendron* or illegal plants such as *Cannabis sativa*. I do understand, though, that there is another point of view, one thoughtfully and forcefully expressed by our retiring secretary, Milton Mulloy. His discussion will appear in a forthcoming issue. *Caveat sator.*

Mrs. F. Dawson, Owosso, Mich., after some discussion of the Edraianthus/ Wahlenbergia problem, goes on to write:

". . . I am sorry I sent so many seeds that are on Dr. Wherry's Keep Out department list. I'll try to do better this year. I misnamed the Chelidonium as 'majus' but it is not, as it is perennial, has *double* flowers, and is not as invasive as 'majus'. Seed was from Thompson and Morgan, England, in a mixture. I had an inquiry about the *Agrostemma githago*, with a request for seed if I had any left, but I did not, since I only have two plants this year. I like it, but of course it's not for the rock garden.

I guess I was bragging a bit that I could find out the names of some seed I sent. I do like to know the botanical names of plants. As for the genera and species mixed salvage package, I think I'm in trouble about identifying what has come up, although some would appear from their foliage to be clematis?, dianthus?, delphinium or ? but there is a shiny oval-leafed one I do not know, also a round-leafed one slightly like Heuchera. And are they hardy or tender, annual or perennial?

I don't know if I have discovered something or not, probably not, but I grew some of the *Castilleja indivisa* seed that I got from Texas, and the one that happened to be in the same container as the *Lupinus subcarnosus* grew and is in bloom, whereas the ones I grew separately all seemed to die off before they were two inches high. Also one that was in with a Vicia? (vetch) grew and bloomed. Perhaps any legume would do as a companion plant? Would like to try it on a perennial

"paintbrush" as perhaps it only works on the annual ones. My sister in Texas has blue bonnets, paintbrushes, puccoons, and vetches all growing together, in her yard, in sandy soil. She *mows* them after they have set seed, believe it or not."

From Henry Fuller

The *Jeffersonia dubia (Plagiorhegma dubia)* is a lovely spring-flowering plant, in this case a perennial, not seen often enough in our gardens, and best propagated by allowing the early maturing seeds to fall under or near the plant and to rest there undisturbed until they germinate the following spring. It seems reasonable to assume that the fresh seed could be harvested and planted immediately in beds or containers for germination the following spring, but I have not known anybody to do so. However, as regularly as spring follows winter, sturdy new plants spring up each year under and near my old blooming plants, and I pot them up for growing on. They try your patience by growing slowly to blooming size, but I started with one plant, and now have quite a patch and have given away many.

More on Germination Problems from Dorothea DeVault (Shortia)

Recently I talked to Charles Moore, a wildflower expert from Brevard, North Carolina, and an authority on *Shortia galacifolia*, about germinating Shortia seeds.

A few years ago Mr. Moore did some experiments with the seed that I thought would interest members of the ARGS. Collecting of seed was done April 18, 19, 20. Bear in mind that collecting in other parts of the country where Shortia has been established might well be at a later date.

Mr. Moore collected one batch of seeds from capsules well-developed but not open, a second group of seeds from capsules partly open, and a third group from capsules fully dehisced. The planting was done about one month later in three compartments of an aquarium with a loose glass cover. The seed was counted (!) and scattered lightly on top of the soil. The temperature range was from 47° to a high of 82°. In compartment #1, in which germination began in nine days, germination was 47%, compartment #2 germination also began in nine days and was 70%, compartment #3, where the mean ambient temperature was 69% — three degrees higher than in #1 and #2 — germination took place in seven days with 89% success.

However, and this is the most exciting part of our tale, on May 14, Mr. Moore conducted an "X" test. Capsules partly open (the second stage) were gathered, immediately counted and planted in a woods mold

scooped up from under a Hornbeam (Carpinus caroliniana). The other seeds had been planted in soil from stations of *Shortia galacifolia.*

The container from a grocery was a transparent plastic cup 3½" in diameter and 4" deep with a tight lid. Again the seeds were scattered but not covered. Of course in all cases the soil had been watered. The lid made the contents airtight. The container was put in a dark place until germination began in 10 days, and then in subdued light while germination continued for 14 days, the temperature about the same as for experiments #1 and #2. During the entire period the lid was not removed and the container remained airtight.

Germination was a whopping 97.1%!

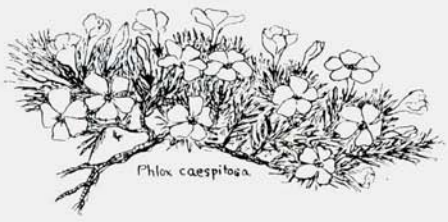
I had never had an inclination to plant Shortia seed. Lincoln Foster in his eminent book *Rock Gardening* suggested sowing it on chopped sphagnum but warned that it took many years to produce a flowering plant. Since I had always divided my plants successfully, I felt no need to experiment with seed.

Somehow one June day I found myself scrounging around a Shortia area. I garnered the last 5 or 6 mature capsules the mice or other small animals had not found. They were rather miserable, not all full of seeds. In a clear plastic receptacle, probably similar to the one used by Mr. Moore but with three holes drilled in the base for drainage, I poured acid woods soil watered with Benlate solution. The seeds were dribbled on the surface. The cover was tight. The first week the container was in a cool dark basement, then on a porch in full light. Not until June 25, nineteen days later, did germination begin and continue for more than two weeks. I opened the plastic two or three times a day and sometimes peered at the developing seeds with a jeweler's eyepiece — a fascinating experience.

Have you ever counted Shortia seed? I had no patience to do that, but *germination was excellent.*

At this writing in late July I can report no further. Well aware that there is many a slip twixt cup and lip, or seed and plant, *if* I am successful transplanting. . . .

There was, alas, a slip and in the transplanting the seedlings perished. But the DeVaults have no need to worry. In their woods are splendidly healthy clumps of *Shortia galacifolia* (two quite distinct forms), *S. uniflora* and *Shortia (Schizocodon) ilicifolia*, some a yard or more across. Dorothea has a technique to speed their spread. She removes a tiny bit from the edge of a clump and replants it a foot or so away. (Better, she says, is to get the tiny bit established in a pot of sand).



We move from some notes on seed germination to techniques of rooting cuttings. Mrs. Donald Parrot of Manchester, Mass., writes as follows

"In the enclosed paragraphs I have explained a system I have been using for several years for cuttings, and I assumed everyone else did more or less the same sort of thing, until George Pride told me he had never seen it done before. It occurred to me that other ARGS members might like to try this same simple short-cut, if, in fact, it is not commonly done."

"Each year I propagate from cuttings some of my favorite plants as insurance against unexpected loss, to fill in empty spots, and to give away or swap with friends. I don't make a big production of it, doing a few at a time as time permits, and streamlining the process as much as possible. Being a procrastinator, I was always apt to delay the potting on of the rooted cuttings from sand box to soil until I had an unwieldy mass of roots to cope with, and so I have eliminated that step with the following procedure.

"The cutting is prepared in the usual fashion, with hormone powder if it seems necessary. Then I fill a 2¼ or 2½ inch plastic pot with damp potting soil appropriate to the plant, tamp it, and with my finger or a ½ inch dowel poke a hole in the middle ¼ inch deeper than the length of the stem to be inserted. If the soil is the correct dampness it won't collapse into the hole. Then I hold the cutting in the hole and with a teaspoon pour dry cutting sand to fill the hole, tamp it a bit, and stand the pot in a pan of water. When saturated it is put at the back of my work bench which is always shaded, and a clear plastic disposable drinking glass is inverted over it. (If the cutting is too large, I use a plastic bag.) There it its until something happens. From time to time I remove the glass and shake out the excess moisture that has collected inside, and remove any dead or yellowed leaves. As the roots form they can push beyond the sand into the soil and the plant gets a good early start. When there is evidence that the new plant is well rooted, I tilt the glass to admit a little air at the bottom, and then some days later lift the glass to the rim of the pot and prop it there to admit more air. A few days later the glass is removed and the plant is allowed to harden completely.

"This system seems to work reasonably well except for furry-leaved plants, and is very easy when only a few cuttings are taken from time to time. Those plants which resent root disturbance or have brittle roots and are difficult to move, suffer not at all the trauma usually associated with transfer from sand to soil, and when they are put out into the garden the root ball is intact and they go with that built-in collar of sand which I think helps prevent rot."

We all root cuttings. Indeed we must, for it is only by so doing that we can acquire many of our choicest plants, and for many others cuttings offer by far the easiest and most reliable means of increase.

We all, I suspect, have both successes and failures. Sometimes the successes are with reputedly difficult subjects and the failures with what are supposed to be easy rooters.

Success or failure depend on two factors, the system we use and our skill in exploiting the possibilities of our chosen system. Ivy will root in a glass of water and opuntia will root lying on the ground in full sun, but neither system will work for daphne.

Mrs. Parrot's system has certain clear advantages, as she has told us, and I suspect that she instinctively knows what subjects will respond to it and what day-by-day treatment is desirable. Disadvantages might be that the system is not suitable for a heavy flow of traffic, that each cutting requires separate care, and, possibly, that some of our favorite subjects might not respond.

My own experience has been limited to two related systems, the "covered wagon" and the Nearing frame.

The covered wagon came into use twenty or twenty-five years ago. It consists of a clear plastic tent supported by loops of wire within which the flats containing the cuttings are placed. The device should be so sited that it receives the maximum possible amount of light but no direct sun. Even a few minutes of full sun would cause a possibly catastrophic heat build-up.

Avoid wooden flats and clay pots. Your cuttings may have to stay in this flat for as long as two years. In that time all sorts of molds and algae and mosses can grow in the high humidity.

I prefer pure coarse sand, or sand and perlite, for a medium. Vermiculite gets sleazy as it is handled and peat moss holds too much moisture. The object is to keep the air saturated but the medium full of air — moist but not wet.

Use clean new wood for the board into which the ends of the wire loops are stuck, and on which the flats stand. This board should be painted with cuprinol green.

You can use coat-hanger wire and polyethylene from your dry cleaners, but stiffer wire and thicker plastic are better.

An enormous range of plants can be rooted in such a device. Anyone can make one. The materials cost pennies and are readily available. And, once set up, the "covered wagon" needs no care at all until it is time to pot up the rooted cuttings.

For cuttings that don't need high humidity the device can be modified by leaving one end open, or partly so. In that case it can receive more sun, but you must be on constant guard against drying.

I have had great fun with the "covered wagon" over the years, but the Nearing frame opened up a whole new world of possibilities for me. Mr. Nearing's own account of his invention is here reprinted from Vol. 16, No. 1 of our Bulletin (January, 1958).

PROPAGATION MADE EASY

G. G. Nearing — Ramsey, N.J.

You will often see mention of rules of propagation. There are no rules of propagation. There are systems of propagating, and if you choose to follow a particular system, then you may find rules useful, but they apply only to that system. If you take a rule from one system and try to apply it to another system, you may easily suffer failure of an entire crop.

There is a system generally accepted by most commercial growers, for rooting cuttings of woody plants, and the so-called rules of propagation, as generally stated, apply to that system. Forty years ago it was generally conceded that cuttings of Rhododendrons could not be made to root in commercial quantities. Since I wished to root Rhododendron cuttings (E. H. Wilson said cuttings would make better plants than grafts), I worked out a new system by which they can be rooted very successfully, and it is this system which I want to discuss here, because it roots also thousands of other plants with a minimum of care and attention.

One of my friends built for a commercial nurseryman a sample of the special propagating frame which I devised for Rhododendrons, and after using it one season, the nurseryman built himself a dozen more with the remark: "I can grow anything in that." A woman whose specialty was wildflowers built two of the frames and years later handed me a bulky list, too long to print here, of the plants she had propagated successfully in them. At the head of the list was trailing arbutus, which she rooted in great quantity, and which grew for her like a weed.

Today Rhododendron cuttings are rooted by the thousand in greenhouses where forty years ago propagators agreed they could not be rooted. These propagators took a good look at my special frame to see why it worked, then changed a couple of their rules to make the greenhouse do what the special frame does.

But the frame still has advantages over the greenhouse, particularly in that it saves labor, and if ever there was a time when labor saving saves money, that time is now. For the one-man nursery, the part-time propagator, the enthusiastic amateur, a frame which will go a week or two without even being looked at, and still produce a good crop, is surely a godsend. And the same frame is also efficient for seed propagation.

The fundamental change from old-time conventional propagation is this: when the sun shines on a greenhouse, the temperature rises to a point where cool air must be brought in, so the ventilators are opened. Even if the glass is painted, the greenhouse must be ventilated. But with the ventilators open, humidity goes down. In the days before there were mechanical humidifiers and unlimited money to throw around, cuttings requiring high humidity could not be rooted successfully in a greenhouse. Rhododendrons are among the cuttings which require high humidity.

Now if you had a bed of sand with a lot of moisture at the proper distance under it, and if you had it enclosed by glass which didn't need to be ventilated, you could maintain high humidity. How can you get rid of the need for ventilation? By not letting the sun shine on the glass. Then if the sun doesn't shine on the glass, how can you maintain light enough to supply the needs of plant growth? That was the problem.

It was solved like any other difficulty, by hard thinking and experiment. The natural way to interrupt sunlight is to place a shield to the south. But morning and afternoon sunshine can be disastrously hot. So the east and west must also be shielded. Since in midsummer the sun comes almost overhead, there must be overhead shielding too. Actually in the heat of summer, the sun rises in the northeast and sets in the northwest, but if the shield cuts out all direct east and west rays, only the very early morning and late afternoon rays can reach the glass, and these at such

a low angle that little heat penetrates. (Look that up in your physics book.)

In practise the shield should project a few inches northward of the north edge of the frame, above, to the east, and to the west. All the light must come from the north, and in order to get enough of it, you must have your hood as wide open as practicable, painted white on the inside (or aluminum) to give reflection. In a group of frames where some cannot be given full exposure to the north sky, they are so placed that the back of one hood reflects light into the hood to the south of it, and this is even more efficient than the light of the north sky.

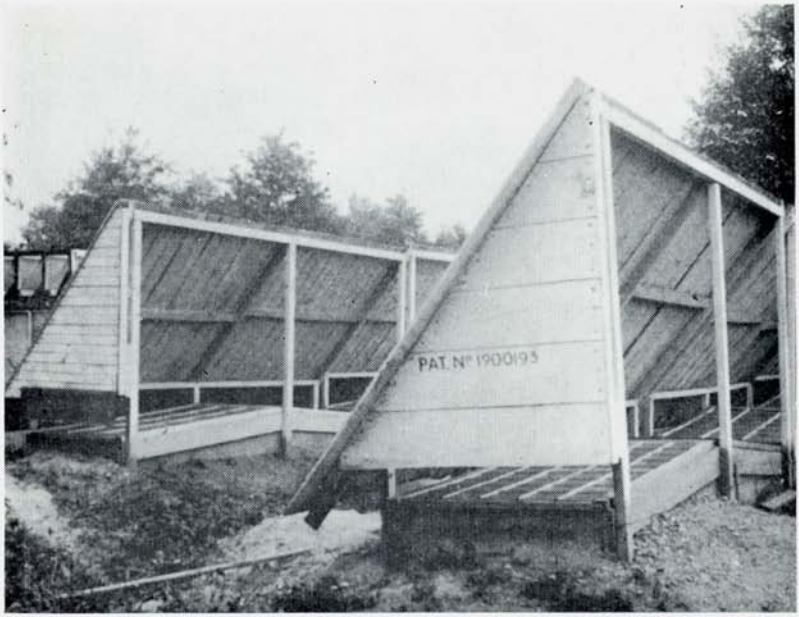
The frames are carefully faced to open exactly north, and before building them, I sight a line on the North Star (Polaris). For this reason I had intended to publicize my device as the North Star Frame, but it has come to be known generally as the Nearing Frame. My patent expired years ago, and anyone is free to build the frame under any name that suits.

So much for the shading. Now for the frame itself. It is a box covered with a glass sash, not absolutely tight, but nearly so. The width of this box from north to south should not be more than 3 feet, because the height of the hood for that width is 6 feet, (anything lower would not let in enough light, and to extend it higher would invite trouble from the wind). The hood does not fit against the edge of the box, but a space of several inches is left, so that a free updraft of air will cool the inside of the hood.

The box has a bottom, reasonably tight, and no provision is made for drainage. This must give any professional propagator the shudders, for one of the rules of conventional propagation is to supply perfect drainage. Well, I have rooted hundreds of thousands of cuttings without drainage, and if there is anything wrong with my system, I should have found out by now. Those who are drainage minded must remember that the only way to keep high humidity is to have plenty of water near, and if you drain it all away, how is it going to provide the humidity? However the box must not be water*proof*.

Now in this box, which is about a foot deep, I place a layer about 4 inches thick, consisting of 3 parts screened peat moss, 1 part screened spent mushroom manure, and a little dusting sulphur, all mixed together very thoroughly, after a couple of handfuls have been added of the same layer from the most successful box of the previous year. The mixture seems to be kept in proper condition by bacterial or fungus action, and this inoculation is a decided help.

I wish I could find a satisfactory substitute for the spent mushroom manure. I have tried everything imaginable, but nothing else works as well. To find a supply of it is often a nuisance. There are hundreds of mushroom houses in southeastern Pennsylvania, where the Mushroom Growers Association, Kennett Square, Pa., will usually recommend a grower who is willing to ship his spent manure. Unfortunately many growers are turning to straw culture, and whether their spent product can take the place of the composted horse manure always used in the past, I do not know. It is my belief, that the dead spawn (mycelium) in the mushroom manure is the important ingredient, for I have tried other forms of manure with always inferior results.



G. G. Nearing

The ingenious Nearing Frame solves many problems of propagation.

The 4-inch layer is very light and spongy of course. It is covered with a layer about 1 inch thick, of 1 part sand, 1 part Michigan Sedge Peat (peat moss will do if necessary). The layers are each carefully leveled, before the next layer is put on, and the upper layers are spread very gradually and carefully, a very little at a time, for if any quantity is dumped in one place, it will depress the layer below, spoiling the efficiency of the medium. A third layer, about 3 inches of sand, is now added, a handful at a time.

The quality of the sand is supremely important. A coarse grade of concrete sand (builder's sand), but containing also plenty of fine grains, is best. Sand that is either all fine or all coarse will not do.

When filled, the box is ready for the hose. A fine spray is maintained steadily for several minutes, until water stands at least 1/4 inch deep all over the surface of the sand. (The box should be carefully leveled before filling, and soil should be banked around it to within a couple of inches of the top). After thorough watering, the weight of the sand compresses the peat beneath it, and the total depth of the medium is reduced to about 6 inches, eventually 5½ or less. My boxes are just the size to fit a 3 x 6 ft. sash, and I make the lower layer with 3 bushels peat moss, 1 bu. mushroom manure, adding 1 3-inch pot of sulphur. The middle layer is ½ bu. sand, ½ bu. peat, the top layer 3 bu. sand.

Cuttings of broad-leaved evergreens and dwarf conifers are made in June, July, August, September, October, November, or in fact any time of the year when the wood is in good condition. I empty all the boxes in September and refill most of them in October, sticking most of my Rhododendron cuttings in November. Cuttings which have not rooted by September are stuck in a new frame in October or November to root

the next year. Some varieties are slow, but make no charge for their time. If a branch of something desirable breaks off during the winter when the sand is frozen, I throw it on the sand and leave it there until spring thaw, then make it into cuttings and stick them. Last winter a foot-long branch of *Pieris japonica albomarginata* broke off in January and lay untouched on the sand until near the end of March. I then made it into 79 cuttings, of which 72 were rooted by September, and 5 put back to root next year. The reason for the low percentage was that I had run out of mushroom manure, and used only peat in the lower layer of that box.

Cuttings of Rhododendron are made 2-1/4 inches long or shorter. If cut much shorter, they root more quickly, but are slower in forming a vigorous plant later on. No "hormones" are used, or any other nonsense. I tried them all out hopefully many years ago, and find I get better results without them. Those who use them seem to be hypnotized by the advertising. I used to make my living writing advertising copy, so am more or less immune.

The frames are given a soaking as described (until water stands on the surface), about once every two weeks in fall, during winter only when the sand has thawed out completely, twice a week in spring, and once a week in summer. If kept too wet, the leaves tend to rot. It is best to let them get fairly dry occasionally.

The same frame can be used for seed propagation. I use 4-inch pots standing in metal pans, so that I never need to water overhead, but the pans must be allowed to dry out between waterings, and only a fraction of an inch of water is run into the pans at any time. Pots are much better than flats, because they soak up the right amount of water and do not breed fungi.

For Rhododendron or other ericaceous seeds, the pots are filled about two-thirds with broken soft brick, the small fragments on top to prevent the compost from sifting down through the brick. The pot is then filled almost level full with a compost of 3 parts Michigan Sedge Peat, 1 part top soil, 1 part sand. This is pressed down hard with the thumbs, making a space at the top of the pot about ½ inch deep, which in turn is filled with a different compost, 4 parts sand, 1 part Michigan Sedge Peat. This sandy compost is heaped high, then pressed down hard with a piece of lath, and scraped off level with the top of the pot.

It is important to fill the pot completely. The space conventionally left at the top is intended to hold water after overhead watering. This is exactly what the seedlings don't want. I never water overhead, but give the seedlings only what moisture the pots suck up from the shallow pans in which they stand. All ericaceous plants prefer this treatment, and so do hundreds of other items. I use no chemicals. Damping-off is controlled by the cultivation of a moss, as described in a previous Bulletin.

At the other extreme is the fringed gentian, *Gentiana crinita*, which I used to grow in quantity. For this I would fill the pots with only a very sandy loam, and the gentians germinated and grew very well. They proved so easy, in fact, that I lost interest in them. Why waste my time on weeds?

No heat is ever used in the frames, because anything propagated with

heat must be carefully hardened off — much more carefully than most propagators seem to think necessary. It is easier to let the plants alone, and not upset the cycle of the seasons for them. Of course the pots stay frozen most of the winter, and it is then that the full pot shows its superiority to the one not completely full. For water sometimes leaks in through the sash, and any drip on the seedlings must run off.

Nearly any plant can be grown in this frame either by seed or cuttings. But of course species which like a lot of hot sun do not thrive so well with all direct sunlight excluded, as they do in a frame exposed to the sun. I do not recommend the frame for cactus or other succulents, yet even cactus will do well enough if not left in the shade too long.

Rock garden plants, cuttings of which have rooted well in the frame include dwarf Rhododendron, Azalea, Erica, Calluna, Leiophyllum, Kalmia, Andromeda, Pieris, Leucothoe, Epigaea, Gaylussacia, Vaccinium, Daphne, Hypericum, Euonymus, Corema, Sarcococca, Pachistima, Skimmia, Cotoneaster, Berberis, Juniperus, Chamaecyparis, Picea, Tsuga, Taxus, Cephalotaxus, and many others. The frame has been used to raise seedlings of various Gentiana, Primula, Dianthus, and in fact, almost all dwarf plants which can be grown from seed.

A list of all the species and varieties which have been propagated in this way would fill many pages, and not make very interesting reading. Suffice to say that the majority of difficult plants respond, while the easy ones can be propagated in the open ground.

It's a rash man who would disagree with Mr. Nearing on methods of propagation, but it is now generally accepted that artificial hormone treatment helps; also that for mere amateurs like us it is better to use a sterile medium — so there's no need to worry about the scarcity of spent mushroom compost.

After reading this article I simply had to have a Nearing frame. It took several years, but eventually I acquired some standard old heavy coldframe sashes at a tag sale and went to work. What I have is a modified version of the modified Nearing frame described by Warren Baldsiefen in his catalogue "Rhododendrons for the Connoisseur."

Construction was simple. A hole was dug ten inches deep and somewhat larger than 3 x 6 feet, the long axis lying exactly east-west. There was unobstructed light to the north. Into this was set a bottomless box, 3 x 6 feet, made of 2"x10" construction grade redwood, a material resistant to rot and warp. Under one end of the box I put a row of bricks and under the other a row of cement blocks. This gave me the standard slope of one inch to a foot. Loose boards were fitted toward the higher end of the frame outside the box to prevent the fill-in soil between the edge of the hole and the box from tumbling into the enclosed frame area.

Inside the frame a 2" layer of old broken bricks, etc., was placed, topped by two bushels of Canadian peat moss. This was carefully leveled and firmed and saturated with water. (If the peat is very dry, hot water speeds the soaking process). The next layer consisted of two bushels of a half-and-half peat and sand mixture, the whole then topped by a quarter inch of pure sand. The sash was then put on, hinged on the back (South) side and fitted with a sturdy handle on the front. The solid weight of the sash and the use of two inch stock for the box made for a tight frame.

For the sloping shed I used that cheap and available corrugated fiber glass and plastic material that comes in 26" widths, three six-foot lengths of the white (not clear or green) butted, not overlapped, to give me a width of 6'6". Better would have been 8' lengths and four of them, overlapped 2" to give a width of 8'2", and to form the hypotenuse of a triangle that would have a base of about 4'6" and a height of 6'6" or so above the front of the frame. The sloping roof should start about a foot behind the frame, and at least a foot above the lowest end of the sash and reach its peak a few inches or so north of the frame. The end pieces can be cut from a sheet of exterior plywood. These, too, should not reach the ground but should leave a foot or so for free movement of air. Otherwise the hood will entrap heat in hot weather.

The corner posts, short in back, long in front, should be buried into the ground 18" or so — you don't want those strong north winds to make a plaything of your hood. The sloping back is best assembled separately on a level floor. Light stock — I used 1"x2"s — will do. When you've tacked it together with the special gasketed nails sold for the purpose, the back can be bolted to the uprights and the ends affixed.

The underground parts of the posts were heavily creosoted. All above-ground wood was painted first with Cuprinol Green, then with the best quality oil-based, high gloss white trim paint.

The job was finished in November, and in that month and December I inserted a large number of woody cuttings, ericacaea, hollies, dwarf conifers, etc., and throughout the following year almost everything I could lay my hands on was tried. After a year and a half I had to rack my brain to find anything that had failed; to be sure, some had not rooted yet, but these were still in good condition.

Now, after five years, I am sadder and wiser. The Nearing frame is no panacea. But I am convinced that the device is ideal for the rock gardener. We most of us perforce follow the old, and false, adage that the time to set a cutting is when you can get it. In the Nearing frame cuttings stay in good condition for years, sometimes, and most will eventually root. We cannot be experts in all the plants we grow, indeed, nobody is, for we are always pioneering, but the Nearing frame obviates the need for expertise. Anybody can get good results with it. Mist systems are no doubt better, if you have a greenhouse and can devote a section of it to the mist enclosure. But I doubt if you can leave a mist system for weeks on end with no attention as one can the Nearing frame.

It took me a long time to believe that I could root anything in the Nearing frame that couldn't be rooted in the "covered wagon" I had used so long, but now I am convinced that cuttings stay healthy longer, hence have a better chance of rooting, in the frame.

A great feature of the Nearing frame is its convenience. When I return from a visit to a fellow gardener with a sandwich bag full of cuttings, I can go right from the car to the potting bench, trim the cuttings with a razor blade, wet them and dip the ends in either Rootone or Hormodin #3, take them to the frame and insert them, and be in the house only moments after the other members of the family. There is always space and never need to contrive new devices. This means in fact that one sets many more cuttings than one would otherwise. If the wind, or a bird,

or you own careless shears break off a fragment of a choice plant, its loss can be made a gain by making cuttings of the broken bits. Even wilted material will sometimes revive and make good plants.

Some random notes

The rooting medium first used, as described above, was that recommended by Warren Baldsiefen for rhododendrons. It worked well but has one disadvantage. After two summers mosses and liverworts appeared. I had to remove all the cuttings and scrape off the top inch or so, and this time I topped the mixture with two inches of pure sand. Mosses are now a minor problem. I have noticed no reduction in rooting efficiency. And theoretically the sand may be superior. The peat beneath can be kept saturated, and this keeps humidity high, but the cuttings themselves are embedded in an almost dry material which, I think, is healthier for them.

Short cuttings are almost always best except for some easily rooted subjects.

Very tender top growth will often root quickly, but may rot before becoming established plants.

Old tired cuttings, taken at a poor time, will sometimes root after two or three years, but the rooted cutting may not have enough vitality to resist infection. I fear that my percentage of rooting is higher than my percentage of survival of the rooted cuttings.

A mid-winter thaw gives a splendid opportunity for setting cuttings of subjects that are difficult at other times, such as grey-leaved plants with high light requirements. The dim light does not distress them then. Perhaps they think that they are happily under a couple of feet of snow. They callous nicely and by late March or mid-April, depending on the weather, they strike, and have the spring growing season to become good plants.

Cuttings of *Alyssum (Ptilotrichum) spinosum*, *Phlox triovluata*, *Veronica bombycina*, and the Caucasian bun drabas *(DD mollissima, bryoides imbricata, polytricha)* all will root then, as will other less difficult subjects, such as the kabschia saxifrages, the choice wooly asperulas, and *Ourisia microphylla*.

Three out of five late summer cuttings of *Pyxidanthera barbulata* rooted for me once, but to get a vigorous spreading mat is no easier from a rooted cutting than from a gathered plant. One died immediately after potting up; a second lived unhappily for a couple of years in a pot in a cold frame before it died of neglect, I fear; the third I never took out of the frame. It is now a plant six inches across, healthy even though non-blossoming and a bit etiolated. I think of it as a source of propagating material when and if my other plants die.

All the lithospermums root readily from summer cuttings.

Leicophyllum buxifolium is tricky. I once rooted a cutting but did not get a plant.

(continued on page 131)

ASTER LINARIIFOLIUS

H. Lincoln Foster, Falls Village, Conn.

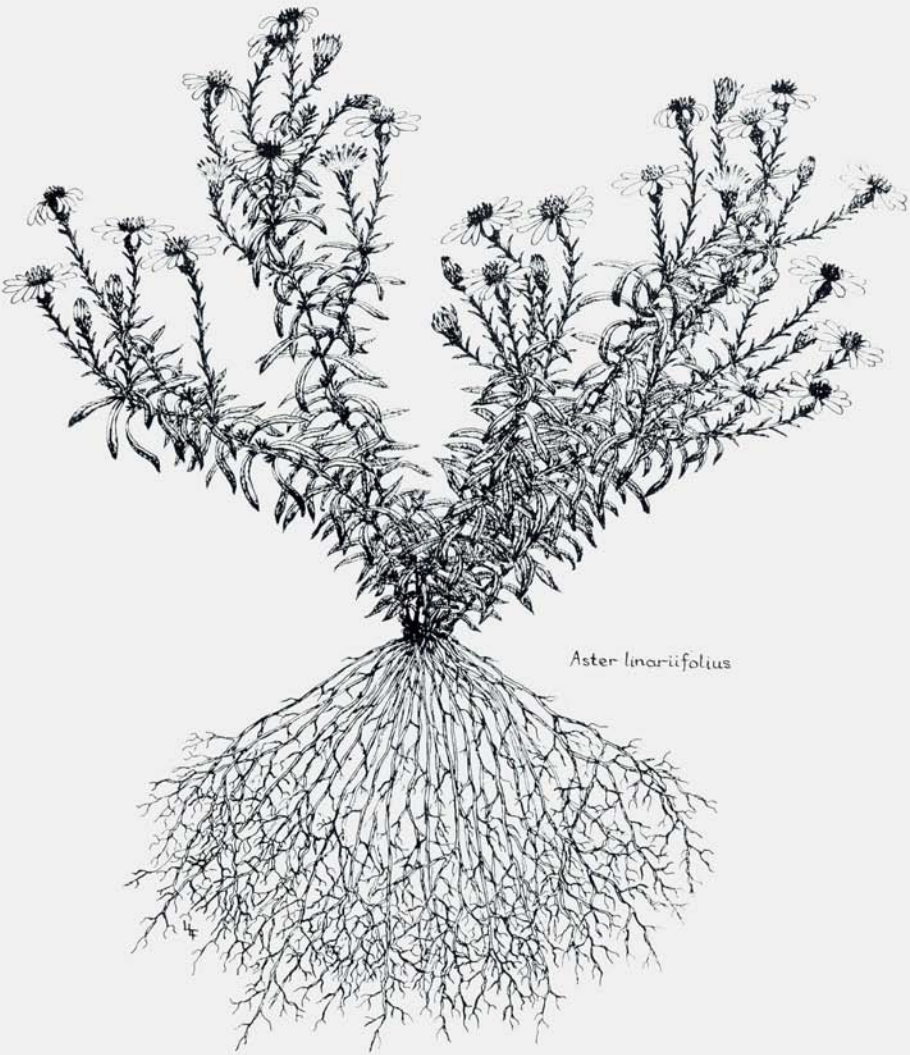
Among the many asters that grace the autumn roadsides and meadows of New England only *Aster linariifolius* has the stature and carriage suited to the rock garden. Yet one rarely sees the Stiff-leaved Aster in cultivation, nor is it ever mentioned in European rock gardening books, even in those that sing the praises of the showy dwarf and difficult Himalayan asters.

Our *A. linariifolius* was named by Linnaeus for the resemblance of the leaves to those of the Common Toadflax, *Linaria.* Many of the wild asters are not easy to identify but this one is readily distinguished by its dense narrow stiff leaves and its low upright, almost busy growth habit, thick with flowering stems each bearing the few to solitary heads of flowers. These flowers, which in good forms may be two inches across, are composed of sterile ray flowers that range in color from a clear blue through violet to pink and occasionally white and a center of fertile disk flowers varying from gold to brown or even red, frequently all on the same plant.

In nature this bristly-leaved aster, in some regions called Savory-leaved Aster, or even Pine Starwort, ranges from Maine to Quebec to Minnesota, south to Florida, Alabama and Texas. Throughout this rather extensive area the plant is more locally abundant than generally common, probably because it is found only in well drained acid rocky or sandy areas, on lightly wooded ridges and slopes or in sandy openings. One notices it here and there when it flowers in September or October as a roadside plant where sandy or rocky road cuts have stabilized.

In such rather sterile sites plants will vary from 6 to 18 inches high and in size and color of flowers. By selection we should be able to develop a race of rock garden worthy asters, low and compact in growth habit with large well-formed blossoms of strong clear color. Once we have found or produced from seed the ideal form of *Aster linariifolius*, it is relatively easy to multiply the plant by cuttings or divisions.

We need good late flowering plants for the rock garden and here among our natives is one with great possibilities. A group of these asters of selected form planted with and among varied clones of *Calluna vulgaris* will flourish in the same acid soil and create late season charm in the garden.


Aster linariifolius

MUSIC HATH CHARMS . . .

Lawrence Hochheimer, Norwalk, Conn.

Our newsboy informs me that his mother, who is addicted to plants, not only talks to them, but sings to them as well, and that this has brought solace to the unhappy, new courage to the weary, and cheer and comfort to the sick in her home and garden. When I asked him whether the plants talk back to her, he told me that she doesn't take back talk from anybody.

This presents an emergency situation that our society through our Society should face up to immediaely. It requires no stretch of the imagination to understand the trauma suffered by those sensitive or hardy specimens that are unhappy, weary or sick and who are not sung to.

The problem to be solved is to determine what songs we should serenade them with, or what we should read to them using care not to aggrevate their unfortunate conditions. For instance, if we were to tell a Crimson Glory that our love is like a red, red convict that's newly sprung, it would wound her to the very thorns. Or if we relate Milton's indecorous tale of what occurred "on beds of violets blue and fresh-blown roses washed in dew," she might turn pale with shame and not win the gold-colored medal at the Philadelphia Flower Show. (It must also have been most uncomfortable for those involved in the proceedings — wet and prickly.) If you tell a rose that "a rose is a rose is a rose" and nothing more, she could construe it as an insult, since she thinks of herself as the very attar and symbol of beauty.

Our newsboy's mother is fond of Shakespeare. If she openly admires a daffodil that "takes the winds of March with beauty," and since said daffodil in Connecticut often doesn't show color until April, the poor creature might feel itself retarded and develop an inferiority complex. And don't forget Beatrice Lillie's almost inaudible, "The roses have made me remember what any nice girl would forget!" How malicious! How hurt that delicate plant must have been!

Shall we tolerate such cruelty! Never! We must have government funds to operate schools in subjective plant elocution and vocalization. Write to your congressman today! Plantspersons of the world, unite! We constitute a large percentage of the voters and with the help of the A.S.P.C.P., surely we will succeed in establishing such a worthy project, which will make our newsboy's mother very happy.

Corrections — Vol. 34, No. 2, p. 83, about 1/3 down the page, read "aridity" instead of "acidity". There have been a regrettable number of misprints in the Bulletin. Most are blemishes which are reader-correctible and do not affect the sense. Not this one, though. Your editor apologizes and vows to do better.

Vol. 33, No. 4, pp.159-160. The wonderfully succinct piece entitled "Miniature Tufa Garden" which was described as a reprint of a leaflet distributed to visitors to the Royal Botanic Garden, Edinburgh, was incorrectly attributed. Either my source misremembered or I misheard. The piece was actually prepared by Brian Halliwell, Assistant Curator of the Royal Botanic Garden at Kew and is only available to visitors to that august institution.

HOW TO GROW *ARENARIA SAXOSA*

Norman Deno, State College, Pa.

In choosing *Arenaria saxosa* for the third subject of this series, the promotion of this fine plant was as much in mind as was a recipe for cultivation. Ricketts's "Wild Flowers of the U.S." (Southwestern States) lists *A. saxosa* as a subspecies of *A. lanuginosa*. A picture under the name of *A. lanuginosa* appears in both the volume on Southwestern States and the volume on the Central Mountains and Plains but it is the same photograph. This photo does not do justice to the fine form grown here and in fact Ricketts mentions forms of A. lanuginosa that lack petals. Our form was sent by that great plantsman Claude Barr and is one of his best.

For 51 weeks of the year, the plant is a low domed mound of dark green foliage like some very leafy Cotoneaster or a low creeping boxwood or Japanese holly. There are the same small elliptical uncut leaves. The plant could become popular as a shrubby evergreen of about 8 inches in height. The foliage remains in good condition all winter comparable to other small but broad leaved evergreens.

Then comes that one glorious week in early June when a transformation occurs into a solid mound of white. The flowers are the size and shape of the better known *A. montana* and like *A. montana*, each flower jostles its neighbor for room and space to shine. The ultimate effect is that of *A. montana* but more shrub like and with superior evergreen foliage.

Despite caveats to the contrary, the one who named Arenarias sandworts had it right the first time for sand is the key. *A. saxosa* grows luxuriantly under conditions identical to those described for *Phlox nana* in the first of this series. It spreads by underground runners but these move out concentrically from the central plant and in a sedate fashion unlike some of the weedier Arenarias that come up all over the place. Propagation is all too easily accomplished by separating any stem with roots and the plants will have to be ultimately curbed unless one wants acres of it. Seed has never been set probably because only a single clone is present. We do have plans for attempting to cross it with *A. montana*.

RHODODENDRON YAKUSIMANUM

John Osborne, Westport, Conn.

Rhododendron metternichii var. *yakusimanum* — *s. ponticum s.s. caucasicum*, as the text books refer to it.

"YAK" as thousands of discriminating gardeners the world over speak of it.

A magnificent semi-dwarf species rhododendron. Hardy, with excellent form and foliage and superb indumentum. Flowers that open as shades of rose, turning a fresh pink and then the purest white.

It was first described by Mr. T. Nakai, professor of botany, at the University of Tokyo in 1921.

In 1934 two plants were sent by ship from Japan by Mr. Koichiro Wada to Mr. Lionel de Rothschild at his Exbury estates in England. They

were established there for some years until ultimately one plant went to the Royal Horticultural Society gardens at Wisley.

The "Wisley" plant was first exhibited at the great Chelsea show in 1947. A faultless mound, 2½ ft. in height and 3½ ft. across of dark green convex leaves beneath an almost solid canopy of fresh pink buds opening to pure white flowers. It was a sensation. The tens of thousands who visited the show that year were enthralled. It was immediately awarded the First Class Certificate by the R.H.S. and from then on became known as the "F.C.C." form.

The plant that remained at Exbury was exhibited at the Chelsea show in 1950 with equal success and is now known as the "Exbury" form. The two plants are almost identical but the "Exbury" form seems to flower more luxuriantly.

R. yakusimanum is found on the tiny mountainous island of Yaku Shima in the China sea, about 120 miles south of the Japanese mainland.

The mountains, highest of which is Mt. Miyanoura 7100 ft., are shrouded in clouds much of the time. There are large flat leaved forms found at timber line 4000-5000 ft. The "F.C.C." and the "Exbury" forms, with small convex leaves, are found above timber line, windswept and exposed to almost constant mist and heavy rains.

R. yakusimanum is an exceedingly variable species, probably more so than any in this genus. It can vary in height from 1 ft. to 4 ft. The leaf can vary from a small 3 inch convex one to a flat 6 inch leaf. The indumentum can vary from a heavy dark brown to a light tan.

As a species it flowers well, but again it will vary from plant to plant. Most plants will bud up heavily year after year while some plants are shy bloomers flowering sparsely only every other year or so.

There is some speculation that there are many natural hybrids between the low and high altitude plants.

So, this is a bit of the history of this great plant and the environment in which it is found.

R. yakusimanum might be expected to have all sorts of idiosyncrasies, being found only in such a very restricted area, but it has few.

It will tolerate a wide range of temperatures, from minus 25 degrees to over 100, but it will not tolerate drought. It prefers the close association of other plants of the same species. Single plants do not seem to do as well as plants grouped in this manner. With a heavy mulch of oak leaves, the moisture is retained and there is less likelihood of the plants drying out.

Perhaps an equally important function of renewing a mulch each fall is that it will not only retain moisture but will supply humus to the soil. This is a vital necessity for without this the plants will start to deteriorate after the humus in the soil is exhausted.

R. yakusimanum demands good drainage. An ideal bed is one that is dug to a depth of two feet, made of a light peaty soil — 50% coarse peat and the balance a mixture of sand and loam — on a gentle slope in high shade. It is well to have some protection from the early morning winter sun to avoid damage to the leaves.

If the bed is made properly there is no need for fertilizing. An annual mulching is all that is needed.

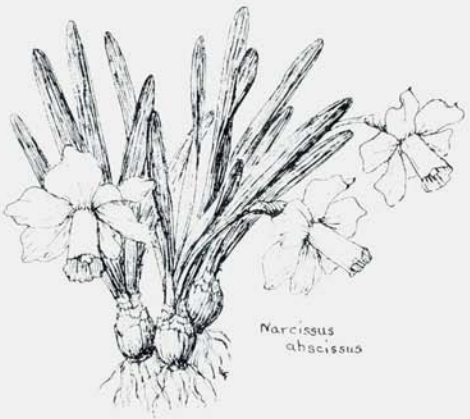
MINIATURE NARCISSI

George Lee, New Canaan, Conn.

George Lee is Executive Director of the American Daffodil Society. In recent decades, however, his principal horticultural interest has been in rhododendrons including, emphatically, those popularly called azaleas. In the Olive W. Lee Memorial Garden he grows virtually every rhododendron and azalea that is hardy north of New York. The garden is open to the public and is destined to remain so forever.

By definition of the American Daffodil Society a miniature daffodil is one which would be suitable for a small rock garden and the judgment is made by a committee of members which has so far named 25 species and about 100 hybrids as qualifying. The complete list may be obtained for two 13c stamps from the Society at 89 Chichester Road, New Canaan, Conn. 06840

For too long the horticultural world has accepted the premise that size is a measure of quality so far as daffodils are concerned and it was not until recently that growers of daffodils came to realize that there could be perfection on a small scale and that satisfaction and pleasure could be found in growing the less pretentious forms. As a result there is a growing tide of interest in this country in the smaller daffodils; special classes are provided for them at all daffodil shows with their own awards; and the demand for bulbs so far exceeds the supply that securing bulbs has become a real problem. On the other hand the hybridizing of daffodils began a century ago in the British Isles with the crossing of *N. poeticus* and various trumpet species and in the quest for greater size the appearance of any small forms was greeted with displeasure. Even now the Royal Horticultural Society and the amateur and commercial growers overseas give only grudging recognition to miniature daffodils in their shows and gardens and the same is true in New Zealand and Australia which have followed the British traditions. As a matter of fact recognition of the legitimacy of miniature daffodils first came, not from daffodil enthusiasts, but from rock gardeners, and the Bulletin of the Alpine Garden Society has carried many fine articles on the species.



Daffodil species (*narcissus*, botanically) grow mainly in the mountains bordering both sides of the western Mediterranean, but chiefly in Spain and Portugal. The habitats of the species tend to be hot in summer, cold in winter, sunny, dry, stony, poor, and inhospitable. While some of the small species can be a bit temperamental, as a rule the small garden varieties are less demanding than the larger hybrids, but they do have a culture of their own. None of them is more than two generations from its species ancestors and they are quite content with the lean, dry soil of their forebears. The exceptions are *N. cyclamineus* and all the European bulbocodiums which thrive in quite damp locations. All the rest, while they will tolerate ample moisture when in full growth, should be given a well-drained situation where the bulbs will receive a good baking during the summer. The trumpet and triandrus species enjoy a bit of shade, but the jonquils seem to need full sun.

Most of the miniatures have small bulbs, although there are exceptions, and the depth of planting should take into consideration the size of the bulb; for the smaller ones two inches is usually sufficient. Some forms have ideas of their own and are inclined to use their tractile roots to pull themselves to lower levels. To counteract this urge and to find the small bulbs for dividing, experienced gardeners plant the bulbs in plastic berry baskets or clay pots large enough to provide ample root run.

The miniatures offer a certain amount of challenge, especially the species. Some, like *N. canaliculatus*, increase rapidly but are reluctant to bloom; others, like the bulbocodiums, are fall and winter bloomers in nature and do not take kindly to our winters, although they can be flowered readily in coldframes. Some, like *N. cyclamineus*, are not long-lived, apparently increasing in the wild from seed rather than offsets; and a number, such as Tanagra, increase at a painfully slow rate. While failures may mingle with successes, there are certain to be plenty of the latter. Success will be assured if one starts with the hybrids and graduates to the species.

We have mentioned that securing bulbs can be a problem. While most bulb dealers will list a few species and varieties, there are only two sources which can be considered specialists: Broadleigh Gardens, Barr House, Bishops Hull, Taunton, Somerset, England; and Daffodil Mart, P.O. Box 112 North, Va. 23128. Each issues a catalog. Import permits are not required. Regardless of the supplier, bulbs of species are always dug in the wild by local entrepreneurs who engage in such activities. This introduces such difficulties as eventual extinction, correct identification, and immature bulbs, so it is suggested that purchasers buy sparingly of species and only of those still in good supply as evidenced by low prices. Better yet, grow the species from seed. The annual seed list of the Alpine Garden Society offers a large variety of seed, many of species the bulbs of which cannot be purchased under any circumstances. The 1976 list offered such rarities as *N. pseudonarcissus nevadensis*, *N. serotinus*, and *N. watieri*. Seed is easily germinated with ordinary rock garden practices; the only problem is that flowering will not occur for at least four years.

Among the long list of miniature hybrids the following are usually available and have been found satisfactory in most locations: Little Gem, Wee Bee, Little Beauty, W. P. Milner, Xit, April Tears, Hawera, Jumblie, Tete-a-Tete, Baby Moon, Bobbysoxer, Demure, Kidling, Lintie, and Sundial.

To sample the miniature species one might start with *NN. asturiensis* (often cataloged as *minimus*), *bulbocodium conspicuus, rupicola,* and *x tenuior. Asturiensis* is a small trumpet and usually the first daffodil of any kind to flower, by mid-March in southern Connecticut. *Rupicola* is a charming jonquil species with a very amiable disposition that always attracts attention. If it does well for you and you can locate bulbs, try the related *NN. scaberulus, watieri, juncifolius,* and *calciocola.* If you have a wet spot try *N. cyclamineus.*

The best collection of miniatures in the country — very nearly a complete collection — is in the garden of John R. Larus, 67 Wyndwood Road, West Hartford.

IN SEARCH OF *ACIPHYLLA*—1975-'76

James R. Le Comte, Ashburton, N.Z.

Jim Le Compte is a nurseryman. His researches into the flora of his native land are familiar to the readers of the Bulletin. He has also introduced to New Zealand some of the choicest American alpines. These he grows superlatively well, as those who saw his slides in Vancouver can testify.

Readers of 'In Search of Aciphylla' (July 75 installment) may remember a short reference made to deer hunting by helicopter in N.Z., and although this was only remotely related to the subject the paragraph was apparently all too short because considerable interest has been shown in this occupation which is unique to N.Z. and it has prompted me to explain it a little more fully. If some readers find an overemphasis on the use of helicopters, it is hoped they will overlook it this time in deference to all those who requested a clearer picture of the game hunting operation in N.Z. and how it assists botanizing.

Chamois, Thar, Fallow and Red deer were introduced into this country and liberated in the mountains. The climate, the great expanses of forest, the complete absence of predatory animals and the abundance of food were to their liking and all have thrived and multiplied — alarmingly! The larger Red deer could often be seen in mobs of around a hundred in the lush basins above 4,000 ft. and proved great sport for the hunters, and although this happy state of affairs was what the original introducers had hoped for, they hadn't bargained for the rapid increase of the animals and the hunters' inability to keep the numbers down; mainly because of the difficulty of access to the rugged mountainous country and because the forests proved very good hiding places for the Red deer. The great numbers of these animals soon upset the precarious balance of nature in the alpine areas; the close grazing caused erosion and the eating of bark off trees played havoc with the forests. The Government hired shooters to camp out in the mountains and shoot deer as fast as they could but even that failed to control their numbers.

The advent of helicopters to N.Z. and the ready markets overseas for venison spelt the doom of the big herds because now man could easily and quickly get to places he couldn't get before; and could fly along

above running deer that would be quickly out of sight and range of a man on foot.

A 'team' usually consists of the pilot, shooter, assistant and a truck driver; although no doubt this varies according to the area being shot over. The door is removed from the shooter's side of the helicopter and from that position a crackshot (most of them are) can account for a lot of deer with a semi-automatic rifle. The whole operation depends on the skill of the pilot who holds the machine steady near the deer or moves uphill, downhill or sideways to follow any animals that break away. By various means; depending on the steepness of the country; a man alights and secures a sling through the legs of the deer and hooks this to the underside of the hovering machine; scrambles back in; and off back to the base to drop the deer before returning for more.

As animals become scarcer the team moves on to another block of country and often camps out in backcountry huts; and it was to one of these campouts I was invited last autumn (1975). The hut where we camped was on the bank of the Matakitaki River which formed the northern boundary of the 400 square mile (approx) block of semi-forested mountains. The eastern boundary was the Spenser Mts. which form the Main Divide in that part of the chain.

Like many backcountry huts, this one comprised one small room with 4 bunks, a table, an open fireplace and 1 small window. Nobody had remembered to bring candles and the triumphant cry of one man who produced an old miner's lamp from his kit, quickly died when the batteries were found to be flat. He wasn't allowed to forget that for a while!

In order to have enough light to see by, it was essential to keep a good roaring fire going and that made the small room uncomfortably hot; but the window and door had to be kept tightly shut, for to open them would be to invite hordes of mosquitoes in.

Everybody was up very early next morning and the helicopter, which was parked alongside the hut, started up at first light and as the revs were built up it seemed certain the old building would collapse in a heap; indeed, every time the machine took off the hut door blew open and loose articles inside gyrated about.

The pilot found a hole in the early fog and we were soon above it and flying over dense forest towards the open tops where the writer was let off to botanize for a whole day while the others moved off to get on with the hunting.

The primary object of my trips is always to seek out *Aciphylla* species; identify them; assess their distribution, their stature, their flowering and other relevant details. Consulting the map, I found that I was on the Nardoo spur leading to Emily Peaks (6,830) and the area abounded with *A. colensoi*; a largish species with glaucous 24"-30" leaves and each segment of the leaf has a prominent orange central stripe. The leaves are numerous and together form a handsome symmetrical mound; but beware; each segment is tipped with a spine that is sharper than sharp. Some plants were in flower and the elongate 4 ft. inflorescences were orange-yellow and quite showy. In a good flowering year the sight would be wonderful.

The grade on this spur was very easy and underfoot was a thick mat or lush green Carpet Grass (*Chionochla australis*) that made for

soft footfalls for miles, so that the trip to the rocks of Emily Peaks was merely a stroll. It was around these rocks that the second *Aciphylla* species on this mountain was found; the small *A. monroi* which is a very popular plant with rock gardeners. The size according to habitat, varies from 2" to 6" across and from 2" to 5" high, while the frothy paniculate inflorescence tops the leaves by a few inches. It is worth noting here that the spelling of the specific name is *monroi*, not *munroi* as some overseas publications persist in spelling it.

This species is often confused with *A. similis* and past writers have said they are almost indistinguishable but plants of the two species taken from their respective type localities, are very different indeed. *A. monroi* usually has four pair of narrow segments that are set at an acute angle and therefore lie close to the rachis and are also angled upwards so that the leaf has a 'boat shape' about it; whereas the leaf of *A. similis* has five to eight pair of broader leaflets that are set at a much wider diverging angle to the rachis. The mature leaves usually have all their leaflets set on a flat plane. There are other points of difference but the foregoing are sufficient to clearly set the true-to-type species apart.

Of the several *Celmisia* species on the mountain, two have not been described in previous articles and the most notable of these is *C. allanii* which forms a loose mat of rosettes of small leaves that are covered on both sides with soft white hairs, giving the plant a grey-white appearance. It is an easy and rewarding garden plant, usually forming a much tighter and more handsome mound in cultivation. The other species was *C. lateralis var. villosa*, a rather sprawling plant of slender stems of up to 1 ft. long. Although it can be attractive when young it has the bad habit of having its tiny leaves only on the ultimate 1" or so of the stems; thus giving the plant a gawky appearance.

Small hummocks of one of the smaller Vegetable Sheep, *Raoulia bryoides* were present on and around the rocks; the writer has found this species to be the most tractable gardenwise.

About 7 p.m. the helicopter came for me and being the first back to the hut, I set about assisting with the evening meal for the others who would be out on the mountain for another 2 hours or so; shooting until dark.

The next day was spent on a mountain nearby Emily Peaks and the only different item found was an interesting hybrid between the large *A. colensoi* and the tiny *A. monroi*. This plant is now flourishing in a pot.

Several weeks later a message was received to say that the helicopter would be working on a mountain that was high on my priority list because a new and very tiny species of *Aciphylla* had been found there four or five years previously and at that time a plant was growing in the writer's garden but has since departed. The team, who were shooting deer en route to the rendezvous, had a bit of bad luck; such as hovering too close to a large tree on a steep hillside while recovering a deer, and trimmed 3" off the tips of the main rotors. If the writer had been in the machine at the time he might never have ventured aloft again! This new *Aciphylla* still awaits rediscovery — maybe next year.

Aciphylla 'Mt. Hutt' (Page 139, July Bulletin) now occupied all the attention and it was tough to give up the luxury of mechanized travel

and go back to footslogging. Dr. John Dawson had tentatively suggested that the Mt. Hutt plant could be conspecific with a plant collected in the Rangitata Gorge area in 1869 by J. F. Armstrong. The description of this plant was published in 1871 but was completely ignored by future botanical writers until 1955 when W. R. B. Oliver, in 'The Genus Aciphylla', gave it one line as he casually tossed it into *A. lyallii*. Plants collected last year from the Rangitata area are clearly conspecific with those on Mt. Hutt which is only a few miles north, and both collections agree in every respect with Armstrong's type specimen, now in the Herbarium of the Department of Scientific and Industrial Research (D.S.I.R.) Lincoln. Therefore the name *Aciphylla montana* J. F. Armstrong, lives again and the species has been lifted clear of *A. lyallii*. What a pity that it took 104 years for a species to be recognized!!

Mt. Hutt appears to be the most northern limit of *A. montana* but its southern limit is not determined as yet; certain views are entertained and can perhaps be proven (or otherwise) next season. It is known to be plentiful in the Mt. Cook National Park where it has been erroneously known as *A. similis*; and it is suspected that it goes a long way further south.

The West Coast friends were once again allocated the same 400 square mile block of country to shoot over for the month of Feb. this year and once again the typical Coast hospitality was extended to the writer. I was invited to stay with the shooter because the southern end of the block was being worked and camping out was not necessary. The arrival in the late afternoon was timely, for there was time to eat and change before the truck arrived to take us for the evening shoot. The pad, or base was at Marble Hill near Springs Junction, not many miles from Lewis Pass; and rising above us was Mt. Mueller (5,340) on which I found myself at 7-10 p.m. *Celmisia traversii* was everywhere; growing very lushly but only a few in flower. This is a beautifully foliaged species for those who have a semi-shady moist spot; the broad green leaves are attractively edged with brown 'fur' and the undersides are basically buff with more of the brown hairs spread more thinly. The leaf petioles, flower stems and bracts are covered with the same brown 'fur'; quite a setting for the large white daisies. *C. traversii* prefers the damper and usually the shadier side of the mountains. Just to give the right effect, the large silvery rosettes of *Celmisia coriacea* were liberally dotted among the *C. traversii*.

Aciphylla colensoi was the prominent large species on Mt. Mueller; indeed it is everywhere in the area and masses of the small *A. similis* grew around rock outcrops and in short grass. Many were in flower but unfortunately too early for seed. The interesting fact that now emerged was that this spot was approx. 18 miles south of Emily Peaks where *A. monroi* had been collected last Feb., and this was to become more interesting in the next 2 days.

It is quite common in the mountains to be visited or accompanied by several Keas; large N.Z. native mountain parrots with olive green plumage but brilliant colors under the wings. They are very curious birds and will land nearby and waddle or hop to within a few feet of a stationary human; and often perhaps a dozen birds will form a circle which can

be quite disconcerting to those unfamiliar with the birds, as they have rather wicked looking, and very powerful hooked beaks. When one is walking the Keas will follow; wheeling overhead and screeching their shrill 'Keee-ah' from whence they get their name.

It was almost dark when lights of the helicopter were seen far below as it returned to base with a load of deer and a few minutes later it was lifting off in my direction. A couple of quick flashes from my torch showed the pilot where I was and he landed right beside me in what was now almost complete darkness. Two or three minutes later we were back on the ground at base. What a way to travel!!

Next morning saw us up before daylight and still trying to gulp breakfast when the truck arrived so that before 6 a.m. I was on an unnamed range a few miles north of Mt. Mueller, on a spur at about 5,400 ft. Here were literally thousands of *C. traversii* and quite a lot of *C. sessiliflora* so that it was not unexpected that one should find a hybrid between the two. A real charming hybrid it was too; leaves twice as long as those of *C. sessiliflora* with a 'shading' of brown hairs particularly near the centre of the rosette. A really delightful plant for the garden.

The *A. colensoi* were in flower and yellow 4 ft. inflorscences made a spectacular sight. Many other plants too numerous to mention flourished on this spur and it would have been great to have spent more time there but 45 minutes after landing, the helicopter returned and whisked me off to the rocky tops at almost 6,000 ft.

The soft grey-green domes of *Pygmaea ciliolata* were plentiful on the fellfield and they blended well with the background, while below the crags *Aciphylla similis* was found again, but on this range they were much smaller and more compact. After about an hour in this area I was picked up and deposited a mile or so away on the saddle at the head of the Glenroy River. The mountainsides down from the saddle to the river were steep and densely clothed in vegetation; the predominant plant being *A. similis* in a very tight compact form and with quite small leaves. Apart from size, these plants still retained the main characteristics of the type.

Down in the very narrow river valley was a very different scene; the banks and ledges on each side of the swiftly descending, hurtling, splashing river were liberally covered with many of the moisture loving plants. The yellow *Senecio lyallii* made bold splashes of color and plants of the lovely white *Senecio scorzoneroides* were in great abundance, interspersed with the soft yellow hybrid that almost always occurs where the two species are found together. SS. *lyallii* and scorzoneroides have 8-10" straplike leaves and long stems of 18"-24" that are branched near the top and carry many yellow or white daisies; often forming a mass of flowers up to a foot across on one stem. They are plants of wet places and do not seem to do well in gardens; they live but don't flourish. *Anisotome haastii* grew lushly here; its attractive feathery foliage topped by the 12" stems with myriads of tiny white flowers making a frothy appearance.

The conditions for botanizing were perfect but unfortunately time was short because the gorge was too narrow for the helicopter that might return anytime and so it was a case of making haste to follow the cascading river down to more open areas.

What a wonderful morning; three mountain areas visited and back

at base by 12:30 p.m.!

The range of which Mt. Cann (5,535) is the highest point was to be the target next day and this range runs North-South, rising steeply out of dense forest all around, making quite a barrier for anyone wanting to approach it on foot. It is a razor-back type of range with steep jagged peaks jutting up all along — rather like trying to walk along the teeth of a giant saw blade. Instead of dropping me off before going hunting as was the usual practice, they treated me to a grand tour of the range; flying along above the bushline in and out all the valleys until the end of the range was reached and so back along the other side. Of course the inevitable happened; several deer were sighted and it was rather maddening to sit there with a close up grandstand view while the camera was in the pack lashed onto the rack outside; and I wasn't going to climb out and get it!

After that episode I was landed on the tops with the not too flattering comment that the extra weight cut down maneuverability. The masses of *A. colensoi* on this range made the going rather unpleasant for it was impossible to walk without having the legs spiked and the barer ridges were so narrow and steep that one would need to be a mountain goat to negotiate them. Mt. Cann range is apparently the most northern limit of *A. similis* but the species is scarcely recognizable as such — it is very close to *A. monroi* in appearance in this locality. The range lies about 4-5 miles due west of Emily Peaks (where grows *A. monroi*) and is separated from it by the valley of the Glenroy River. The sighting of *A. similis* here was new information and because of its appearance one is tempted to conclude that the two are diverging species from a common ancestor, but this thought does not substantiate the claim of those who refer to the two species as almost inseparable because their observations were made with material from the type localities where they are quite different and easily separated and identified. On one small peak *A. aurea* was encountered, or rather a form of it. This form is only 8"-9" high and has much shorter stipules, but is still the same bronzy-green as the larger type. No flowers were present.

About midday ominous clouds started to come over the Lewis Pass from the Canterbury side of the Ranges and a chill wind sprang up; all of which meant a change of weather so it was quite a relief to be collected soon after. En route to base we flew over Lake Daniels, set like a blue jewel among the dark green of the forested mountains, and fishermen could be seen far below around the shores and some in a small boat. Only the eager ones fish Lake Daniels for there is no road access, only a walking track.

The deterioration in the weather continued and it was obvious that flying was off for some days, which was disappointing because the next day the Faerie Queen (7,338), highest point on the Spenser Mts. was to have been visited.

It had been a wonderful 3 days and botany has much to thank these men for, because much new information has been gained due to their generosity in taking me to otherwise unbotanized places. Personally I am very grateful for the opportunities placed before me and wish that a greater, all encompassing knowledge of the flora was mine so that I could do greater justice to them.

At the end of March Dr. John Dawson and I set off for the southern mountains of the South Island to try and resolve some of the anomalies there. The first stop was Fairlie where we stayed with good friends who took us to the Round Hill Skifield at Tekapo. On a previous visit there my curiosity had been aroused by an *Aciphylla* growing in dampish places that appeared to agree with *A. subflabellata* in almost every respect, but that species is a dryland, lowland plant. It was important that John, who is a taxonomist, should see it. Information has it that the Round Hill plant was the subject for illustrations and description of *A. squarrosa* in a recent book but the plant may yet be designated as a wetland variety of *A. subflabellata.*

Here also were plenty of *A. gracilis* (July 75 Bulletin) which may be reduced to varietal status, and high on the rocky tops at over 6,500 ft. were masses of *A. dobsonii* with not a sign of flowering on the latter.

It is perhaps worth mentioning here that *A. dobsonii* and *A. simplex* (P. 113 July 73 Bulletin) are, in the writer's opinion, in a small group of 3; the other being the very localized *A. leighii* of the Darran Range in Fiordland. All are very similar in that they have very short hard leaves; very bronzy in color and all form hard hummocks of rosettes packed tightly together. Most important from the gardener's point of view is that *A. A. dobsonii* and *simplex* are very difficult to propagate and maintain in cultivation from cuttings or collected plants. All other species tried by the writer respond quickly from rosette cuttings and form good strong root systems whereas the *dobsonii* group make only short, weak white roots that will not sustain the plants in general cultivation. They never seem to develop the thick taproot that they have in nature that is so needed to get down to moisture in dry times. Surely the answer lies in growing these species from seed; slow admittedly; but probably much more successfully because the formation of a taproot by a seedling should be its natural heritage. Seed of *A. simplex* will be available in the next lists of the various societies. Don't tip out the seed pan too quickly — it can take 2 years to germinate. The foregoing notes do not necessarily apply to *A. leighii* because only very scanty material has ever been collected of it; so formidable is its habitat. The writer would need to be a lot younger to collect living material or seed of this species but from what has been seen of herbarium sheets, it would be a very desirable little plant indeed. The bronzy leaves are not more than 2" long and the tips are blunt!! If only my helicopter friends operated in that area!

Next destination was the Old Man Range in Central Otago to look more closely at the *A. hectori* complex and it was hoped to collect plants and seed of *A. pinnatifida.* The top of this range is mostly negotiable lengthwise by 4 wheel drive vehicles but is liberally sprinkled with soggy peat bogs and to follow the 'track' through them was to court disaster. Numerous detours have been formed and even these have become churned up and in one of them the Land Rover sank. Feverish digging, jacking up, placing flat rocks under wheels etc., failed to extricate the vehicle and with only 1 hour of daylight left the decision had to be made whether to keep trying or walk out for help. To keep trying and fail would mean staying the night and this could be very dicey because it was raining by now and blowing a very cold wind. The walk out wasn't all that appealing either; 15 miles of mountain track and a descent of 5,000 ft;

at least 2 hours of it in the dark. But the latter was the obvious survival choice and 3-1/4 hours later, soaked and frozen we knocked on the door of a farmhouse where we were given food and numerous cups of scalding hot tea.

The next morning we sought and were given the help of a very friendly and co-operative Government Department. Two cheerful men with a Land Rover took us up the mountain again and because we knew they secretly thought us fairly dumb for getting bogged, it was somehow a relief to us when their vehicle sank in a bog we had successfully traversed the previous day. The right equipment wasn't lacking and their Rover was soon winched out and it later pulled out our vehicle easily. As it was still raining and cold, the *Aciphyllas* were left to fend for themselves and we got out of that area fast but not before a good stand of *A. simplex* was visited. Here was one species that had flowered well this season and, despite the soaking rain, a quantity of seed was collected. To those who obtain this seed from the lists; a word of advice; sow it carefully and say a few words over it because it took a lot of getting!

The next day's botanizing did not yield anything interesting but the following day saw us high up the Remarkables — an aptly named Range by Lake Wakatipu. Here we sought 2 species in particular; *A. kirkii* which neither of us had seen live material of, and the plant known locally in the south as *A. similis* (erroneously) which had been collected elsewhere some years ago and grows in the writer's garden. It was one of those good days; we found both of them growing side by side and also *A. simplex* but none had flowered, unfortunately.

It was important to study *A. kirkii* in the field because several very doubtful plants had been identified as such by earlier collectors. There is a fair sort of a mixup in the *A. hectori* group, some plants being much larger than the type and often being identified as *A. kirkii.* Almost all descriptions of *A. kirkii* in manuals and Floras are apparently made from the original collected material (1887) that arrived at its destination fragmented and dessicated so that leaf color is given as brown or yellow-brown — such is the color of the dead leaves. Up to date and including recent works, no mention is made of the quite glaucous color of the leaves that are one- to five- foliolate, very hard and stiff, 5 to 8" long (above ground), up to ½" broad and abruptly narrowed to a short sharp tip. The plant makes a rosette up to 10" or 12" across and in that particular locality it favors the East to N.E. side of rock outcrops and nestles in at the base of them where it would seem to be protected from excessive wet. No flowers were present but old stems showed they are of the elongate type. *A. kirkii* would be an acceptable addition to the 'not too small' rock garden.

It was a great pity that the so-called *A. 'similis'* — from now on designated as *A. 'Otago'* to avoid confusion — was not in flower because if it had been John could describe and name it with finality. A plant of high places, forming cushions, hummocks or mats of neat rosettes on rock outcrops and preferring crevices. The leaves almost invariably have 4 pairs of leaflets plus the terminal one, are good green color and the rosettes are very neat and symmetrical. From a poor blooming in cultivation some years ago, the inflorescence was thought to be elongate but a friend

showed us a color slide of the plant in flower and it is clearly paniculate so that the confusion with *A. similis* now appears understandable. It is sincerely hoped that it will flower well this next season. *A. 'Otago'* is an excellent garden plant, growing 5"-6" high by about 6" wide, and if it likes you, will form side rosettes thus eventually forming a mound.

Several other mountains were climbed and/or driven over; lots of *Aciphyllas* were studied, photographed and recorded; most of which have already been mentioned in this series of articles. One cannot always have the fun of studying new or different species; there is always the work of recording the distribution of all the species and studying them for variations of size and growth, type of leaf, size of inflorescence etc. etc. Specimens are taken of plants from most localities for pressing, so that an 8 or 9 day trip can result in voluminous notes and heaps of specimens all of which means lots more work later; mostly for John.

Given a good flowering of *Aciphylla* in the wild, next summer's trip should resolve most of the outstanding anomalies in the south of the South Island and the completed revision of the genus should not be far away then.

A listing of the species according to garden merit along with a brief discussion of individual virtues or vices of each would seem to be the next appropriate step and if the Editor has space to spare in the not too distant future an article of this nature could be done.

(continued from page 115)

The forms of *Pieris japonica* root with ease but for the first two years one must beware of bark-splitting with spring. A cold but frost-free greenhouse would help, but I don't have one.

Rhododendrons and some dwarf hemlocks inserted in August will often root before winter, but in the case of rhododendrons the new roots are not always winter-hardy. A rooted cutting that has lost its roots will sometimes root again, but with the loss of a year's growth. Here again a cool greenhouse would be useful.

Fall-set rhododendrons and dwarf conifers usually root the following June.

A dying plant can usually be regenerated by cuttings. What a pity we can't do the same thing with ourselves! There is only one recorded case of human asexual reproduction, and that case rests on the highest authority even though it is atypical. When the Great Gardener took a cutting from Adam he got Eve. When I root a rib of a male holly all I get is another male holly — no berries.

Finally — all rockgardeners should possess and study L. D. Hill's *The Propagation of Alpines*, now happily available once more from Theophrastus Press (the Nearing frame makes some of Hill's complicated techniques unnecessary, but the book is a mine of useful information), and Hartman and Kester, *Plant Propagation and Practices*, Second Edition, Prentice-Hall, 1968.

GERTRUDE JEKYLL AND WILLIAM ROBINSON

Elizabeth C. Hall, Senior Librarian, The Horticultural Society of New York

Gertrude Jekyll and William Robinson were two dynamic and delightfully eccentric persons who probably did most to change the appearance of British gardens in the latter part of the nineteenth century and the early twentieth. Robinson is best known for his battle against the formal bedding-plants and the greenhouse exotics that were so beloved by the Victonians and Edwardians and for his writings on natural and wild gardens. He predated Reginald Farrer by thirty-seven years with his revolutionary approach to alpine gardening when he published his *Alpine Flowers for English Gardens* in 1870. Robinson's style of writing was more down-to-earth and less flamboyant than that of Farrer and although Farrer is venerated by his ardent followers who call him the *Father of English rock gardening*, surely, William Robinson should be named the *Grandfather.*

Gertrude Jakyll was a close friend and ally of Robinson, although they led a fascinating cat-and-dog existence. What a contrast and conflict of personalities and backgrounds — he, who was known as "that irascible, pugnacious Irishman, with none of the advantages of aristocratic birth or education but with a force of determination, imagination and enthusiasm, and she, of a well-to-do family in whose circle were Ruskin, Dickens, Thackeray, and Mendelssohn-Bartholody, she, who had heard Jennie Lind at Covent Garden, who had attended Whistler's first exhibition, she who had travelled and studied in Paris and Rome. She it was who eventually became a staunch supporter of William Robinson and who was hailed by the horticultural fraternity as "England's Grande Dame of Gardening."

Gertrude Jekyll was more of a gardener than a botanist and possibly more of an artist than either. She had a critical eye for a plant and the use to which it could be applied and she made use of colors in a garden as an artist paints on his canvas. Her pen was seldom at rest and in her heyday her books rattled off the presses, almost one a year. Her writings have a lasting appeal not only for their artistry but for their practical suggestions. The illustrations in her books were from her photographs which she developed and printed in her own dark room.

When she was four and a half years old her family moved from London to a country estate in Surrey. She had at that time a governess with a love and knowledge of native flowers and ferns who took little Gertrude on daily walks in search of new plants. Rev. C. A. John's *Flowers of the Fields* was their guide and it was this little English classic that is still popular today with British amateur botanists.

In her early life Miss Jekyll's great desire was to become a painter and she did attain some success in this field of art, for she was commissioned to do the portraits of several members of the Royal family. However, towards the middle of her life a progressive myopia compelled her to abandon her painting and she turned her energies and talents to gardening. She saw the possibilities of garden design as a fine art and before she was forty she had written a chapter on color in the flower garden for William Robinson's *English Flower Garden.* Later she expanded some of her articles that had appeared in the *Edinburgh Review* and the *Manchester Guardian* and in other journals into a book entitled *Wood and Garden.*

This was followed by *Home and Garden, Lilies for English Gardens, Wall and Water Gardens* and numerous others. These works were of such literary quality that one of the reviewers referred to her as the Wordsworth and George Eliot of the garden.

Miss Jekyll's gardening suggestions and advice were sought from all over the country. She made plans for Cecil Rhodes' estate in South Africa. Her recommendations were followed by The Royal Horticultural Society for its gardens at Wisley. Her ideas were carried out at Windsor Great Park, at the Savill Gardens, at Nymans, and at Bodnant in Wales. She was called to design the interiors of the Duke of Westminster's Eaton Hall. In 1881 she was asked to judge at the Botanic Show, the precursor of the Chelsea Show. Her great services to gardening were recognized by The Royal Horticultural Society when it bestowed on her in 1897 the Victoria Medal of Honor and in 1922 the Veitch Memorial Gold Medal. In the United States, her writings were very popular, especially among the members of The Garden Club of America. She corresponded with Mrs. Francis King and wrote the preface to Mrs. King's *The Garden Day by Day*.

It was said that no one except the Creator had done more to beautify the face of England than Gertrude Jekyll. She said with typical frankness that she liked doing big gardens — they paid better — but it was really the small cottage gardens and their owners that she loved. She wrote "the garden should fit its master or his tastes just as his clothes do — just comfortable — not too big nor too small." The ways and the language and the folk-lore of the villagers fascinated her. Her book *Old West Surrey* embodies recollections of bygone country customs and is a storehouse of old English lore.

In her own garden at *Munstead Wood* she grew a great diversity of plants and she developed by intelligent selection the famous Munstead strain of *Polyanthus*. To this garden came the stars of the horticultural firmament — Dean Ellacombe who had written *In a Gloucestershire Garden* and *The Plant Lore and Gardencraft of Shakespeare*, George Maw of crocus fame, Ellen Willmott who had produced the magnificent folios on the genus *Rosa*, Mrs. Maria Theresa Earle, whose *Pot-Pourri from a Surrey Garden* had become a great favorite, Countess von Arnim, author of *Elizabeth and Her German Garden*, old Shirley Hibberd, an authority on the ivy, E. A. Bowles, a connoisseur of rare garden plants and the author of several delightful gardening books, Dean Samuel Reynolds Hole whose *Book About Roses* is now a collector's item, Henry John Elwes, of great renown for his monumental work on the lily, and, of course — William Robinson who will occupy the second half of my article.

Gerturde Jekyll thoroughly enjoyed the companionship of men. However, her biographers have failed to find evidence of any romance. She once wrote "I was always strong and active in my limbs and in many ways more like a boy than a girl. I loved to climb trees and play cricket." But — two men in particular did play a prominent part in her life— William Robinson and Edwin Lutyens who later became Sir Edwin. Lutyens, who began his career as a young struggling architect, was twenty-six years Miss Jekyll's junior. In his *Memoirs* he wrote "Gertrude Jekyll and I met at a tea-table, the silver kettle and the conversation reflecting rhododen-

drons. She was dressed in her go-to-meeting frock, a bunch of cloaked propriety, topped by a felt hat turned down in front and up behind from which sprang an alert black cock's tail-feather curving and ever prancing forwards. She invited me to 'Munstead Wood' and the very next Saturday on the tick of four I was received by a somewhat different person, dressed in a short blue skirt that in no way hid her ankles and with her garden boots, made famous by their portraiture by the artist William Nicholson; a blue linen apron with its marsupial pocket full of horticultural impedimenta." This was the beginning of a long acquaintance and partnership. Lutyens and Jekyll worked together — he, the talented, creative architect, she, his mentor and advisor. She introduced him to a close friend of hers, Princess Louise, a daughter of Queen Victoria, and this led to a recognition of Lutyen's work by an influential group of supporters. Years later when Miss Jekyll heard that Sir Edwin had been asked to design the Cathedral in Liverpool, she exclaimed with her ever ready wit; "How things are evened up — a good Church of Englander is to do a Catholic cathedral and years ago our great St. Paul's was built by a Roman Catholic."

When Lutyens was planning Miss Jekyll's new home, she told him: "My house is to be built for me to live in and love. It is not to be built as an exposition of architectonic inutility." She used to invite her men guests for a week-end as follows: "You are coming to a cottage with the very simplest ways — *no* evening clothes are allowed — only your barest necessities in a small bag." To the favored few she was a charming hostess. Her aptitude knew no limits. She could toss an omelette, brew Turkish coffee and make elderberry wine as easily as she once turned her nimble fingers to wood carving and work in silver. She designed her own garden tools and had them made up by the local blacksmith. One visitor came away from his visit and exclaimed: "She has the energy of an ant and the perserverance of a spider."

She was a favorite with the children of the village who called her "Aunt Bumps" because she was sort of dumpy. In her book *Children and Gardens* is an unforgetable account of the garden tea party that she gave for her little niece. On a special low table were plates of fishes and saucers of cream for her six cats and three kittens.

During World War I Miss Jekyll collected sphagnum moss for the doctors at the Front, she contributed fruit and vegetables to the military hospitals and she entertained the Canadian soldiers stationed at a nearby camp.

Gertrude Jekyll was a pioneer spirit long before women had claimed their present independence in the arts, professions, trades, and sports. She quietly and firmly established her right to self-expression. She was mostly gentle but she could be fierce. She did not suffer fools gladly but to her friends she was a perennial delight. She loved intelligent visiting gardeners but found the gushing ones particularly difficult to deal with. She was deeply, but unfussily religious. She once said "Forgive us our Christmas as we forgive those who Christmas against us." This remark pertained to her being supremely irritated by the sending of numerous cards to people for whom she felt no affection and hardly knew and vice versa.

At eight-eight, shortly before she died which was on December 8, 1932, she was revising for a new edition her *Wall and Water Gardens*

and she wrote "The amount of new materials for garden use which is being sent in by plant collectors from all over the world is bewildering in its abundance. It is for us to employ it worthily — to study these plants and their needs."

And now let us turn our attention to William Robinson, the other important man in Gertrude Jekyll's life. It was in January 1875 that Miss Jekyll called at the office of Mr. Robinson and was asked to join his staff of horticultural contributors for his magazine *The Garden*. A few months later, Dean Hole brought Robinson to visit the garden at "Munstead Wood" and it was here in the person of Gertrude Jekyll that Robinson found an enthusiastic collaborator in his campaign against shams and gardening artificialities. Their friendship was to last well over fifty years.

Robinson started his horticultural career in Ireland as a garden-boy to Sir Hunt-Jackson Walsh, the Vicar of Stradbally. One winter night, so the legendary story goes, there was some violent disagreement between the head gardener and the Robinson boy, who, in a violent temper, put out all the fires in the greenhouse, opened all the windows and walked several miles to Dublin in the dead of the night. By dawn, the whole collection of tropical plants was dead or dying. Robinson fled to London and managed to get a job at the Royal Botanic Society's Gardens in Regent's Park, at a wage of seven shillings a week. His immediate duties were to scour the countryside and make a collection of plants for a native plant garden. In the course of time he became foreman of the herbaceous department of the Park and it was here that he developed a keen interest in hardy plants in contrast to the "outlandish" greenhouse exotics that he had left behind in Ireland. He later recalled how hideous he had found, when he first came to England, the grand formal gardens and that he got inspriation from the small, unspoilt cottage gardens. He began writing about plants and gardens while he was at Regent's Park and in 1867 he accepted an appointment of horticultural correspondent for *The Times*. His immediate assignment was to cover the Paris Exhibition and to contribute articles on any matter of gardening interest that might come to his attention while in France. This was the real starting point of Robinson's writing career. The book that he published on his return from France was a fine achievement entitled *The Parks and Gardens of Paris*. One half of the work was devoted to general horticulture and the other half to the cultivation of vegetables and fruits, especially the wall and espalier training at which the French excelled. This book was copiously illustrated with woodcuts, a method to which he clung so tenaciously in his publications. Although chronologically this was Robinson's first important book, it had minor predecessors in a pamphlet called *Gleanings from French Gardens* and another on the culture of mushrooms. There followed *The Subtropical Garden* and *Alpine Flowers for English Gardens*. The latter title resulted from a tour he had made through the French Alps and from his travels in the American Rockies. He was entranced with our phloxes, penstemons, and eriogonums. With this book he endeavored to dispel the error that the exquisite flowers of alpine regions could not be grown in English gardens.

A little book on hardy plants came next and it is interesting to note that here we find the first stages of his subsequent development of the

herbaceous border. *The Wild Garden* which appeared in 1870 was the first of his books to be illustrated by Alfred Parsons.

For nine years after these books appeared Robinson reigned as a journalist and editor. These years saw the birth of *The Garden* (1871) and *Gardening Illustrated* (1879) — periodicals popular with the British amateur gardener. He now became established on a firm financial footing that enabled him to turn to the writing of *God's Acre Beautiful* (1880) in which he sought to show how cemeteries might be made less depressing by bringing something of the garden element into them. A cheaper edition of this book which had a vogue in the United States was issued under the title *Cremations and Urn Burial.*

Whether his reputation as an author will rest on *The English Garden* which came next in order in 1883 is a matter of opinion but few gardening books have made a wider appeal or called for more frequent re-issues and editions. He launched another weekly paper *Farm and Home* followed by *Woods and Forests* and *Cottage Gardening.* The last of his journalistic efforts was the production in 1903 of *Flora and Sylva,* a monthly that was a landmark in illustrated gardening journalism. It boasted the finest grade of paper combined with lithography and chromolithography of a high order. In this magazine Robinson portrayed and discussed hardy trees, shrubs and flowers. Unfortunately it lasted only two years.

A little book that exploded like a bombshell was his *Garden Design and Architects' Gardens* written in 1892 in which he scathingly reviewed Reginald Blomfield's *The Formal Garden in England* and John D. Sedding's *Garden-craft Old and New.* Blomfield had asserted that formal gardening was the only form of gardening worthy of consideration and that the architects of the house were the logical designers of its gardens. Robinson maintained that architects had too little acquaintance with the requirements of plant life to assume any part of the design. He did allow that formality was essential to the plan of a garden but never should it be applied to the arrangement of flowers, shrubs, and trees. His remarks concerning the intelligence of John Sedding were not complimentary.

From 1885 until his death at 96 in 1935 Robinson lived at his Gravetye Manor in Sussex. True to his cause he developed from an old neglected manor house with more than a thousand acres one of the loveliest kinds of gardens. He would have no greenhouse or glass of anv kind. The broad expanse of valley between house and ponds he planted with drifts of naturalized bulbs. His stone walls were covered with vines or planted with hardy specimens, for beauty to his mind depended upon the preponderance of nature over man-made objects. Restraint of any kind was obnoxious to him and topiary work was one of his particular aversions. The joy of his place led him to write *The Garden Beautiful* and *Home Woods and Home Landscapes.* Later he produced a very elaborate volume which was an account of his own place embellished with many illustrations. This book he called *Home Landscapes.* He published in 1911 an abbreviated diary entitled *Gravetye Manor,* a beautiful work much prized by horticultural bibliophiles. This is a fascinating account of his daily chores and problems, all of which were an important part of the second half of his life. We read that in 1889 he planted 150 American hardy *Rhododendron catawbiense* and bought one thousand Cedars of Lebanon. His smoky fireplaces gave him trouble

so he imported "fumistes" from France to install new chimneys. He then wrote a clever tome *Wood Fires* in which he extolled the superior chimneys of the French and wrote a practical guide on the building of hearths for burning wood logs as he had them made at Gravetye.

At one time he maintained a dairy and he named his heifers after his favorite flowers — Primrose, Meadow-sweet, Violet, Marsh-marigold, Pansy, Jonquil, Daffodil, etc. However, in 1897 he gave up farming and turned his attention to the planting of 100,000 Narcissus.

There were more books from his pen. Well received was his *Virgin's Bower*, a book on the clematis. Occasionally he wrote a few booklets that were not directly on horticultural subjects — *Humours of the Country* and *Les Semaines Francaises*. He was author, printer and publisher rolled into one. He even found time to revise, translate or reissue standard gardening books that were not his own, such as Jane Loudon's *Amateur Gardener's Calendar*, John Loudon's *The Horticulturist*, Vilmorin's *Les Plantes Potageres*. He financed the publication of Shaw's *London Market Gardens*, Miller's *Dictionary of Plant Names* and Baines' *Greenhouse and Stove Plants*.

Of his friends, few were admitted to anything approaching intimacy. He was always reticent about himself and his affairs and yet he was recognized as a horticultural authority and was elected a Senior Fellow of the Linnean Society having as one of his proposers Charles Darwin. In 1916 the trustees of the Massachusetts Horticultural Socitey awarded to him the George Robert White Medal for eminent service in the advancement of horticulture. He was a great leader in the movement towards a higher form of gardening and he used the printed word as his powerful and eloquent weapon. He was an innovator — his name is linked with the introduction of the harbaceous border and he was really the first to show that Alpine plants might be properly cultivated in well-developed rock gardens. Perhaps his most important lasting contribution was his conception of the wild garden in which every plant should be vigorous enough not to require the care of the cultivator.

As a man William Robinson must have been a curious character. It has been said that he had an unhappy love affair in his younger days. In all the years that he lived at Gravetye no lady was allowed to cross his threshold. Even Gertrude Jekyll, who visited his garden frequently, was given tea in the summer house and if the weather became inclement a message was sent to postpone her trip on the pretext that they could not walk and enjoy the garden on a rainy day.

Sir Edwin Lutyens was not enthusiastic about Robinson. He once said: "His conversation is wayward and he contradicts himself every two minutes." Cannon Ellacombe added "I give up trying to get his twist right." There were quarrels with Henry Elwes about lilies and with George Maw concerning crocuses. He kept a persistent battle with the gentle director of Kew, Sir Joseph Hooker on the subject of labelling plants with Latin names and he angered his nearby village neighbors when he bought his manor house, Gravetye, in a needless fuss over a right-of-way. He had intermittent battles with Gertrude Jekyll yet, although he was confined to a wheel chair, owing to a paralysis of his legs, he travelled at the age of ninety four, thirty miles by road in December to be present at her funeral. In his journalistic work he did gather around him a group of able gardeners and writers,

not all of whom were in sympathy with him but were all united in the desire to encourage and help the amateur gardener.

William Robinson and Gertrude Jekyll both lived over a similar period of time. They both stimulated enthusiasm that extended to the owners of small suburban back-yards. One biographer went so far as to regret that nothing more fruitful developed between them — "had their association become more than friendship, what a race of gardening giants might have sprung from their union."

Robinson died May 12, 1935 in his ninety seventh year. His will, a fascinating document, in every line a preciseness, determination and pugnacity, and yet, a thoughtful generosity. His instructions were specific — the house with flower garden and stables were to be let and the rent used for the upkeep of the property and for the purpose of the State Forestry. (The manor house is at the present time run as a charming hotel). He also stated in his will that the house and immediate gardens were not to be used for the purpose of lectures, research, or technical instruction — "the trees, woods and landscape shall be the only teachers." His journals, his books and his shrewd investments had brought him a substantial return. Although he began life as a penniless lad he amassed a fortune of well nigh to 100,000 pounds. He left generous amounts to his indoor and outdoor servants, and to his head gardener, Ernest Markham a thousand pounds.

In the very near future Mr. Haworth-Booth is to produce a full biography of William Robinson. If you wish to learn more about Gertrude Jekyll, do read Betty Massingham's *Miss Jekyll: Portrait of a Great Gardener* and *Gertrude Jekyll:* a Memoir by her nephew Francis Jekyll.

PUBLICATIONS OF GERTRUDE JEKYLL

Annuals and Biennials
Children and Gardens
Colour in the Flower Garden
Colour Schemes in the Flower Garden
Flower Decoration in the House
Garden Ornament (with Christopher Hussey)
Gardener's Testament; a Selection of Articles and Notes; ed. by Francis Jekyll and G. C. Taylor
Gardens for Small Country Houses (with Lawrence Weaver)
Home and Garden
Lilies for English Gardens
Old English Household Life
Old West Surrey
On Gardening (Selections from ten of Miss Jekyll's books)
Roses for English Gardens (with Edward Mawley)
Some English Gardens
Wald und Garten
Wall and Water Gardens
Wall, Water and Woodland Gardens including the Rock Garden and the Heath Garden
Wood and Garden

JEKYLL BIOGRAPHIES

Gertrude Jekyll: a Memoir by Francis Jekyll. 1934.
Miss Jekyll: Portrait of a Great Gardener by Betty Massingham. 1966.

PUBLICATIONS OF WILLIAM ROBINSON

Alpine Flowers for English Gardens
Alpine Flowers for Gardens
Asparagus Culture (translation of Laboeuf's Essay)
Catalogue of Hardy Plants
Cremations and Urn-Burial
English Flower Garden
Garden Beautiful
Garden Design and Architects' Gardens
Gleanings from French Gardens
God's Acre Beautiful; in the Cemeteries of the Future
Gravetye Manor; or, Twenty Years' Work 'Round an Old Manor House
Hardy Flowers
Home and Woods
Home Landscapes
Home Woods and Home Landscapes
Humours of the Country
Mushroom Culture
Parks and Gardens of Paris
Semaines Francaises
Subtropical Garden
Virgin's Bower: Clematis
Wild Garden
Wood Fires for the Country House and Cottage

PERIODICALS EDITED BY WILLIAM ROBINSON

Cottage Gardening
Farm and Garden
Flora and Sylva
Garden
Gardening llustrated
Woods and Forests

BOOKS EDITED BY WILLIAM ROBINSON

Amateur Gardener's Calendar by Jane W. Loudon
Horticulturist by John C. Loudon
Vegetable Garden by Vilmorin-Andrieux Cie

REFERENCES TO WILLIAM ROBINSON

William Robinson — Grandfather of Rock Gardeners by K. S. Hall — The Journal of the Scottish Rock Garden Club — April 1974
Some Notes on William Robinson by Ruth E. Duthie — The Journal of the Garden History Society — Summer 1974

SEDUM of North America North of the Mexican Plateau. By Robert T. Clausen, with drawings by Elfriede Abbe. 742 pp. plus half-tones, figs., maps, gazeteer, bibliography, index. Cornell University Press, 1975. $65.00.

I fancy it fair to say that gardeners in general, though perhaps rockgardeners less than most, have only vague notions about how plants come to get their technical Latin names or, more importantly, by what methods and standards of comparison plants are sorted out into families, genera, species, and lower categories of classification. Horticultural literature teems with barbed allusions to botanical gnomes by whose edicts *Ramonda pyrenaica* suddenly becomes *R. myconi*, or *Petrorhagia*, which sounds like some sinister tropical endoparasite, usurps the place of the familiar and euphonious *Tunica*. It is no doubt natural to think of a particular species in the sense of an individual plant with which a particular name is first associated in one's experience, let us say, for example, *Campanula zoysii*. But these plants, even assuming that they were correctly identified in the first place, are not the species itself, for that is the sum of all the uncounted individual plants, whether on their native Carinthian cliffs or in captivity, which in the judgment of an informed (and sane) botanist go to make up the collective abstraction termed species. Furthermore these plants are surely no more exactly identical than are your favorite laundryman and Dr. Fumanchu, even though both of the latter partake of the quality of being Chinese. The application of plant names, which is governed by a body of internationally accepted law, is contingent on the prior definition of the species (or other category), a definition often reached by the taxonomic botanist only after prolonged and laborious search for, and analysis of, a mass of technical data. This taxonomic labor, which stands in relation to a name in your seedlist as does the iceberg's mass to its emergent tip, is poorly understood and little appreciated.

It is the particular merit, even though for the gardener's practical purposes the defect, of Dr. Clausen's massive and admirable revision of *Sedum North of the Mexican Plateau*, that the iceberg's full mass is here exposed to view. The author's aim has been to spell out, with painstaking exactitude, every relevant fact derived from anatomy, morphology, cytology, dispersal, and breeding experiments, which has contributed over forty years of study to his concepts of the 30 species of *Sedum* native to the region covered. As a text on how taxonomy works, Prof. Clausen's book is a model of excellence and for students of taxonomic method it will be required reading. For the gardener, I regret to say, much of it will be strong, perhaps tedious, certainly disproportionately expensive fare.

Embedded in the matrix of data, however, the reader will find detailed descriptive and nomenclatural accounts of all the stonecrops and orpines native or naturalized in Canada and all United States except for those

parts of Arizona and New Mexico lying south of the Colorado River drainage which belong phytogeographically to the Mexican Plateau. In addition there are superlatively fine line-drawings of each and photographs of many; maps of all; dichotomous keys for identification of the thirty native and some fifty-odd cultivated sedums; notes on related genera of Crassulaceae which might be confused with *Sedum;* deeply interesting chapters on the geology of North America and the geography of *Sedum* interpreted against this background; a history of *Sedum* in North America; and discussion of relationships, likenesses and differences between and among the species themselves. Scattered through the book is a wealth of information on variation in the wild, on behavior in cultivation, and on chemical and medicinal qualities of the plants. The culture of sedums, often embarassingly easy, is not neglected.

The present volume, which will be the standard reference on North American *Sedum* for decades to come, is a companion volume to Prof. Clausen's account of *Sedum of the Trans-Mexican Volcanic Belt* (1959). It is hoped that a third volume, treating the stonecrops of the Mexican Plateau, will complete a trilogy covering the genus as it occurs in most of the North American continent.

— Rupert Barneby

THE SEEDLIST HANDBOOK, 2nd Ed. Bernard Harkness, Kashong Publications 1976 $5.00

I paraphrase from the introduction: Four years' seedlists are represented, 1972 through 1975, seedlists of the ARGS, the Alpine Garden Society, and the Scottish Rock Garden Club, twelve in all. The new lists added about 2,000 names . . . a reference to its family for each genus has been added. . . . Names that could not be identified by a printed reference that was easily obtainable are omitted.

The *Seedlist Handbook* is designed to serve as a guide through the bewildering lists of plant names with which we are presented in the seedlists, and this purpose it fulfils admirably. But its utility is much wider. It is by far the handiest and the only up-to-date descriptive list with references of the overwhelming majority of those plants which we can grow from seed.

With Harkness in hand we can rewrite our labels with full assurance that we have a valid name. Thus *Sedum douglasii* will become *S. stenopetalum*, on the overwhelming authority of Clausen. On the other hand, I am delighted that *Gentiana crinita* remains a gentian, not a gentianella. Why *Douglasia vitaliana* remains a douglasia instead of being put into a genus of its own — *Vitaliana*, as *Flora Europaea* would have it — I do not know, but I welcome the excuse not to make the change.

When *Hortus Third* appears this fall — for such is the rumor — it will be the final authority for those of our plants which it condescends to include. But the plants we grow are virtually co-extensive with the plants on this planet, except for tropicals, and so the limitation to plants "in cultivation" is too restrictive. We will always need a constantly up-to-date Seedlist Handbook as a report on what our world-wide community of adventurous gardeners is up to. And we must be grateful to Bernard Harkness for his selfless and devoted scholarly service to us all. *H.N.P.*

THE AMERICAN ROCK GARDEN SOCIETY

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Dues		$14,371.30	
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Bulletin Expenses:			
Printing	$10,884.98		
Mailing	651.54		
Editor's Compensation	802.23		
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Seed Exchange	$ 2,292.88		
Printing and Stationery	517.36		
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Historical Brochure	12.52		
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General Expense	22.59		
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