Editorial copy

The JOURNAL of THE SCOTTISH ROCK GARDEN CLUB

VOLUME XIII Part 1
No. 50

APRIL 1972

Editor — P. J. W. KILPATRICK, Slipperfield House, West Linton, Peeblesshire

Obtainable from John B. Duff, Hon. Publications Manager,
Langfauld, Glenfarg, Perthshire

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NOTICE

The ANNUAL GENERAL MEETING will be held in the Carlton Hotel, North Bridge, Edinburgh, on **Thursday 9th November 1972, at 2.15 p.m.**

Members are notified that nominations are required for President and other Office-bearers, and for five Ordinary Members of Council. Nominations *in writing*, seconded by another Club member or members, must be sent to the Honorary Secretary no later than Monday 21st August 1972, the nominator having ascertained that the nominee is willing to serve if elected.

All Executive Office-bearers retire annually, but are eligible for re-election.

The following, having served for three years as Ordinary Members, retire and are not eligible for re-election as Ordinary Members for one year :

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Boonslie,
Dirleton, NORTH BERWICK,
East Lothian.

IMPORTANT ANNOUNCEMENT

The Hon. Treasurer is pleased to advise members that the Inland Revenue have agreed that claims to repayment of Income Tax on annual subscriptions made under Deed of Covenant will be accepted.

Covenants will be for a minimum period of seven years though covenants are automatically cancelled by death. They are effective only in the case of members paying sufficient tax at full standard rate to cover the amount of the subscription and apply, therefore, only to members resident in the United Kingdom and Northern Ireland.

This is a most important concession though its value will of course depend on the degree to which it is supported by the members.

The Hon. Treasurer expects to have administrative arrangements completed in time to advise full details in the Autumn Journal and to put the scheme into operation as from the beginning of the next financial year, but he thought you would like to have the exciting news without delay.

Alpines in a Small Garden

by Mrs. C. GREENFIELD

The W. C. Buchanan Memorial Lecture given at West Kilbride on 30th October 1971

MY GARDEN may be classified as 'small', according to most standards. It is, in fact, sixty feet long and twenty-eight feet wide. It does contain quite a lot of plants and has been called 'multum in parvo' and 'Little Wisley'.

Like Wisley, it has its frame yard, its lily ponds, its woodland garden (four trees—a cupressus, a lilac, a laburnum, and a dwarf acer), its fruit garden (one John Downey crab apple tree and one other apple tree, whose sole purpose is to shade an alpine house), and, of course, its rock garden and two alpine houses. Unlike Wisley, one cannot walk through the houses, as the floors are full of plants put there to shelter them from too much sun, too much rain, too much heat, or too much cold, or just to prevent flowers being pulled to pieces by the ever intrusive birds. Unlike Wisley, it has no potting shed and potting has to be done on the kitchen table or on the concrete terrace near the house. Outside the kitchen are dustbins, and helpful visitors, taking rubbish to dump, open one to find it full of sand, the next full of soil, and the next of leaf-mould.

When potting, not being very methodical or meticulous about composts, I have beside me a bucket containing my standard mixture —one part loam, one peat and leaf-mould, and one sand. Two buckets are in fact used, in one of which the loam is calcareous, the other lime free. I am also surrounded by old saucepans containing extra sand, leaf-mould or coarse grit, which is added as I think necessary for the various plants. I am never short of old saucepans, for I put my dinner on to cook, go down to the alpine house for twenty minutes, come back an hour later—and there is another pan for the garden !

Each time I go north, I bring back as much as my car can safely carry of $\frac{1}{8}$ in. crushed Shap granite and shingle dredged from Lake Windermere, and nicely graded sand from the becks. On the downs near my home, moles work up the calcareous soil into a lovely tilth, just right for potting. Unfortunately, it is forbidden to remove this soil. I sometimes borrow a couple of dogs and take a walk past—with an innocent-looking rucksack on my back.

My garden is on solid chalk. At the top of the road, a deep cutting recently made for an underpass shows white cliffs, covered only by about three inches of poor soil. Over the years, much humus has been added to my garden, but long-rooted plants get their toes down into the chalk. Therefore, I do not attempt the impossible, but grow plants which appreciate these conditions, as hellebores, genistas, penstemons, dianthus, *Anemone alpina*, *Daphne eximea*, etc.

My great joy is my alpine houses. Pictures taken inside these in January show *Narcissus minimus*, *Cyclamen coum* and primulas in flower, in contrast to the bareness outside. In February, they are joined by more primulas, various saxifrages, *Iris winogradowii* and *Erythronium californicum*. Although these are hardy, the flowers are seen to advantage under cover and are unspoiled by the weather. *Primula allionii*, with its sticky leaves and tendency to mildew, would not tolerate the winter wet without protection.

European primulas are happy on the sunny side of the house, in the calcareous mixture with limestone chippings added. *Primula* x *juribella*, a natural hybrid between *Pp. minima* and *tyrolensis*, found after much searching in its known station, when not in flower, has been with me for twelve years. Its deeply pink buds are most attractive, but it is extremely slow to increase, as the inner rosettes damp off very easily.

The lovely Asiatic primulas of the petiolares section, including *Pp. petiolaris* itself, *aureata* and the hybrid x *scapeosa*, dislike the hot, dry summers in the south-east, and so spend most of their time in the shade under the staging. I was given small seedlings of *P. reidii*, and told to keep them perfectly dry during the winter. I obeyed these instructions, but wondered how anything so small could possibly survive such treatment. However, in February they responded by producing tiny green shoots. In their natural habitat, melting glaciers would now provide the necessary moisture, but with the aid of careful watering with rain water, the flower stems appeared, opening into the crown of beautifully shaped bells, filling the alpine house with their fragrance.

Cyclamens, apart from *neapolitanum* and *coum* which are planted out, are kept in frames, plunged in sand. During their summer dormancy, the lights are kept on to dry them out and to give them their summer baking. I cannot think that in nature, at the depth at which they grow under stones and tree roots, they are quite dessicated—so from time to time, water is trickled onto the sand in which they are

plunged. The lights are removed in late August, when the leaves with their fascinating and infinite variety of markings begin to appear, and are only put on again when frost is imminent. During severe frost, they are given a covering of sacks for extra protection.

Narcissus, such as the cheerful yellow *N. calcicola* and the shining white *N. cantabricus petunioides*, and also the varied fritillaries are given the same treatment. However, another bulb, the iris-like *Moraea natalense*, which flowers in June, and whose leaves are only now—in October—dying down, lives in the alpine house where I know it will be watered during my absence.

The only rhododendrons or other ericaceous plants that I can grow are dwarfs in pans, where they can be given a good, peaty mixture. They, and the Asiatic gentians, are watered only with rain water. During the hot, dry summers, the hose is turned onto them to create a moist atmosphere. To counteract the lime content of this, they are given a dose of sequestrene at the beginning of the season.

Gentiana ornata is too precious to be left outside and lives in the alpine house, growing in a very peaty, sandy mixture. It seems to flower later each year, so that now it has no time to ripen its seeds.

Gentiana brachyphylla alba, collected from high screes twelve years ago, grew very well and increased satisfactorily for about nine years. Now, for some unknown reason, it is no longer happy with me. Whenever I obtain a rare plant, my first impulse is to propagate it and pass it on to a friend in Westmorland who gardens under very different conditions. I did this with this gentian, which is flourishing with her. This is an insurance against losing a plant, as very often I am able to re-stock.

Thymus cilicicus was, I believe, introduced by seed collected by Dr. Peter Davis. I obtained a cutting from the one plant grown by Mrs. D. E. Saunders, was able to increase it, and this time pass it on to Mr. H. Esslemont, who in turn replaced the plant when I lost it.

Cypripedium calceolus, bought from a nursery before the war, was planted in quite the wrong place, in a semi-bog, in full sun, where it increased until it produced forty-two heads from which sprang eighty-four flowers.

Ramonda myconi is one of those plants which looks after itself, planted in a north facing crevice. Not so its relations, *Conandron ramondioides* and *Briggsia aurantiaca*. Both are shade lovers and lime haters and live under the staging where they seldom see the sun. When I first obtained *Jankaea Heldreichii*, I treated it as I read about its

needs—watering it overhead and exposing it to rain and sun. After losing two plants, I tried a different method—giving it plenty of water at its roots and carefully blotting off any drops from its silver-haired leaves. This treatment was much more successful. The rosettes increased in number, covering a nine-inch pan, and throwing up its crystalline lavender flowers.

Soldanella alpina is reputedly shy-flowering. During the winter, I keep it in the alpine house where its autumn-formed buds can be protected from rain and frost and slugs and snails. One of my houses is kept frost free by tubular heating, thermostatically controlled, the 'heat' coming on at 35° F. I believe that many plants are lost by draught in long, cold periods. At this temperature, this and other evergreen plants can be kept damp to replace the moisture lost by transpiration. Other plants receiving the same treatment are *Pulsatilla vernalis* and *Viola cenisia.*

Viola cazorlensis seems to like to be near the edge of its pot. I treated it in the same way as running campanulas which, if they cannot go further, refuse to live. Perhaps the viola would like to grow in tufa. Although I grow very few plants in this medium, I must try it. Having seen *Campanula morettiana* growing right out of the rock faces, this is a plant that I have successfully grown, from seed, in tufa.

Growing plants from seed can be very rewarding. After producing many generations of *Campanula carpatica* from seed, I was delighted last year to find two plants with white flowers. Although I have tried to hand pollinate them, no seed has been set and cuttings prove very difficult.

Phyteuma comosum has been tried in tufa, but growth was very slow and the flowers of a poor colour, though this might have been due to the particular strain.

Diosphaera asperuloides, growing in a gritty calcareous mixture, covers itself with a mist of blue flowers, and is rigorously cut back each year after flowering.

Having read that *Eritrichium nanum* should be kept dry from September to March, I tried to grow it in this way. Of course, the plants became limp, and of course they were attacked by greenfly and fungus, and of course they died. Realizing that, in cultivation at any rate, they were evergreen, I kept them watered during the winter—again using blotting paper if necessary on the leaves—and they lived and flowered, and, in fact, have survived for three generations. One plant appeared at our local group meetings in flower for five consec-

utive months. Even so, it never gives of its best in cultivation, or produces plants like those seen on the mountains.

My pride and joy is *Daphne petraea grandiflora.* Although this is an evergreen species, it was grafted, by me, onto the deciduous *D. mezereum* twenty four years ago. It has been potted on from time to time and now fills a twelve-inch pan. Each spring, the leaves are completely hidden by the rosy pink fragrant flowers. It is so brittle that it is practically impossible to remove and replace any soil, so it gets its nutriment from feeding with Maxicrop.

Other great favourites are my seventeen-year-old *Androsace imbricata* and *A. helvetica.* With earlier plants, I again followed instructions and planted them with their roots between pieces of stone to imitate the crevices from which they came. I found that they were too restricted, and although in nature their roots must necessarily follow the cracks, they were quite willing to spread themselves in their pans. These plants do respond to the care lavished on them. In nature, 'the weather man' sometimes forgets to water his plants, and I have seen them dried up in consequence. At home, I am always there to answer their first call for a drink. They show their appreciation by their longevity and floriferousness.

The smallness of the garden bears no relation to the endless pleasure it gives.

PEN FRIENDS

FROM time to time members of the Club ask to be put in touch with members in another country with a view to starting a correspondence. Up to now it has not always been possible to find suitable Pen Friends, so a new service is to be started.

If you wish to correspond with another member, will you send the following information to the Hon. Secretary: Mrs. L. C. Boyd-Harvey, Boonslie, Dirleton, North Berwick, East Lothian, who will do her best to link up 'Pen Friends'.

1. Your name and address.
2. Country (or choice of countries) in which you are interested.
3. If you can correspond in any language other than your own.
4. Any special interests or requirements.

Until names are collected it may take some time to find you a suitable correspondent, so please be patient.

The Discussion Weekend 1972

THE SEAMILL HYDRO, WEST KILBRIDE
AYRSHIRE

21st and 22nd OCTOBER 1972

PROGRAMME

Saturday :

1.00 p.m.	Lunch
2.15 p.m.	Address of Welcome
2.30 p.m.	The W. C. Buchanan Memorial Lecture "Liliaceae" by Alfred Evans, Esq.
4.00 p.m.	Afternoon Tea
4.30 p.m.	"Ericaceous and Peat-loving Plants" by S. E. Lilley, Esq.
7.30 p.m.	*Dinner/Dance or Dinner and Film Show (at 9.00 p.m.) Films will include Alpine Journeys and Garden Cultural hints and visits.

Sunday :

8.30 a.m.	Breakfast
10.00 a.m.	The Clark Memorial Lecture "Apprenticed to the Club" by Mrs. Elizabeth Ivey
11.15 a.m.	Morning Coffee
11.45 a.m.	"A Plant Hunter in Afghanistan" by C. Grey-Wilson, Esq.
1.00 p.m.	Lunch
2.30 p.m.	"Rock Gardening Through International Clubs" by Mrs. M. R. Stuart
4.15 p.m.	Close of Proceedings
4.30 p.m.	Afternoon Tea

There will also be something doing for the early arrivals on the Friday evening, 20th October.

The whole weekend programme, including side displays, which should please the most discriminating, is designed to attract and assist the young and new members.

HOTEL ARRANGEMENTS FOR WEEKEND RESIDENTS :

Bookings for the weekend must be made *direct* with THE MANAGER, SEAMILL HYDRO, WEST KILBRIDE, AYRSHIRE, mentioning membership of the S.R.G.C.

This beautiful sea-fronted hotel with 8 acres of lawn and garden leading directly to a sandy beach, commands a magnificent prospect, across the Firth of Clyde, of the peaks of Arran and the hills of Cumbrae, Bute and Argyll.

There is an indoor heated sea-water swimming pool, a Russian Steam Bath and a Finnish Sauna Bath.

The special Conference Rates are : Room with private bath, television and telephone £5.60. Standard room £4.50. This quotation includes accommodation and all meals from lunch on Saturday to Afternoon Tea on Sunday and service charges.

Early application is strongly advised, particularly by those members requiring single rooms and by those who wish to stay for an extra night.

*There will be NO extra charge for the Dance, but members wishing to attend the Dance please inform the Manager WHEN BOOKING so that table arrangements can be made.

NON-RESIDENTS :

Non-residents who require meals will be charged : Lunch 70p, Dinner or Dinner/Dance as preferred £1.10, Afternoon Tea and Morning Coffee 5p each. These prices do NOT include service charge. Application for meals to be made at the Conference Office.

CONFERENCE CHARGE AND IDENTITY BADGES :

In order to cover the overhead expenses of the weekend, there will be a Conference charge of £1 for each person. Non-residents will be asked to contribute 50p if attending one day only, or £1 if attending both days. These charges are payable at the Conference Office on arrival at the Hydro, when members will be issued with identity badges which THEY MUST WEAR AT ALL TIMES.

ROCK PLANT COMPETITION

Details of this Competition will be given in the September *Journal.* Will all weekend participants please make a special effort to make this Show a great little Show. The winner will receive the W. C. Buchanan Bronze Medal, presented by Dr. Henry Tod.

All plants will be displayed in the Conference Office, which will be locked when not in use.

The Genus Trillium—IV

A Revision

by ROBERT J. MITCHELL

RAFINESQUE named some 34 species of Trillium in his *Medical Flora* in 1830 and a further 9 species in *Autikon Botanikon* in 1840 and, as the bulk of these were inadequately described and were almost certainly named without herbarium specimen backing, it is not difficult to understand why there is such great confusion and difficulty in identifying his plants. Another factor which has led to the names being given, is the variable nature of the plant within the geographical limits of a true species and, as names were given to these variations, so the confusion intensifies. This variability and insufficient description, I am convinced, have been the reason why so many of Rafinesque's plants are now no longer accepted and have dropped out of scientific usage.

Thus we have plants like *T. acuminatum* named by Rafinesque in *Med. Reps. N. York* (1808), p. 361, and accepted as a name by *Index Kewensis Fasc. IV*, but as Gray states in *Hardy Bulbs* 1937-8, Vol. III, p. 548 ". . . it is probably identical with *T. erectum.* As in very many cases of Rafinesque species, the description is very inadequate." Of the plants described by Rafinesque in *Autikon Botanikon* 1840, pp. 132-136, most of the names have been accepted as valid by *Index Kewensis* but have not been used since then. In this context we can treat *Tt. atropurpureum, balduinianum, brevipes, rhombifolium* and *stenanthes,* which are all accepted by *Index Kewensis Supplement* XI, while *T. declinatum* Rafin, (not *T. declinatum* Gleason), is accepted in *Index Kewensis Supplement* IX.

T. latifolium, another of Rafinesque's plants, was described in *Medical Flora* II (1830) t. 91 and *Index Londinensis* Vol. VI cites this name, referring back to this work for an illustration, although *Index Kewensis Fasc.* IV places it as a synonym of *T. cernuum.* However, *T. lancifolium,* described by Rafinesque in *Autikon Botanikon* 1840, p. 133, and accepted by *Index Kewensis, Supplement* XI appears to be a valid name, for it crops up again in Rickett's *Wild Flowers of the United States,* Part 2-32 (1969), and in *Bulletin Torrey Botanical Club,* Vol. 78 (1951), pp. 324-330, and Vol. 79 (1952), pp. 451-458, in papers

by Paul Bailey who dealt with the chromosome morphology in Trillium relating to the genetic difference between *T. lancifolium* and 5 other species. *T. lancifolium* has sessile leaves which are lanceolate, acutely pointed and with three prominent veins. The petals are erect, red in colour, and lanceolate like the leaves. *T. lancifolium* is a native of South East U.S.A. from Florida to Georgia and north to Arkansas.

T. stamineum and *T. decumbens* are mentioned in the paper by Bailey and are both described by Harbison. *T. stamineum* is described in *Biltmore Botanical Studies* 1 : 23 (1901), while *T. decumbens* appears in Vol. 1 : 158 (1902). Both are accepted by *Index Kewensis, Supplement* III. *T. stamineum* is a native to the rocky woods of Georgia, Alabama and Mississippi according to Small in his *Flora of South East U.S.A.* 1903, and this is echoed by Gates in *Annals Missouri Botanical Garden*, Vol. 4 (1917), who also states that it is "near *T. sessile* but differs from it by its pubescent stem, widely spreading twisted petals, larger stamens and very short filaments". The petals are dark purple, slightly rounder than the sepals, and have a most disagreeable smell. The fruit is ovoid, pale purple in colour, and about ½ in. in diameter.

Gates agrees that *T. decumbens* is very like *T. stamineum* with its pubescent stem, twisted petals and very short filaments, but differs from it in having erect petals which have no disagreeable smell, decumbent stem, stamens only a quarter the length of the petals, and with a marked prolongation of the connective. This feature, according to Gates, appears in no other Trillium but is found in Paris, a related genus. Harbison found this character remained constant in cultivation, which would make this a useful identification for this plant. In its native habitat in rocky woods in North Alabama it flowers in April.

Trillium rectistamineum was given specific rank by Harold St. John in *Rhodora* XXII (1920), p. 79, but was originally described as *T. lanceolatum* var. *rectastamineum* by Gates in *Annals Missouri Botanical Garden*, Vol. IV (1917), although he mentions that "this plant could very well constitute a distinct species", he was hampered in doing this by incomplete herbarium material. The specific name is accepted by *Index Kewensis Supplement* VI and the plant is described at length by Gray in *Hardy Bulbs.*

Gates gave a number of differences in his description which were sufficient for St. John to warrant specific rank. (However, *T. lanceolatum* appears to be a synonym of *T. recurvatum* according to *Index Kewensis Fasc.* IV, although both Gates 1917 and Small 1903, *Flora of South East U.S.A.*, accept both names.)

T. rectistamineum has stout stems to 15 inches tall. The broad dark green leaves are about 3 inches long and pointed at the tip. The petals are dark purple and broadly lanceolate, tapering at the base, and are 1½-2½ ins. long. They are sessile and held erect. The anthers are straight and purple in colour, and the filament short. The ovary is large, conical and greenish-purple. It is found on moist woodland slopes in Georgia and N.W. Florida, where it flowers from the end of March until June.

Closely allied to the above is *T. ludovicianum*, a native of Louisiana and Mississippi. It is also very close to *T. viride*, from which it differs mainly on account of its smooth stem.

T. ludovicianum was described by Harbison in *Biltmore Botanical Studies* I, 23 (1901), and is illustrated in *Torreya* XXXV 1935 in a paper by West. It grows in a moist well drained open woodland of loblolly pine and oak in the coastal plain from Florida to E. Texas.

The plant is 3-8 ins. tall with smooth stems. The leaves are ovate 2-3 ins. long, mottled pale green, and sessile like the flowers which are linear to linear-lanceolate, and purple or greenish above a purple base. The sepals, which also have a purple tinge at the base, are broadly lanceolate, spreading and finally reflexed. The anthers are straight and only slightly recurved and are about ⅔ the size of the petals, which are 1-2 ins. long. The filaments are purple and ⅛ in. long, while the anthers, which are also purple, are 4-5 times the length of the filament. The ovary is ovoid and greenish-purple in colour. This plant flowers in its native habitat in March and April.

T. underwoodii, another of the "sessile" group and very similar to *T. sessile* itself, is a native of the woods and fields from North Carolina to Tennessee, South to Florida and Alabama, so it has a widespread distribution. *Index Kewensis Supplement* II recognises the name of this plant described by Small in *Bulletin Torrey Botanical Club*, 1897, p. 172, but Gray has doubts about this name after viewing herbarium material at Kew and states that it could be a good form of *T. sessile* although he does mention that the stamens and styles are distinct. Gates agrees with Small that this is a distinct species "differing from *T. sessile* by its larger stamens, narrowly oblanceolate larger petals, which are also larger relatively to the length of the sepals, and by its longer anthers."

T. underwoodii is a plant 4-12 ins. high with oval leaves with a wavy edge. The leaves are mottled in various shades of green and have a velvety lustrous sheen. The flowers are sessile, purple in colour

and 2-3½ ins. long. The petals, which are held erect, are lanceolate, elliptic or oblanceolate in shape. The stamens are about ⅓ the length of the petals and the anthers are purple. The stigma is also purple and is recurved. The berry is ovoid and purple in colour.

T. vaseyi, named by Harbison in *Biltmore Botanical Studies* I, 24 (1901), is very close to *T. erectum* and may well be a variant of it. Indeed, Ahles in *Manual of the Vascular Flora of the Carolinas* 1968, p. 292, places *T. vaseyi* as a variety of *T. erectum* with *T. simile* named as a synonym. However, in a comprehensive paper by Barksdale in the *Journal of Elisha Mitchell Scientific Society*, Vol. 54 : 271-296 (1938) on the Pedicellate Species of Trillium, cytological considerations are taken into account and from this work Barksdale retains *T. vaseyi* as a true species but places *T. simile* as a variety of it. The white form of *T. vaseyi* found in North Carolina and described by House in *Muhlenbergia* 6 : 73 (1910) is considered to be a synonym of *T. erectum* var. *album*.

Trillium vaseyi is a very distinct plant with its large maroon-coloured flowers and overlapping petals. The plant is 10-20 ins. tall with broadly rhomboid, 4-8 ins. long, sessile leaves. The pedicel is declined beneath the leaves and the flower has a rose-like fragrance. The stamens are much larger than the stigma and about ⅓ as long as the petals. The filaments are purple and as long as the dull purple anthers. According to Gleason in *Bulletin Torrey Botanical Club* XXXIII : 391 (1906), the flowers are larger and the filaments longer than in any other red-flowered North American pedunculate species.

The distribution of *T. vaseyi* is given as Western North Carolina to East Tennessee, Northern South Carolina, Georgia and Alabama, and although it covers the same area as the southern limits of *T. erectum* it grows at lower altitudes, whereas *T. erectum* is restricted to the wooded area of the high mountains (fig. 1).

Trillium vaseyi var. *simile* (Gleason) Barksdale differs from the above essentially in its white flowers. These are also imbricate like *T. vaseyi*. *T. simile*, named by Gleason in his paper on "The pedunculate Species of Trillium" in *Bulletin Torrey Botanical Club* XXXIII : 391 (1906), is therefore taken as a synonym. The distribution of the variety is similar to that of *T. vaseyi*, where it grows in the company of the species as well as in isolated colonies.

T. rugelii is another species with a nodding pedicel and differs from *T. vaseyi* according to Gates 1917 in the petals which are white, round ovate, the same length and twice the breadth of the sepals. The fila-

Fig. 2—*Trillium catesbaei* Photo—R.B.G., Edinburgh ▶

Fig. 8—*Celmisia coriacea* Photo—The late D. Wilkie ▶

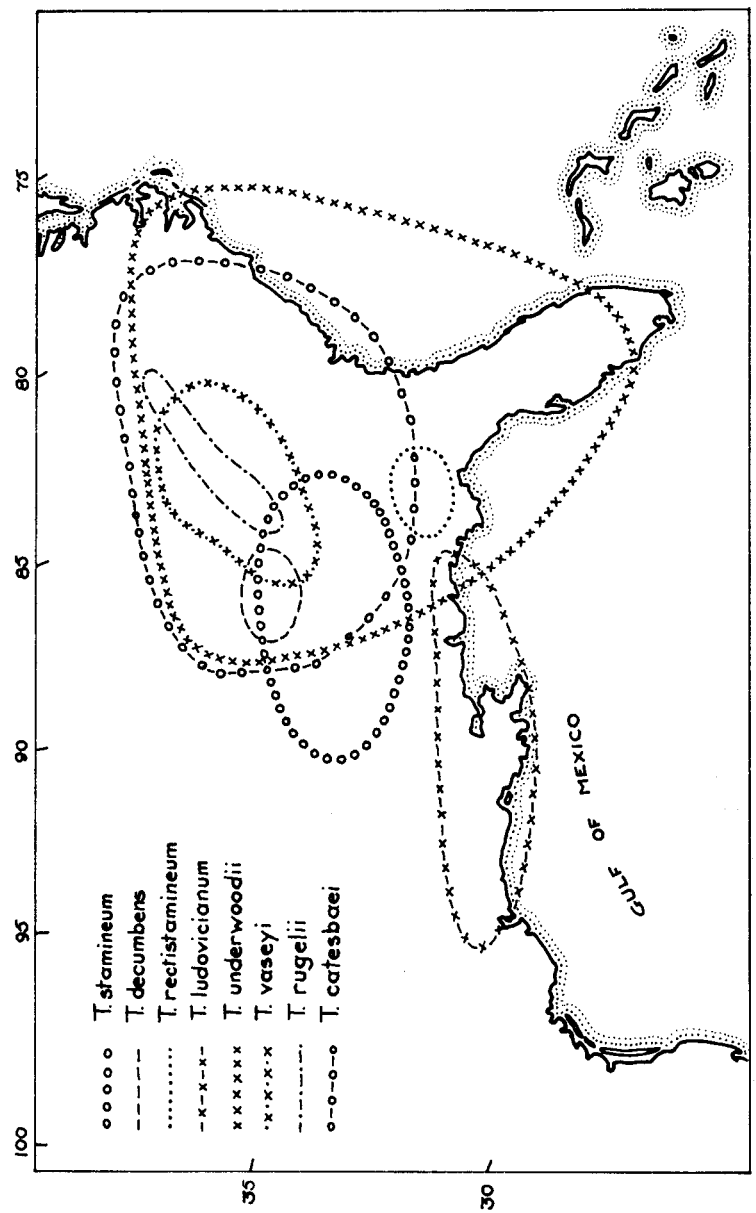
T. stamineum
T. decumbens
T. rectistamineum
T. ludovicianum
T. underwoodii
T. vaseyi
T. rugelii
T. catesbaei
GULF OF MEXICO
75
80
85
90
95
100
35
30

Fig. 1

ments are also only $\frac{1}{3}$ the length of the anthers, which are purple. *T. rugelii* was described by Rendle in *Journal of Botany* 39 : 331 (1901), and its distribution is in the Mountains of Western and North Georgia.

A great deal of confusion persists with the names *T. catesbaei*, *T. nervosum* and *T. stylosum*. Various authorities cite one as being the correct name with the other two being treated as synonyms, but as this occurs with all three names it is difficult to determine which is the true name or if there is more than one true species.

The fact that most authors give the three names as being the same plant, albeit in different permutations, makes it almost certain that one plant is involved.

For instance, Gleason 1906 gives *Trillium catesbaei* as the correct name with the other two sunk into it. Small, 1903, accepts *T. stylosum*, but quotes no synonyms, while Gray, 1937-38, lists *T. stylosum* as a species but has reservations about the name *T. catesbaei* which he retains as a separate plant.

Index Kewensis Fasc. IV accepts the name *T. stylosum* but places both *T. nervosum* and *T. catesbaei* as synonyms. In the *Manual of Cultivated Plants* (revised edition, second printing) 1954, Bailey keeps *T. nervosum* and gives the other two names as synonyms, and E. B. Anderson and Patrick Synge in the 1962 *Lily Year Book* accept *T. nervosum* as the correct name. *Flora and Silva* 1904, p. 172, states that Catesby's Trillium (*T. nervosum*) has been for many years erroneously called *T. catesbaei*, and Green and Blomquist 1953 in *Flowers of the South* echo this statement. Certainly the plant is well known as *T. nervosum* in commerce and is grown by many under this name.

Gleason 1906, Gates 1917, and Barksdale 1938 all use the name *T. catesbaei* and all quote *T. nervosum* and *T. stylosum* as synonyms. Rickett in *Wild Flowers of the United States*, Pt. 2, p. 32 (1969), gives the name *T. catesbaei* and from the illustration and description of it there seems to be little doubt that these are all one and the same plant, subject to minor geographical differences.

Having thus established that this is the case, the rules of Botanical Nomenclature state that the earliest name should be given priority. The authority for the names are *T. stylosum* Nuttall *Gen.* 1 : 239 (1818) ; *T. catesbaei* Elliot and *T. nervosum* Elliot in Elliott St.—*A sketch of the Botany of South Carolina and Georgia*, pp. 429-30 (1817), and as *T. catesbaei* is described first this name would then become the true name of the plant.

Trillium catesbaei (fig. 2) has a wide distribution in South Eastern

states of U.S.A. and is found from Virginia to Tennessee to Georgia and Alabama. It varies in size but nevertheless is an easily identifiable plant, for, like a very close relation, *T. pusillum*, it has short styles which make them the only Eastern American Trillium species to have this character.

The plant is 8-20 ins. tall with elliptic or oval leaves 2-3 ins. long and conspicuously veined. The flowers, borne on a 2 in. long pedicel, are nodding pink, rose-pink, or occasionally white in colour with recurving petals. The ovary is pale green with the stigmas united into a style at the base. It flowers in its native habitat from April to June.

Trillium affine described by Rendle in *Journal of Botany* 39 : 334, 1901, is accepted as a true species by *Index Kewensis Supplement* III and by Gleason, 1906. Gray, 1937-38, describes it in his *Hardy Bulbs*, but Gates, 1917, while listing it as a species relates its close affinity with *T. catesbaei* and also with *T. cernuum*, while Barksdale, 1938, places it as a synonym of *T. catesbaei*, which is probably correct. It is known only from specimens collected by Rugel in Georgia.

I am most grateful for the encouragement which Alf Evans of the Royal Botanic Garden, Edinburgh, and Professor J. A. Macdonald, Department of Botany, St. Andrews University, have given me during the researching for this paper ; for the technical assistance given so freely by Dorothy Purves, Rosemary Smith and Gillian Meadows, all of the Royal Botanic Garden, Edinburgh ; for the use of photographs from the R.B.G. Slide Library ; to Dr. Adrian Dyer, Department of Botany, Edinburgh University, for information on his research on the genetics of Trillium, and to Leonard Wiley, Portland, Oregon, and the late E. B. Anderson for information on culture of some of the species.

"Sitting in the Shade"

by C. E. DAVIDSON

'. . . . . such gardens are not made
By singing "Oh how beautiful !", and sitting in the shade'.

With apologies to Rudyard Kipling for proving that he was wrong.

MR. DOLITTLE placed his garden chair in a patch of shade, sat down,

and stared at that corner of the lawn where he intended to have a new rock garden. Taking a pencil and paper from his pocket, he made a rough sketch of the outline.

"Yes", he said to himself, "that is quite big enough at my time of life. The highest point could be at the east end . . . about here, using the large rocks, and I'll have a scree fanning out from them southward . . . so. Then, of course, I can also have screes facing east and north. The rest of the ground will slope down gradually to the west, where there could be an alpine lawn".

So engrossed had he become, that he failed to notice the approach of his neighbour, Mr. Goodman, who was now standing beside him.

"Is this a plan of your new rock garden ?" asked Mr. Goodman. "May I look ? . . . not bad, but the line on this side is too straight. I would have a promontory here, curving back into a bay . . . there".

"Hm !" Mr. Dolittle replied, "you may be right, but it's impossible to judge from this scribble of yours".

"Far the best plan", Mr. Goodman observed, "would be to trace the entire outline on the turf, showing your original line and my suggested improvement. Have you a sharp stick ?"

Mr. Dolittle disappeared into the potting shed, and presently emerged with a stick and a footrule. He also brought a spade. Mr. Goodman removed his jacket, took the stick and footrule, and set to work, watched critically by Mr. Dolittle from his chair.

"Yes", the latter conceded, getting up to check the measurements and inspect the proposed alteration, "that might be an improvement, but we would get a much better idea of the whole effect if the turf were removed". He handed over the spade. "Don't cut too far to begin with. I can guide you and make adjustments as we go along".

Two hours later the area had been cleared, the turves stacked, and Mr. Goodman hurried away, remarking that he had really come to borrow the mower, but it was now too late to get his grass cut.

During the following week, loads of loam, granulated peat, leaf-mould, chips and sharp sand were delivered. Finally, a quantity of water-worn limestone arrived, and this was deposited near the site of the rock garden. Mr. Dolittle continued to sit in his chair, studying the rocks and (mentally) placing them in position. He gazed with distaste at the formidable expanse of exposed earth. If this were only cleared away, he thought, it would be grand.

When Mrs. Dolittle asked how the work was progressing, he replied "I'm afraid things are rather at a stand-still. I can't get the

two men who usually do the heavy work, and John Goodman has been a great disappointment. He seemed so interested and keen to help at first, but now, when I call at his house, or telephone, his wife invariably tells me he is out. One would think the fellow was trying to avoid me. . . . Oh well ! I suppose I'll just have to make a start on it myself, but severe physical exertion is very bad for me, as you should know''.

Mrs. Dolittle made no reply.

Fortune, it would seem, favours the indolent as well as the brave. The next day, a Saturday, two Scouts appeared. They explained that they were trying to raise money for Scout activities. Was there a job for them ? Not, they hastened to add, on the old 'bob a job' basis of pay. Owing to increased costs, their charge was now 20p an hour, but they would work hard and stay all day if needed.

Mr. Dolittle concealed his elation, and led them to the site.

''The soil is light and stoney'', he said, ''so you need only take out about a foot of it. I shall bring tarpaulins, and you must throw the soil on to them. When you have finished that, I want you to riddle out the large stones and throw them back into the hole''.

''What's the use of digging out all that heavy stuff, just to throw half of it back again ?'' one of the boys enquired. Mr. Dolittle explained about drainage and added that extra drainage material would certainly be needed. There was some behind the potting shed. The Scouts looked depressed. They worked well, however, and, in spite of a prolonged absence at lunch time, during which Mr. Dolittle was on tenterhooks lest he had seen the last of them, they returned and finished the job that evening.

Mr. Dolittle was delighted with the day's progress. Even the fact that he had failed to extract a promise of more help from the Scouts did not damp his high spirits. In a burst of unwonted energy, he replaced the turves over the drainage, fitting them neatly together, grass side down. Turning to go back into the house, he tripped over one of the rocks. This brought him down to earth with a bump in both senses of the phrase. Rubbing his shins, he cast a malevolent look at the offending stone, while a gloomy thought came into his head—who on earth is going to handle these heavy stones ?

The answer, which came several days later, seemed almost heaven-sent. The Secretary of the local Horticultural Society called to see him, and without preamble began, ''I hear you are making a rock garden Dolittle, and I've come to ask a favour. The members have

frequently expressed a wish to see one being built. I wonder if you would kindly allow them to come and watch the final stage, the placing of the rocks ? I should mention that there are several strong young members who say they would be pleased to do the manual work—under your direction, of course ! There is, however, one possible snag. With the Show in August, and family holidays, I don't think I could get the members together till September, but perhaps it would be too much to ask you to wait till then ?''

Mr. Dolittle had, in fact, intended to let the soil settle till October before completing the rock-work, but such a golden opportunity was not to be missed. He replied, ''I will willingly wait till September, if that month suits you best. I estimate that two afternoons should be sufficient for the actual placing of the rocks—the evenings will be too dark by then. Just fix your dates for any Saturday or Sunday afternoons that are convenient. I leave the choice to you. By the way, there is still a little work to be done first—mixing soil, filling in, and so on, which I wish to finish as soon as possible. I imagine your young members might like to lend a hand with this ; it would be most valuable experience for them''.

The Secretary said he could guarantee that at least two members would come to assist without delay, and would consider it a privilege. He thanked Mr. Dolittle for being so helpful, and the two men shook hands cordially.

The weather was warm and fine on the two afternoons chosen for the demonstration. Mr. Dolittle enjoyed himself hugely. He gave a short talk on the initial stages of preparation, which the spectators had not seen, drawing their attention to samples of the various soil and scree mixtures employed, that had been laid out for examination. He had already constructed the garden in his mind's eye, and the rocks were heaved into their appointed positions in response to a flick of his hand. Only one incident occurred, during the second meeting, to ruffle his temper. A lady member had the temerity to say that she thought the rocks were being placed in too regular a fashion. Would it not, she suggested, look more natural if they were scattered about at different angles, and not so buried. Mr. Dolittle fixed her with a sardonic eye.

''Do you favour the 'Plum Bun', or the 'Devil's Lapful' system ?'' he asked. ''Both, thank heaven, went out with Queen Victoria. I suggest, madam, that you go into our limestone hills and study stratification''. This effectively silenced the lady. The remaining rocks

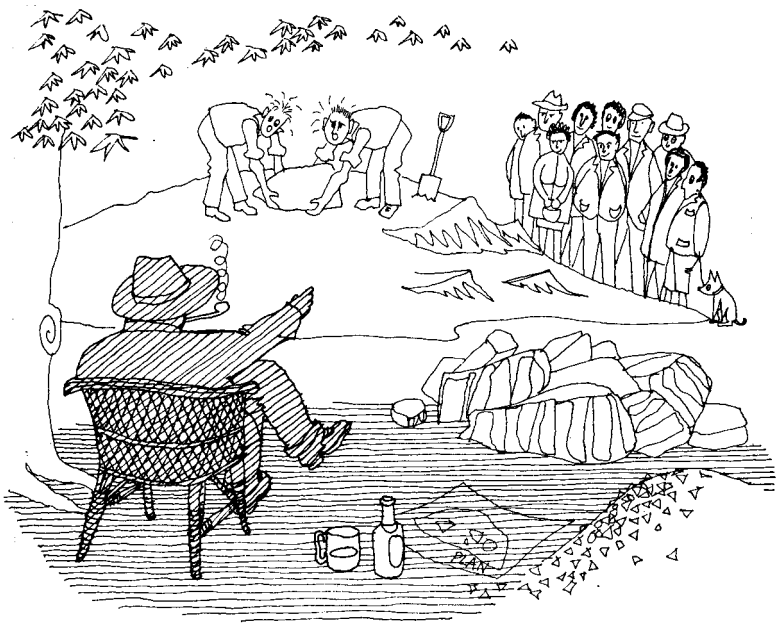

Fig. 3

were placed and rammed in, and the company repaired to the Dolittle's dining room for refreshments. Over tea and sandwiches, the guests repeatedly declared that they had never before spent such a profitable and enjoyable afternoon, and in his vote of thanks the Secretary warmly praised their host for his unselfish co-operation.

A few days after these events, Mr. Dolittle walked round his new creation, inspecting it critically from all angles. Not a flaw could be seen. He carried a sheaf of alpine plant catalogues, for it was his intention to spend an hour or two in the agreeable occupation of choosing plants, and deciding which positions they should occupy. He sat down and gazed at his perfectly constructed rock garden with supreme satisfaction.

"Beautiful !" murmured Mr. Dolittle.

Author's Note : I am indebted to Mr. Cyril Barnes for solving the final problem of Mr. Dolittle, who is a purely imaginary character.

Botany for the Alpine Gardener—Part V

Ranunculaceae

by Dr. MAVIS R. PATON

THE SHINING yellow buttercup is familiar to everyone not only in Britain but to all who live in temperate climates all over the world. This simple plant, so ancient in terms of evolution, is extraordinary in that it has survived unaltered through the ages without having to adapt the basic parts of the *flower*. Instead, whenever it has been necessary for any member of this genus (Ranunculus) to adapt to changing environment, even to becoming aquatic, it has done so through its leaves, stems and roots.

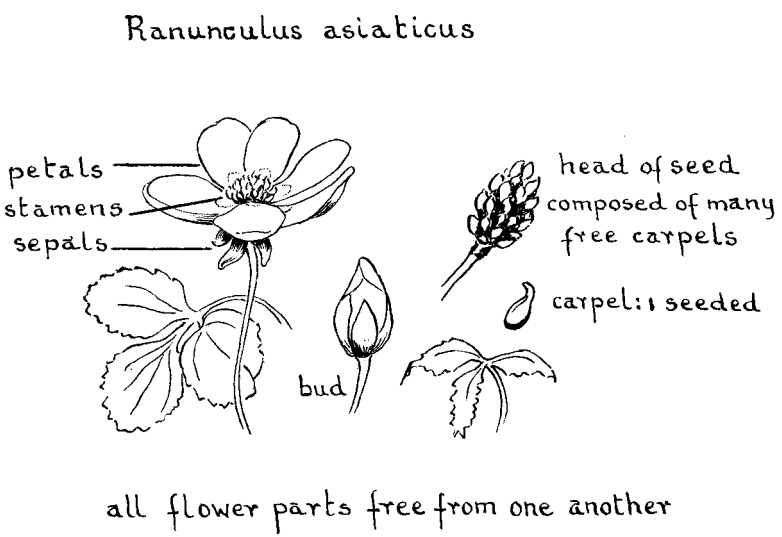

Fig. 4

Botanists are united in regarding the family Ranunculaceae as one of the most primitive, and if one accepts their reasoning that flowers evolved from modified leaves, then the genus *Helleborus* is a good illustration of this. The petals resemble leaves in colour and texture

but are tubular in shape ; the carpels are little more than leaves folded inwards to protect the seed along the margins and in some species the sepals too are leaf-like.

The Ranunculaceae is a remarkable family in possessing primitive plants such as the Buttercups and the Hellebores and at the same time having genera showing quite advanced and specialized flowers such as the Delphinium and Aquilegia. In fact, within this one family several evolutionary trends can be studied. After taking a closer look at the main genera, which fall naturally into 3 separate groups, these trends will become evident.

The exception to this is the genus *Paeonia*, which must be mentioned, as some of the wild species are grown by alpine gardeners. The paeony is an unmistakable plant with a showy flower of few to many petals, many stamens, and 3 to 5 carpels. These contain a number of large red seeds when ripe.

GROUP I.

The flowers of *Anemone*, *Pulsatilla*, *Clematis* and *Hepatica* are very similar ; they have all dispensed with petals and have developed 5 (usually) large coloured sepals which take over the job of attracting insects.

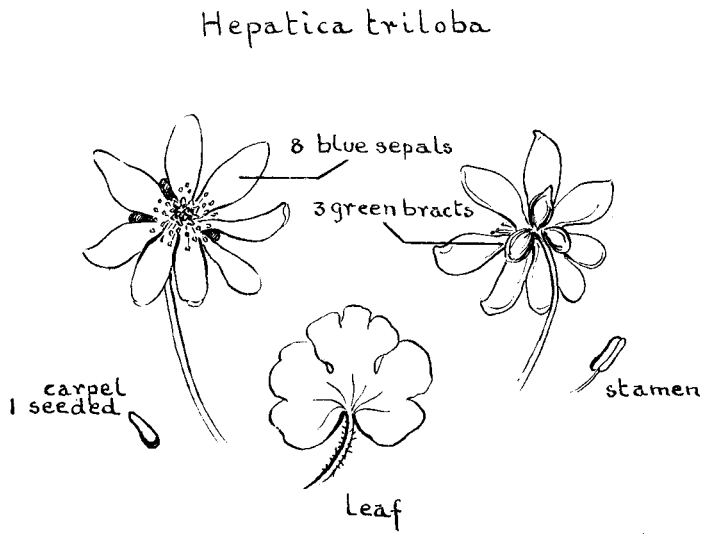

Fig. 5

Pulsatilla, once included in Anemone, differs from that genus by its general hairyness and long-tailed carpels forming a feathery head of seeds.

The species of *Clematis* have similar feathery carpels but the plants have adopted the climbing habit ; climbing by their leaf-stalks.

Hepatica. This small genus differs from Anemone by having a three part "calyx" developed from leaf-bracts. The true leaves are rounded and three lobed (fig. 5).

Thalictrum has neither petals not sepals but has developed many showy coloured stamens. The leaves are finely divided into many leaflets.

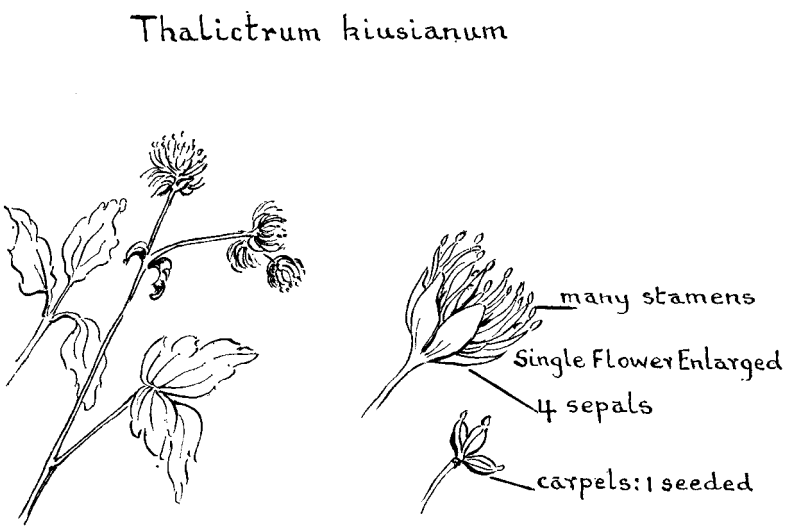

Fig. 6

The 5 genera of Ranunculaceae just described have *one* solitary seed in each carpel.

GROUP II

Consider now a number of related genera looking superficially like Buttercups but with easily seen distinctions.

Eranthis. The yellow flower parts are not petals but sepals ; the petals form little green tubes bearing honey, as in Helleborus. These are termed nectaries. There is a large frilly bract round the flower.

Caltha. The sepals again like petals. True petals are *absent.* Plants always grow in marsh or water.

Trollius. The sepals petal-like, forming a yellow globe. (A few species, i.e. *T. yunnanensis,* have an open flat flower). The petals are reduced to tiny nectaries.

Isopyrum. This beautiful Asiatic genus contains true rock plants which grow in tufts from cliff crevices at high elevations. The delicate white or mauve petal-like sepals surround five small orange nectaries. There are many stamens and two (rarely three) carpels ; the carpels spread out when ripe.

Paraquilegia. Related to Isopyrum ; differs by having five carpels.

These 5 genera differ from Group I in having *several* seeds in each carpel.

GROUP III

The last group to be considered include those genera with more complicated flowers. They have coloured sepals *and* petals which are often blue.

Aquilegia. All the petals bear spurs ; these spurs have nectaries in the base. Number of carpels 5.

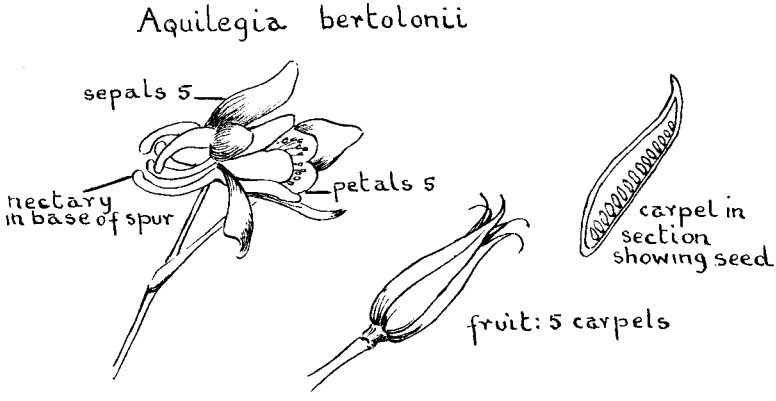

Fig. 7

Aconitum. (Monkshood ; nothing to do with *Winter* aconite which is correctly Eranthis). The upper sepal here forms a protective hood for the other parts of the flower. The flowers arranged rather closely up the stem. Number of carpels 3.

Delphinium. In this case the *upper* sepal forms a long spur. The stem bearing the flowers is branched, carrying a number of flowers. Number of carpels : 1 only.

Group III also develops many seeds in the carpels.

Most members of the Ranunculaceae are poisonous to animals and perhaps this is one small reason why they have maintained their world-wide distribution.

Show Reports

ABERDEEN

THE ABOVE Show was held in the Music Hall, Aberdeen, on Thursday and Friday, the 3rd and 4th of June, and in spite of the lateness of the date in relation to former years, provided a great deal of interest, particularly so as many plants not normally seen at Aberdeen Show were attractively displayed on the benches.

The Judges, Messrs. J. Lawson, F. Sutherland and R. S. Masterton, had no hesitation in awarding the Forrest Medal for the best plant in the Show to *Primula forrestii*, exhibited by J. D. Crosland of Torphins.

The Aberdeen Bronze Medal for the six pan class was awarded to Mr. J. B. Duff of Glenfarg, and a keenly contested scrap for the Walker of Portlethan Trophy resulted in a win for H. Esslemont, Aberdeen.

The Club's Bronze Medal for most points in Section II was awarded to Dr. D. G. Hardy, for an excellent collection of well groomed and presented plants. This type of presentation augurs well for the provision of competition to the 'Old Guard' in future years and we look forward with interest to the progress of this competitor.

In addition, the Forrest Medal Plant and a number of Certificates of Merit were awarded to outstanding plants, amongst these being *Leucogenes leontopodium*, shown by the Cruikshank Botanic Garden, whose colourful and well stocked stand has become such a feature of the Aberdeen Show and which, as in previous years, has occasioned much favourable comment.

Mr. J. B. Aitken gained a Certificate for an excellent plant of *Celmisia bellidifolia* and two Certificates were awarded to H. Esslemont for outstanding plants of *Campanula aucheri* and *Cypripedium cordigerum*.

Well furnished trade stands secured Gold Medals for Mr. Jack Drake, Inshriach, and Mrs. McMurtrie of Balbithan, Kintore.

The standard of plants exhibited on the show benches was as high as we have become accustomed to in Aberdeen and was commented

upon by the Club's President, Mr. David Livongstone, in his well chosen remarks covering the opening of the Show, and in addition Mrs. Livingstone graciously presented the Awards.

A tour of the benches after the opening revealed that plants and their owners had travelled many miles from all over Scotland and we are very grateful to these members for their interest in attending the Show and providing such excellent competition to the 'locals'.

Plants in addition to those mentioned earlier which attracted considerable comment were *Weldenia candida* shown by Mr. Duff, three plants of *Petrophytum hendersonii*, sometimes known as *Spiraea*, shown by Messrs. Esslemont and Aitken and the Cruikshank Garden, the variation in these three plants being quite noticeable, but all very engaging in their individual appeal.

Variation was also noted in *Rhododendron camtschaticum*, shown by several competitors.

A wealth of Lewisias were on display in every variety of colour and shade, both on the benches and the trade stands.

Cushion plants were well represented by Raoulia, Arenaria, Androsace, Gypsophila.

The season was right for Campanulas and some excellent examples were forward. Mrs. Maule secured a First in the class for same.

Mr. J. M. Aitken in addition to other successful plants had a very good *Celmisia walkerii.*

A very attractive *Daphne eximea* was shown by J. D. Crosland and secured a First in its class.

The President had a *Cassiope* 'Medusa' on the benches which attracted attention, in that it was very much up to show standard with its second crop of flowers for the season.

Mrs. Maule showed a very attractive, if young plant of *Leiophyllum hugeri.* Conifers were well represented, Mr. Duff taking the honours in the class. Dwarf Rhododendrons were not greatly in evidence—probably affected by the Show date, but Mr. Esslemont secured a First with a most excellent pan of *R. camtschaticum.*

Mr. Youngson of Perth had amongst an excellently staged array of plants two outstanding plants in *Phlox ensifolia* and *Rhodohypoxis* 'Pictus'.

Mrs. Dyas staged *Calceolaria darwinii* and *Linaria tristis.*

Mrs. Blair had a very good example of Sempervivum.

Summing up, one would say that it was a most enjoyable and colourful Show.

A. D. REID

EDINBURGH

THE Scottish Rock Garden Club Autumn Show was held in the Napier College of Science and Technology, Colinton Road, Edinburgh, on 10th and 11th September 1971. There were over 100 entries and the standard of plants was high.

The K. C. Corsar Challenge Trophy for primulas was withheld till the Spring Show, and the next 4 classes were all won by Mr. Harold Esslemont of Aberdeen. In Class 2, 3 pans Rock Plants of 3 distinct genera for the Carnethy Medal, he showed a superb specimen of *Helichrysum coralloides*, *Cyclamen neapolitanum* and *Conandron ramondioides* ; in Class 3, for the Elsie Harvey Memorial Trophy for 3 new, rare or difficult plants in cultivation, distinct, he had *Raoulia eximia*, *Saxifraga florulenta* and *Aciphylla dobsoni*, and in Class 5, for the A. O. Curle Memorial Trophy for 3 plants grown from seed by the exhibitor, his plants were *Androsace imbricata*, *Dionysia tapetodes* and *Celmisia incana*.

Class 6, also for plants grown from seed by the exhibitor, was won by Dr. and Mrs. Simson Hall with a pan of that very attractive autumn flowerer *Leucojum autumnale*. Class 8, for Scottish Native Plants, was won by Mrs. B. B. Cormack with that interesting plant *Lycopodium selago*, commonly known as Fir clubmoss. Class 9, for silver-grey foliage plants, had 1st equal *Helichrysum coralloides* and *Leucogenes leontopodium*, and 3rd was an interesting looking pan of *Plantago nivalis*. Class 11, 1 rock plant in fruit, had a good entry ; 1st was Mrs. B. B. Cormack with a beautiful and exceedingly well-berried specimen of *Gaultheria itoana*, Dr. and Mrs. Simson Hall had a most attractive pan of charming little *Pernettya tasmanica* ; it is inclined to hide the berries under the foliage, but this was a particularly well-fruited specimen. There were two good exhibits in Class 12 : Mr. John Main's *Raoulia mammallaris*, which is tricky, was in perfect condition, and Dr. D. G. Graham's *Dionysia aretioides* was also in good shape. The Peel Trophy, Class 13, for 3 pans Gentiana, distinct, was won by Dr. and Mrs. Simson Hall. Class 14, 1 pan Gentiana sp., had a particularly charming exhibit, *Gentiana trinervis* (which we think we used to know as *Crawfurdia*), a delicate climbing plant with greeny white-veined flowers.

The Forrest Medal was won by Mr. Harold Esslemont with a superb pan, over a foot across, of *Cyclamen neapolitanum*, quite uniform in height, and at the peak of perfection ; it also won a Cultural Commendation. It was unusual that the leaves and flowers in this

particular form come together, which gives it a very well furnished look. Mr. J. D. Main was second with a nice pan of that ethereal beauty *Cyclamen neapolitanum album.* In Class 25, an unusual plant was shown, *Saxifraga manschuriensis,* about a foot in height, and having rather typical composite heads of pinkish flowers, a very good addition to the rock garden at this time of year. The entry for sedums and sempervivums was good, and they made a welcome addition to the show benches, but there was only one entry in the colchicum class. The heathers made a bright splash of colour, and there was quite a good entry. Class 42, for 2 pans Coniferae, was won by Mrs. I. Simpson. Class 41 included a well-berried plant of that interesting hybrid between a gaultheria and a pernettya, *Gaulnettya* 'Wisley Pearl', called after the garden in which it hybridised.

Mrs. Neilson was first in both the fern classes. A newcomer to the show bench was Mrs. T. M. Hart who had several exhibits, and who won the Bronze Medal for the competitor with the highest number of points in Section II ; she also won the Henry Archibald Rose Bowl for Class 52, 3 pans Rock Plants, distinct, of generally easy cultivation and grown in the open ground. Class 50, for a Miniature Garden, was won by Mrs. M. M. V. McLeod and she, therefore, won the Boonslie Cup. The garden was well planted with suitable material and was in a small, roughly oval, stone trough. The Kilbryde Cup for an arrangement of cut flowers and foliage of alpine plants was won by Mrs. Jill Sleigh. Mrs. B. B. Cormack won the Reid Rose Bowl for the competitor who had the most points in Section I, as well as the Special Bronze Medal for the competitor resident within the boundary of the City of Edinburgh gaining the highest number of points in Section I.

Last but by no means least, we were most fortunate in having two interesting exhibits. One of these was a collection of 60 beautiful paintings of Alpine flowers, brought by Mr. Laurence Greenwood of Pickover Gate, Todmorden, Lancashire. This was enjoyed and remarked on by many people, and our thanks are due to Mr. Greenwood for bringing them for us to admire. The other exhibit was a collection of 60 sempervivums staged by the Royal Botanic Garden. There was a most instructive map showing the habitat of the sempervivums and excellent coloured and black and white photographs of sempervivums growing in the wild, and in cultivation. Both exhibits won Certificates of Merit. We thank the Regius Keeper and the Staff for the trouble taken to provide us with such an interesting collection.

We had two trade stands with a good assortment of flowering plants ; we thank the Gardens, Kirknewton, who got a Gold Medal, and also Spindlestone Nursery, Northumberland, which had a very extensive variety of plants.

The Show Secretaries wish to thank everybody who helped us, not only with the setting up of the Show, but the Exhibitors and all who gave a hand generally.

S. MAULE

B. B. CORMACK

If I could order a Dozen . . .

by BOB WOODWARD

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THE WARY reader might be wise to skip over these few notes : they contain descriptions of plants which are impossibly rare at least in cultivation and often in nature. It is a question of whether you want to excite a temptation which has only the remotest possibility of fulfilment. Occasionally, however, they do appear on Seed Lists, at which point, in our household, the air is rent with wild paeans of anticipation—even considering the long travail before—and if—a flowering plant results. Most of these plants I have never seen and it is possible, despite the allure of the words and pictures which describe them, I might be disappointed. Possible but not probable.

The question of rare plants and its corollary among gardeners, the question of plant snobbishness, is a ticklish one. Most of us, if pressed, will admit to growing at least one or two plants for their status appeal. We do not particularly like them but we "want" them in a very pejorative sense of the word "want". A few examples, in my own case, spring to mind : double trilliums are certainly rare enough but does anyone sincerely consider them an improvement on the unabashed simplicity of almost any single trillium ? While I am in a confessional mood I might as well mention a few other supposedly magnificent plants which leave me quite cold : *Omphalodes luciliae*, almost all *Tulipa* species, most Penstemons, double Primulas, all but

a few *Narcissus* spp., etc., etc. Which is not to say I do not strive, with an often near-obscene intensity, to acquire and grow them !

There is also the gambit of making sure, in a calculatedly casual way, that garden visitors are aware of your coup in obtaining a rarity. "Quite a smothering of bloom on the *Rarus minimus* this year. Such a dowd, really !" But don't think we don't expect our precise due : loud and long praises for our horticultural prowess in laying our hands on something not everyone grows ! The gardener, like the artist, needs constant bolstering to his faltering ego. Only that morning, no doubt, his rounds have revealed a rotting-at-the-crown Aretian Androsace, slimy slug trails where once bloomed his *Viola flettii*, and a sudden spurt of suicidal tendencies on the part of a choice Daphne. One can therefore understand the vicarious reward of having not only acquired but also flowered a *Rarus*. Mind you, one never knows what response your casual reference might elicit. There are the "you should see mine !" type of visitors. Once or twice I have . . .! ! !

In any case, rarity, or rather rare plants, are the subject of these notes. They are about plants I think I want to grow not for their rarity but for their beauty. What one wants to grow is a matter of so many factors : personal taste, situation, memories of the plants in the mountains, availability, curiosity, propaganda, and rarity. There are no Calochortus nor Fritillaria and few Androsace that I do not want to grow. These are my personal favourites in the plant world. At the same time I could well live without practically every Dianthus. However, I don't. Curiosity impels me to try ones I don't know. Propaganda leads me to such things as *Dianthus neglectus*, which I find frankly dull. Rarity enforces me to search out *Dianthus pindicola* and having found it to wonder if it's true, if that is what all the fuss is about.

What then do we mean by "rare plants" ? The plants discussed here are certainly rare in these parts. They may well be extensively cultivated in other parts of the world. Many fine plants do not seem to be in cultivation. Others have been introduced but have petered out. Some plants are rare because of difficulties in propagation : for instance, *Phlox triovulata*, which apparently only increases from root cuttings, and even that is a tenuous proposition. Others are rare because they occur so infrequently even in their native terrain (*Kelseya uniflora*) or because they occur in such remote corners of the earth in places where only angels dare to tread (*Primula dryadifolia*). And even angels might be faced with the problem of political undesirability these days.

The plants I shall describe are rare for at least one and often all of these reasons. They may also be rare because no one would bother to make them common. I may have been brainwashed by an artist's fancy in depicting them or a photographer's manifest skill in making them more attractive than they actually are or by the persuasive words of a Farrer or his ilk. Nonetheless, I should like to grow them and judge for myself. And if to anyone who might peruse these notes they are not rare at all and especially to anyone who might offer seeds or plants commercially, I should appreciate at any hour of the night or day a note, telephone call, or international wire at my expense !

I should like to order a dozen each of :

1. *Berberidopsis corallina*, known as the Chilean coral plant, and probably the least rare on my list. It is also mootly hardy. But what a moot ! a member of the *Flacourtiaceae* (the plant snob would grow it for belonging to this euphonious and uncommon plant family alone), it is an evergreen, trailing sub-shrub with alternate leaves and long-stalked flowers in drooping racemes. It is the colour and texture of these flowers which so whets my appetite : crimson globose blooms of a wax-like texture. Wax-like texture gets me every time ! Although it may need the winter protection of a south wall, Berberidopsis looks like a plant which should ramble over rocks, stumps, tree roots, and low shrubs, offering its vivid blooms over a long period from June to September, followed by the slightly less showy berries. A plant that should do well in our climate, for it loves a high humidity and an acid soil, enriched with leaf-mould. I should suggest that as soon as you get your dozen, try them in the peat bed, where the requisite winter drainage is available. And then you can propagate by taking cuttings of the soft shoots in spring or by layering the ripened wood in autumn. I wonder what other Flacourtiads I might like ?

2. *Viola petraea.* While we are in South America, why not pick up our dozen Rosulate violets, about which so many of us have dreamt about for so long. These are the Andean violets discovered and fleetingly introduced by the late great plantsman, H. F. Comber. They are pictured, to further tempt you, in Clay's *The Present Day Rock Garden.* The Rosulate violets are so unlike others. They form encrusted rosettes, much like a Saxifraga or Sempervivum, with a coronet of flowers encircling each rosette. Even without the flowers, the thick rosettes with a white translucent edge, are an alpinist's dream. *V. petraea* has the largest flowers of the group, white, blue, or pink, and sometimes veined. If you don't find *V. petraea,* don't turn down

V. coronifera, V. auricolor, V. comberi, V. volcanica, or *V. replicata.* Growing them is another matter. Clay says that "the enthusiastic alpinist will put them next to his stony heart in his scree or alpine house—though whether they will be responsive enough to grow there is another matter". Sandy stony soil in a long pot (because of the long taproot) and daily sacrifices to the goddess Aphrodite, whose beauty surely must have inspired such beatific visions !

3. *Mutisia decurrens*—is again South American and again mootly hardy. It is a *Compositae*, a family dear to my heart despite the deprecations of Farrer, my Bassett hound Simon, and sundry Club members who shall remain nameless ! And it is a climbing *Compositae* ! ! If you can imagine ! ! ! The Mutisias were named after a Spanish botanist and explorer, J. Celestine Mutis (1732-1808), who founded a botanical institute in Colombia and who employed teams of artists to make over 6000 drawings of South American plants. Some of these were first published as late as 1955—who knows what other temptations lurk in these illustrations ? There are over 60 species of Mutisia, some with holly-like leaves, others like *M. decurrens* with narrow-oblong evergreen leaves, with the end of the midrib of the leaf lengthened into a tendril. Thus they scramble through sub-alpine pasture land. The flowers of *M. decurrens* are spectacular, five inches across, and bright orange or vermilion or coral, depending on whom you read. The flowers are very long lasting and you can be sure of bloom, once you can grow it, all summer. Mutisias do need a moderately rich soil and some protection, either from shrubs over which they scramble but more likely through some more artificial means. They can be propagated by detaching the suckers, as in *M. decurrens*, or by cuttings of half-ripened shoots in most of the other species. Occasionally, but not readily, fresh seed will germinate—thus I acquired *M. oligodon*, and one or two others. Vermilion compositaes on a climbing, rambling shrub—I can hardly wait !

4. *Urceolina urceolata*—is the only bulb on my list and I rather wonder whether I chose it partly for the Lewis Carroll sounding name it has acquired. The name is derived from the Latin word "urceolus", meaning a "little pitcher", and referring to the strangely shaped flowers : the lower part of the stalk-like tube swells abruptly into an urn-like upper section of the flower. Although Urceolina is a member of the *Amaryllidaceae*, if I had guessed from the illustration I should have thought I was looking at one of the more curious Fritillarias (although the original discoverer called it a Crinium), even to the

opalescent yellowy-greeny colour. The flowers are nodding, about 2 ins. long, emerging from a slender, long-stalked pedicel, and they form a drooping, many-flowered umbel. The leaf is like the lily-of-the-valley but with more substance and texture, margined in white. I should hope Urceolina would be hardy, as it is described from the Peruvian Andes, but it would no doubt need the protection of a bulb frame, or at least a south wall, planted in good fibrous loam, leafmould, and sand in equal parts. It is not a difficult name to recollect should it appear on a Seed List. If you do note it, remember "any hour of the night or day !"

5. *Cruckshanksia glacialis*—South America is definitely the most popular region of these notes, probably because so few of the great plants of the continent have found a permanent home in cultivation. Let us fervently hope that Cruckshanksia soon does. What a plant ! Another discovery of Mr. Comber, it looks like the perfect refinement on the genus Asperula. They are both *Rubiaceae* and both have pronounced tubular flowers. The Cruckshanksias, restricted to the Southern Andes, form flat rosettes of smooth, leathery, dark green leaves—an appearance that one look at makes you scream, "No winter wet !" The flowers are a bright lemon yellow, delicate starry faces lifted on long corolla tubes instead of stalks. According to Mr. Comber's original notes they are strongly narcissus-scented. There are other species to look for such as *C. macrantha*, which has silver-grey spatulate leaves with the same thick texture of both flowers and foliage, and similar beautiful yellow tubular flowers. Cruckshanksias are plants of the dry screes but most of us, if ever we acquired one, would no doubt afford it the choicest corner of the alpine house. And probably coddle it to death !

6. *Hamadryas argentea*—We are managing to wend southwards, into the Antarctic regions. Here is a plant confined to the Falkland Islands, and one of the most joyous discoveries of the young Joseph Dalton Hooker. There are five perennial species in the genus, members of the *Ranunculaceae*. Apparently, it was quite common in the islands at one time but is now becoming grazed out by the sheep. I do not know, but doubt, whether it is in cultivation. It most definitely should be ! The whole plant is covered with silver and golden hairs—leaves, stalk, and flowers—giving it a very shaggy appearance. The leaves are tripartite, very much buttercup-like, but downy-silky. The flowers are a sulphur yellow, multi-petalled, with "the segments spun out into long wispy points so that the flower looks like some absurd hybrid

between an Anemone and a starfish''. The plants grow to approximately 10 ins. and would adapt, I expect, best in the alpine house or alpine frame. Hairy foliage spells winter trouble ; hairy stems and flowers as well indicate a continuing rarity for this magnificent plant.
7. *Pleurophyllum speciosum* is another Antarctic endemic, confined as it is to Auckland and Campbell Islands south of New Zealand. It is a sumptuous—if not exactly alpine—plant. One of the flaunting *Compositae*, a herbaceous species, related to Celmisia. And like the Celmisias one of its great attractions is the lush, corrugated foliage ''ribbed and vested in silk''. The plant can grow up to two feet but can also, under certain conditions, remain dwarf and stunted. The Celmisias bear attractive white daisies ; Pleurophyllum produces on heavy stiff stalks enormous violet daisies, perhaps too gaudy for those not afflicted with a passion for daisies. The central part of the flower is darkened with purple, adding mystery to the showy brilliance of the whole. I should think cultivation would present problems similar to Celmisia culture : moisture at all times but impeccable drainage, particularly in winter. I am now trying Celmisias in a sunny portion of a well-drained peat bed. Oh ! how I can imagine a lush, purple-bespangled Pleurophyllum to keep them company.
8. *Coprosma pumila*—New Zealand has many rare and enticing plants but I have settled on the most appealing member of a genus which has long fascinated me. There are over 90 species of Coprosma, half of them native to New Zealand. They are members of the *Rubiaceae* and their singular attractiveness in the garden is (or would be) the translucent drupes formed after the inconspicuous flowers. All the Coprosmas are unisexual and it takes a more observant eye than mine to distinguish the male and female flowers in the minute blooms. Often I haven't even noticed they were in bloom ! But without both male and female plants—no drupes ! *C. pumila* is a prostrate, creeping shrub, which in nature forms large matted patches. The drupes are bright red, about $\frac{3}{8}$ in. in diameter, and nestled among the small and refined foliage. The leaves are opposite and evergreen ; the superficial resemblance is to the more choice Gaultherias. The Coprosmas are not all hardy but certainly those from the higher regions have been hardy for me. Even though I have yet to see any drupes ! *Coprosma pumila* is an alpine species. Seeds of it were recently available from the 1970 Scottish Rock Garden Club Seed List. Who knows, soon I may not be able to include it among the rarest of the rare, although seed germination of Southern hemisphere gems is always precarious.

Coprosmas love peat beds !

9. *Trichomanes reniforme*—I am no fern buff but the descriptions of this intriguing little kidney fern make it sound as appealing as some of the fern relatives—Selaginella and Lycopodium—which hold a special place in my affections. It is one of the filmy ferns, about which at one time there was a discussion as to whether they were true ferns or no. I'm afraid the taxonomic niceties are beyond me. And thus so far is *Trichomanes reniforme*. It has small, delicate but quite leathery circular fronds of a rich deep green colour. The fronds, even though leathery, are very transparent. When fertile the spores form a beautiful fringe around the edges of the fronds, giving the whole plant a beautifully scalloped appearance. The plant is about 4-8 ins. wide and 2-4 ins. high. New Zealand, of course, means a hardiness question but many of the plants from there, after perhaps an initial stage of adjustment, do prove remarkably hardy in our climate. "Most of the filmy ferns will thrive in a lower temperature than would seem reasonable in view of their native countries". They need a moist air, subdued light but not dense shade, and a compost of soft broken stone mixed with rough peat. I would grow this fern in a crevice in the peat wall, both for the beneficial drainage and ensured moisture, and for the aesthetics of the matter. This is one of the most attractive positionings for the dwarf fern species.

10. *Didissandra sericea*—Plants of Asia conjure up visions of the mighty Himalayas but there are of course many fine plants in other parts of Asia, particularly in China, now rather impossible of collecting. This Didissandra is native to Western China and as far as I can tell still remains in that genus, although many of its former congeners have been moved to Oreocharis, Briggsia, Lysionatus, and Corallodiscus. All these genera are choice, very choice, members of the *Gesneriaceae*, and relatives of the well-known Ramondas and Haberleas and the not-so-well-known prize of the Greek flora, *Jankaea heldreichii*. This Didissandra is definitely reminiscent of Jankaea : it is densely hirsute, giving the whole plant a silky silvery appearance. The basal leaves are thick-textured, arising from a woody rootstock ; the underside of the leaves is cinnamon-woolly and much veined. The flowers are more campanulate than in Ramonda or Jankaea, formed in umbels with a corolla tube $\frac{1}{3}$ in. long. They vary in colour, usually blue, but possibly pink, white, mauve-blue, even bicoloured. The peduncles, like so much else of the plant, is extremely white-hairy. If I should acquire *D. sericea*, my first reaction would be—"Now, what

do I do with it ?'' A pot and a medium soil of superb drainage are obvious, but after that—problems. No moisture—never, never, never, never, never—on the silken rosette. Drought or near in winter, a modicum of shade, and the tenderest of ministrations. And tenderest might be the operative word. *Didissandra sericea* is one of the supreme arguments I know for a frost-free alpine house !

11. *Nomocharis basilissa*—I first saw Farrer's drawing of this reproduced in E. H. M. Cox's excellent book, *The Plant Introductions of Reginald Farrer*. I flipped ! Not only was it a Nomocharis—and these close relatives of the lilies are surely some of the most ethereal inhabitants of this earth—but also it was a *scarlet* Nomocharis. Whether or not it has survived in cultivation I cannot say, but again rather doubt. The Nomocharis are a touch temperamental. They like moisture-laden summer air and winter drainage worthy of a Calochortus. They resent disturbance even at the seedling stage and they do not long survive if the bulbs are subject to any drying air. But never be put off by these admonitions ; they are worth every ounce of energy and every pound of care. *N. basilissa* was rapturously described by Farrer, when he first discovered it on an expedition to Upper Burma in 1919-1920. ''Pure, luminous, and wondrous''. But alas ! fiery *N. basilissa* has glowed more for its describer than for anyone else. ''Basilissa'' is Greek for ''queen'' and Farrer, who named this lovely plant, did not readily bestow such epithets. It is a multi-scaled bulb like a true lily but has the tubeless flowers of Fritillaria. For a long time the plants hovered fitfully between the two genera. The flower is scarlet, unspotted, bowl-shaped, with a purple-black crested nectary blotch at the base. The leaves are whorled and rather too fragile looking to support so majestic a crown. The Nomocharis are part of the sub-alpine meadow vegetation and associate well, both in nature and in the garden, with Primula and Meconopsis. The soil should be a peaty humus ; they grow well in filtered sunlight but the feet must be sheltered. I have already chosen a select spot for the scarlet queen. Can the Club afford to mount an expedition to Burma ?

12. *Anemone demissa*—Another of Farrer's discoveries on his last journey into Upper Burma and closely related to the circumpolar *Anemone narcissiflora*. I could not believe my eyes when I saw this listed on the latest ARGS Seed List, for often I had gazed at Farrer's painting (also reproduced in Cox's book) of this beautiful bright rose-coloured (or pure white) Anemone and for some obscure reason fancied that such a gorgeous thing must surely be lost to cultivation.

You can imagine what my first choice on that list was ! Furthermore, this woolly-leaved Anemone with flowers which should be the colour of *Potentilla nitida* (with a touch of violet on the back of the petals) is reputed "not exacting in cultivation ; it will thrive under similar treatment to other members of the genus". Please—Mr. Seed Director !

13. *Paraquilegia grandiflora*—has also flitted from one genus to another—Isopyrum to Paraquilegia. But more to the point it has been described as "perhaps the loveliest of all Rock plants". Farrer found it in cool shaded crevices of the limestone cliffs of Kansu, China, always a saxatile plant. The foliage itself appears immensely attractive : a tuffet of columbine foliage, rather like a compacted maidenhair fern of a sea-green hue. The flowers are large, white, solitary, and pendant, with a texture like silk. Farrer apparently found an even more incredible Paraquilegia/Isopyrum, which was designated *I. farreri* : "one of the loveliest things I have ever seen in my life . . . an Isopyrum that simply sent grandiflora supperless to bed . . . dancing blossoms of sheeny lavender purple . . . with a fluff of golden stamens at their hearts, and five orange-coloured nectaries set round . . . an introduction so important, so vigorous, hearty and superb, that in itself it would have been worth the whole year's expedition." (Farrer from *The Rainbow Bridge*). *Paraquilegia grandiflora* is definitely in cultivation, especially in Scotland, where the cool humid summers are to its taste, but I have never heard that it set seed in cultivation. It is not an easy plant, needing an alpine house or, even more satisfactory, a scree frame. Isopyrum ? Paraquilegia ? "Perhaps the loveliest of all" ! !

14. *Primula cuneifolia*—Of the many possibilities of delicate rarities from Japan, I have chosen a Primula. This is one of the sub-shrubby Primulas, closely related to the Californian *P. suffrutescens*, and altogether a plant of refinement and grace as so much of the Japanese flora is. And cussedness ! For as far as I can tell it has obstinately refused to settle easily into cultivation. It occurs from northern Alaska, through the Aleutians, and into the Japanese island of Hokkaido, a place all plant-seekers should put on their list. There it grows in the damp turf of the tundra soil. The leaves are fleshy, the rosettes neat and compact, the scape short and covered with farina. The entire tufted habit of the plant is one of its charms. The flowers are variable in colour (and description) : pink, pink-purple, rose-pink, rose-purple, with a yellow eye. They are 1-2 ins. across, formed in umbels. Their greatest distinction is the deep cleft in each of the lobes, giving them

something of the appearance of the European *Primula minima*. What the requirements of cultivation are I cannot say. *P. minima*, similar in appearance but not of the same section, grows easily but seldom flowers ; with careful treatment and not too much sun *P. suffrutescens* of the same section (cuneifolia) can be tamed. *P. cuneifolia* has varietal forms such as var. *dubyi*, but I'm not fussy. Any cuneifolia will do !

15. *Androsace triflora*—These notes, considering the predilections of the author, would not be complete without mention of at least one Androsace. From so many rare ones, from the Aretian cushions to the uncommon, more herbaceous types of the Himalayas, the choice is difficult. I have selected an Arctic species, *A. triflora*, mostly because of its yellow flowers, unusual in the genus. It forms densely tufted cushions, not so tight as in the Aretians, with green foliage somewhat reminiscent of the foliage on the tufted hairy Drabas. It grows on the shorelines of Novaya Zemlya, an island in the Berents Sea, north of Arctic Russia. It apparently re-occurs in the central arctic regions of Asia. The plants seldom grow more than 2 ins. in diameter, about ¾ in. high. The flowers are three terminal yellow blossoms, five-petalled, on short scapes. The yellow in the painting of the plant is clear and bright. Cultivation probably demands alpine house conditions but one can never be sure. Some of the arctic Drabas are readily grown in open scree. Androsaces are usually a different kettle of fish, if you pardon the metaphor. Do we have any members in Siberia ?

16. *Silene plankii*—We at last reach North America. My interest in this plant was wildly stimulated when I so gratefully received a few seeds from Linc Foster this fall. The plant is a rare endemic of New Mexico, so rare that some of the literature reports only one collection, although probably there have been others since the last printing. There has been some contention as to whether *S. plankii* is a separate species or a variety of *S. laciniata* of California and other Southwest states. But *S. plankii*, a low perennial of about 5-8 ins., has certain distinct differences from *S. laciniata* : it is shorter ; has smaller, narrower leaves ; exserted style and stamens ; and bilobed petals, giving the flower quite a different shape, rather like a double-pointed star. The colour is flaming vermilion ! Often the inflorescence consists of one large terminal blossom. The leaves are cauline (up the stem) and linear, so that the great attraction is the shape and colour of the flower, with its claws smooth but the rest of the inflorescence hairy.

It is a plant, I understand, of rocky ledges and if it is to be accommodated, would require superb scree conditions. Most of the Silenes do not like the full blast of the sun. I have had no germination as of this writing but as spring approaches that precious pot will be watched with an intensity, the force of which should ensure germination. Or perhaps I had better cool it. Literally and metaphorically.

17. *Synthyris pinnatifida*—The other North American on this list will include references to *Synthyris* spp. much rarer than *S. pinnatifida.* But since this was one of the most beautiful plants I saw in this past summer of plant hunting, I felt it had to be included. We found it on Mt. Hollowtop in west central Montana after a long arduous hike. Synthyris, members of the *Scrophulariaceae*, are some of the finest of western North American alpines. They are perennial plants with rhizomatous root systems, usually low and compact. The leaves of *S. pinnatifida*, as the specific name indicates, are fern-like or pinnately dissected. The plant is about 6 ins. high and, unlike its counterpart of the Olympic Mts., *S. lanuginosa*, glabrous rather than white-tomentose (smooth rather than hairy, green rather than silver). The blue of the terminal flower spikes is dazzling ! The individual flower bears close inspection : an unequally 4-lobed blossom which in its total effect is both showy and subtle. There are other rare Synthyris which I should like to know and grow. Roy Davidson is presently making a study of them which should prove of tremendous value. *S. canbyi* is the rarest and most diminutive ; it is known only from the Mission Range of southern Montana and that but seldom. *S. platycarpa* is found in central Idaho if one is lucky (and Roy was) and is closely related to *S. schizantha*, an uncommon plant of the Olympics. *S. laciniata* hails from Utah. There are others, I gather, well worth diligently searching out. Cultivation of the high alpine Synthyris is problematic. We have grown *S. lanuginosa* as a pot plant with apparent ease for some time although its flower buds, formed in the autumn, do not always develop. In the open garden it is more exacting, requiring the protection of a rock ledge or crevice. *S. pinnatifida* should do well in a granite scree but whether our collected plants will thrive or otherwise is still to be determined. Hope springs eternal. . . .

18. *Iris paradoxa*—The last subject of these notes belongs to a group of plants famed and fabled for many a long time, apparently as far back as the ancient Egyptians—the Oncocyclus Irises. Some of these Irises are depicted on Egyptian murals and one of the pharaohs, Thothness III, is said to have cultivated them. They are one of the

great glories of the flora of the Middle East—indeed of the globe itself ! Some of them such as *I. lortetti* and *I. gatesii* are dubiously hardy, mostly because they start into growth too early in the winter and suffer disastrously from sharp frosts. *I. paradoxa*, from northern Iran, is not only one of the hardiest but also one of the dwarfest. It is similar to *I. iberica* and *I. acutiloba*. The leaves are about 6 ins. long, typically irid. The curious single flower is pale purple, covered along the middle with black-purple, velvety hair, and veined black-purple near the edge. The standards are white-veined and dotted deep blue-violet. The whole appearance is fragile, compared to the sumptuous *I. gatesii*, but like all of the race it has an aura of the shadow world, dark, fey, haunting. A white variety 'choschab' is sometimes referred to as *I. medwedewi*. There is ample literature on the cultivation of the Oncocyclads but the basic requisites are a calcareous soil of good heart (beautiful phrase), necessarily in frames or pots in our climate. We are attempting them in the bulb frame where they receive no water whatever from July to October, but at no time will they brook excessive wet. We give them water only from March to June and as little as possible even then. The character of the Oncocyclus Irises is nowhere better described than in Farrer's *The English Rock Garden* : ''They are a doomed and lonely race of irreconcilable Troades in weeds of silken crape, sullenly and grandly unresigned to exile and captivity, passing out of their captor's hands in a last defiant blaze of dark and tragic magnificence. They are the chief mourners in their own funeral pomps, wistful and sombre and royal in an unearthly beauty of their own, native to the Syrian hills that have seen the birth of gods, but strange and hostile to the cruder colder lands. They are the maidens that went down into hell with Persephone, and yearly in her train they return to make a carpet for her feet across the limestones of the Levant. But not for ours—their loyalty to their mistress holds only good in Syria ; they do not recognize her in the rain-cloaks that she wears in the West, and lands of younger divinities shall never twice re-greet such children of mystery as these.''

I expect too much of Farrer's doom-laden comments might apply to most of the plants in this list of the rarest-of-the-rares. But alpine gardening is an adventure. Sometimes an impossible one !

Some New Zealand Alpines at Darras Hall

by GARTH I. MERELIE

IF THE name Darras Hall gives the impression that I garden in several acres surrounding a large mansion, then that impression is quite false. Darras Hall is the name of an estate which is part of Ponteland, about eight miles N.W. of Newcastle upon Tyne. This estate is divided into attractive sites which vary in size from one quarter of an acre to several acres and my site is only a little over a quarter of an acre. Nevertheless, most visitors are surprised at the large range of alpine plants which can be grown in this part of N.E. England which for Club purposes, covers a very extensive area.

The N.E. England Alpine & Rock Garden Group stretches as far as the River Coquet in Northumberland in the North, to the West Riding of Yorkshire (which goes as far as Sheffield) in the South. The climate is generally cold and dry here and the average rainfall is 28 ins. a year. Rhododendrons invariably get spoilt by frost and conifers become burned in the icy gales during the winter and early Spring. Alpines seem to thrive in these hard conditions, however, and I sometimes consider that our climate is a good compromise between the conditions prevailing in the North of Scotland and the South of England. For example, *Anchusa caespitosa* thrives in the open garden without protection, although I usually cover one plant in winter as an insurance. Some Scottish growers find that it needs nursing in the alpine house. Petiolaris primulas, usually difficult in the South, grow easily outside with a little bit of extra care.

The alpines of New Zealand hold a special fascination for me and it is on this subject that I will devote the rest of this article.

If one stops to think, what rock garden is complete without a collection of Celmisias and Aciphyllas ? The answer probably is that a rock garden is never complete and, despite the fact that I grow dozens of different species, I never stop looking for new ones. These are plants which look very fine on every day of the year. Who could behold the stand of *Celmisia coriacea* in the foregound of *Pinus sylvestris aurea* on a cold winter's day at the Royal Botanic Garden, Edinburgh, and fail to be impressed by what they saw ? Yet Celmisias

in the South are rarely seen and they are conspicuous by their absence at Kew and Wisley. I propagate most of my celmisias from imported seed or open ground cuttings. The imported seed must be fresh and germination will be either very good or nothing at all. Seed is necessary for plants not in cultivation in this country, but existing stock is most easily increased by open ground cuttings. In Spring, cuttings are taken with a heel and inserted in pure peat in the Peat Garden. It is usually convenient to plant the smaller species just behind the peat wall so that they are in fact touching the peat blocks. The larger species may be planted *in situ* where they will root and form an impressive drift. Some celmisias dislike being moved late in the season and most of them dislike being dry at the roots.

Few genera include such a wide range of form among their species as does the genus Celmisia. *Cc. coriacea* (fig. 8) and *hookeri* are among the largest. The former will grow into large clumps and each rosette will root if they are removed. The latter seems to like being split up often and my plants, as well as plants I have seen, have tended to rot off if allowed to grow too big. *Cc. argentea* (not to be confused with *C. spectabilis argentea*, the silver form of *C. spectabilis* which is a deep green plant) and *sessiliflora* are the smallest species, especially the diminutive Mt. Potts form of the latter.

The large species are all, in my experience, very free flowering. I wish the same could be said of the smaller species. Intermediate size species, such as *Cc. hectori* and *ramulosa*, tend to flower reasonably well, but rarely well enough to make an outstanding show. It might almost be said that in general Celmisias become more shy-flowering as they get smaller. I have no doubt that there will be exceptions to this theory and I would be pleased to learn of other persons' experiences. They are all most attractive from a foliage point of view and I regard flowers on the small species as an added bonus.

When the large species flower, the flower stems are thick and usually slightly out of scale in relation to the size of their flowers which are usually extremely full and with beautiful white petals surrounding a golden disc. They are very intolerant of shade and resent being planted near any larger object. The flower stems will all lean away from the shade and give the plants an unsatisfactory imbalance which is accentuated by the fact that their stems are inordinately thick.

One advantage of this family is that it includes some really difficult species which I have not yet been able to obtain, so I cannot speak from experience. *Celmisia vernicosa* is one of them and it would be a

great treasure in any alpine house. Farrer describes it as having rosy flushes at the tips of its petals and a brilliant violet eye. It has the reputation of being the most difficult, but *Cc. laricifolia* and *armstrongii* are supposed to be difficult also.

Celmisias hybridize very readily and even wild seed produces a large range of hybrids. I personally try to avoid these, although some of the hybrids from the larger species make the most garden worthy plants.

Whilst Celmisias could be described as plants grown for character rather than flower, this is most definitely true in the case of Aciphyllas.

Aciphyllas are comparatively rare in cultivation and are seldom offered by nurseries. It takes a long time to build up a collection and the most certain means is by obtaining wild seed. This is sometimes offered in the seed distribution of the American Rock Garden Society which has among its membership a lot of New Zealand enthusiasts. The A.R.G.S. has introduced a Summer seed distribution which has included a number of N.Z. species. Much of this has proved to be viable and I have found that most N.Z. seed must be sown fresh if germination is to take place. Like Celmisias, the different species of Aciphylla include a wide variation of form and colour. Plants I grow include *Aa. colensoi* and *ferox*. These are large species and *A. ferox* is aptly named the Fierce Spaniard because the onlooker must court it with utmost care because, like many species, its stiff needle-shaped leaves are terribly sharp and could inflict nasty jabs to the unwary ! *Aciphylla munroi*, Pigmy Speargrass, is one of the smallest and appears to grow best in peaty conditions. *A. aurea* is supposed to be a large plant, but all my plants have remained small. The plant shown as *A. ferox* in J. T. Salmon's "Field Guide to the Alpine Plants of New Zealand" is regarded by a number of N.Z. botanists as being *A. aurea*, which endorses the view that it is in fact a large plant in nature. Again, the genus includes at least one not-so-easy species, because *A. dobsonii* is usually grown in the alpine house, although up to now I have been unable to secure one. Aciphyllas grow well in raoulias, of which more will be said later.

Raoulias are outstandingly good foliage plants and range from ones which are exceptionally easy to grow to ones which are virtually impossible to grow to any size. This genus may be conveniently divided into carpeting plants and vegetable sheep. The first type are invariably grown in the rock garden and the latter are invariably grown in the alpine house. There are a large number of each type not

in cultivation in this country at the present time.

The carpeting raoulias are grown here on very arid screes and they do best on sunny slopes. Some are fast growing and some are very slow growing. They are all different colours and textures. These plants are the very first to colonise dried up river beds in nature and, as such, they are totally intolerant of competition from loose-growing or overhanging plants which cause them to rot off. No alpine gardener could fail to enjoy seeing a hard tight plant of *Raoulia australis* growing a yard in diameter. This can be achieved from a cutting in three or four years. It is a beautiful silver carpet with attractive yellow flowers which themselves cause rotting in the mat, though this rotting is soon taken up with fresh growth. On the opposite end of the scale, *R. grandiflora* on an arid scree is as tight as the smallest Kabschia saxifrage and of a silver more pure than *R. australis*. It is exceedingly slow growing. *R. tenuicaulis* is probably the fastest growing and is bright green and forms a very tight mat in arid conditions. It will grow indefinitely over large rocks, not overhanging the rocks, with apparently no sustenance. *Rr. lutescens* and *haastii* are slow growing and form delightful mats on the scree.

I recently conducted an experiment which has turned out to be most successful. On the premise that raoulias will not suffer competition from other plants which cause them to rot off, I reasoned that they might tolerate growing with aciphyllas. Since these Speargrasses are stiff and erect, not too ground hugging, and allow light to pass through their leaves (giving a spectacular lighting effect in bright sunlight) it was thought that they might grow in harmony with raoulias. A young plant of *Aciphylla aurea* was dibbled into the centre of *Raoulia lutescens*, which soon embraced the aciphylla tightly around its base. The two plants are perfectly happy together.

My latest development is to clear a large area of rock garden and convert it into a very deep and arid scree. Metal sleeves containing pure peat were inserted in occasional places to receive plants of Celmisia and Aciphylla, these sleeves being well buried under the top dressing of chips which is several inches deep. I have planted some large celmisias in these bins though these will not allow raoulias to grow around them owing to the decaying leaves which develop around their bases. Because of this, the slow growing Raoulia species will be planted around the celmisias so that they can be kept clear. The fast growing raoulias will be planted around the Aciphyllas and they will be allowed to encompass them. The overall effect in a few years time

Fig. 11—*Erinacea anthyllis* Photo—The late D. Wilkie

Fig. 12—*Merendera montana* Photo—H. Taylor

Fig. 13—*Crocus nevadensis* Photo—H. Taylor

Fig. 14—*Silene boryi*

Photo—H. Taylor

should be one of great beauty at all times of the year. Weeds seem to be little trouble with these plants, which tend to exclude them with their tight growth.

Brief mention must be made of the Vegetable Sheep with which I regret to say I have had little success up to now. They are the group which most fascinate me, however, and include such species as *Rr. eximia, mammillaris, bryoides* and *buchanani*, and also *Haastia pulvinaris*. I am persevering and if I reach some mastery of this section I will be pleased to pass on my ideas with another article.

Of the masses of N.Z. alpines growing at Darras Hall there are three which I regard as being especially garden worthy.

Wahlenbergia albo-marginata is a perfect scree plant. The form I grow spreads gently through the scree in either sun or shade and has an extremely long flowering period throughout the Summer. It only occasionally seeds itself and never becomes a nuisance. Flowers in shade are perhaps a slightly deeper blue than the usual very pale blue of its campanulate flowers. Oddly enough, of the many friends who have taken a clump of this plant, most of them seem to lose it. I find that any division will soon settle down and spread slowly through any scree.

Ranunculus lyallii is a reputedly difficult plant. Mine was planted in the peat garden where the crown would be moist, well drained, and shaded. Last year it produced an abundance of flowers and this was its second year from planting. It is a fine white flower with veins clearly visible on close inspection of its petals. This year it did not flower and I am wondering whether it has exhausted its soil. When it was planted, a moderate amount of cow manure was placed beneath it and this year it produced only leaves. Young plants were raised from the seed it produced the previous year, however, and these should provide material for further experimenting.

There is a hybrid Ourisia known as *O. macrocarpa* x *caespitosa gracilis*. The first of these parents is found rather rarely in cultivation in this country although there is no reason to believe that it is a difficult plant. The other parent is quite common and I have even seen it on the show bench. Whereas *O. macrocarpa* is large-leaved, *O. caespitosa gracilis* has very small leaves and they both make good plants for the peat garden. This is a case, however, where the hybrid is vastly better from a horticultural point of view. The leaves are fairly small and tight growing and have a pretty purple colour on the reverse side. The flowers are extremely large for the size of the plant

and are of a pure white with a large golden eye. The plant has the charming habit of preferring the peat block and when it is planted behind the peat wall it will grow tightly on the peat blocks right to their edge, when it will stop spreading. It will grow through *Celmisia argentea* and the two will thrive in harmony. For those who argue that peat as a substance provides no feeding, the habit of this plant is very difficult to explain !

Plant Hunting in Andalusia

by HENRY TAYLOR

EARLY IN July we camped in the mountains of Southern Spain 2000 miles South of Dundee as the car rattles. First visiting the Motril-Marbella coast to please our children, we warmed the camera up on Jacaranda, Caesalpinia and *Ipomoea hederacea*. Then started serious plant hunting on the road to Ronda and beside the snowfields of the Sierra Nevada, returning home via the Sierra Cazorla.

Commander Stocken's 'Andalusian Flowers and Countryside' was the inspiration for our trip and a useful guide to the unique flowers of this region. We climbed inland from San Pedro de Alcantara through the Sierra Palmitera, dwarf *Chamaerops humilis* palms then pine forest. Huge pine cones were spread on round platforms in the sun. The kernels are used to decorate cakes. A remarkably good form of the Rusty Spanish Foxglove, *Digitalis obscura laciniata*, grows by the roadside. This plant has chestnut and gold flowers over hard prickly leaves. Another plant of the open forest is *Halimium atriplicifolium*, a shrub with golden felted branches and long-stalked yellow flowers. At a higher altitude on peaty soil, the large rosy flowers of *Cistus crispus* were borne on bushes only one foot high. This plant flowers well in a friend's garden in Perthshire. At the 4000 ft. summit of the pass superb *Campanula mollis* clings to vertical limestone cliffs. Large soft blue flowers on top of velvety grey woolly leaves. Also hanging from the bare hot limestone, *Putoria calabrica*, mimicking *Daphne cneorum*, and a small Toadflax striped like a bumble bee, *Linaria tournefortii*.

Anyone visiting Ronda, with its dazzling Moorish buildings and legends of cruelty, should explore the nearby Cueva de la Pileta,

Holding our Tilley lamps we walked a mile under the mountain to see those amazing prehistoric cave drawings.

Back to the top of the mountains and the highest road in Europe. An excellent tarmac road runs right up the Sierra Nevada mountains to the 11,126 ft. summit of the Veleta. In July the lower slopes were burnt brown. Good flowers started at 6000 ft. with *Anthericum liliago* and *Polygala comosa*, the latter making very showy pink hummocks. Also on this limestone part of the mountain the first of the silver-leaved plants, *Jurinea humilis*, with little fluffy blue flowers. Above 7000 ft. the rock changes to mica schist. We made our first camp site at 8000 ft. on plant studded scree beside a snowbank. Clear fresh water trickled out from under the snow. Dusk, a deserted road and bitterly cold. Moh Lee, Li Dah and family from Singapore were decidedly grateful when I fixed a fault in their car. "Isn't it cold camping beside the snow ?—but of course you are Scottish and like the cold".

Plants of our scree included the yellow *Chrysanthemum hispanicum radicans* with silky-haired leaves, *Anthyllis montana rubra* with deep rose flowers and silver leaves, perfect little cushions of *Arenaria tetraquetra* and another grey-leaved endemic, *Linaria nevadensis*. We managed to name many of the plants by studying pressed specimens in the Albergo Universitario, a students hostel halfway up the mountain. These specimens, collected by Professor Munoz Medina of Granada, include some of the plants peculiar to the Sierra Nevada. Where water trickled out of the melting snow, golden clumps of *Ranunculus demissus hispanicus* mingled with the beautiful pink and white *Ranunculus acetosellifolius*. In drier areas, *Thlaspi rotundifolium* grows in company with *Plantago subulata nevadensis* and *Leontodon boryi*, an endemic with pale yellow dandelion flowers over grey leaves. At this altitude the pink *Dianthus brachyanthus alpinus* had tiny leaves and flower stems only one inch tall. We had seen this plant lower down the mountain with long straggly flower stems.

Climbing to 9000 ft., my wife was the first to spot that most exquisite Cranesbill, *Erodium cheilanthifolium* (fig. 9). Tiny grey leaves and flat-faced white flowers with purple veining and a purple spot in the centre. From this level to the summit, snowploughs had cleared the main road, but all side tracks were blocked by snow. A steady trickle of tourists set their cars grinding up to the top of the mountain. They only step outside the car for a moment. In that blazing sunshine the cold has to be experienced to be believed. *Viola nevadensis* hides

under the rocks all round the windswept summit of the Veleta. Remarkably large blue flowers for such a tiny plant. Just as showy, *Saxifraga nevadensis* stands right out on the open scree, leaves invisible under a cloud of white flowers. The only other plant on that barren rocky summit is an exceptionally dwarf form of *Erigeron alpinus* with stemless large flowers glued on top of the foliage.

After the summit we resolved to visit the Laguna de las Yeguas. Cdr. Stocken goes into raptures over the plants by this lakeside. We dragged our children over miles of snowfields, hanging on to them grimly on slopes and cornices. On 2nd July that lake was completely surrounded by snow and ice, those desirable plants somewhere under the snow. Some way below the lake as we neared the edge of the snow, we found seething masses of ladybirds. We carefully lifted some of the ladybirds onto grass nearby, but they deliberately flew straight back to the snow ! *Gagea hispanica* studded the grass with deep orange flowers shading to pale yellow at the tips of the petals. Less obvious were the minute flowers of *Myosotis hispida*, definitely not garden worthy. Erythraea, *Silene rupestris* and *Erysimum pumilum* grew on the rocks, but the showiest plant was *Chaenorrhinum supinum*, trailing clouds of bright pink over the orange rock.

Back to 7000 ft. near the peculiar domed 'Education' building there were huge snow-white clumps of *Helianthemum nevadense* mixed with spiny pink humps of *Pitilotrichum purpureum*. In the shade of the rocks we found *Fritillaria hispanica* with long flat grass green leaves and wide open bells of green-speckled purple. *Prunus prostrata* with salmon flowers trailed its branches flat over the sunny rocks. In full sun the leaf rosettes of *Sempervivum nevadense* were a brilliant red.

A long trek took us to the banks of the Rio Monachil which originates at the Laguna. On the damp meadows among *Gentiana alpina* and *G. verna* were beautiful silver rosettes of *Plantago nivalis*. Woolly silver-leaved plants are a speciality of the Sierra Nevada, possibly for the following reasons. Woolly leaves may act as insulation, preventing heat loss at night ; these Southern mountains have radiation frosts nearly every night. In addition, silver leaves reflect the intense sunlight during the day and prevent the plant from being cooked. On the far bank of the stream a complete hillside of Juniper scrub had recently been burnt. Among the twisted Juniper stumps the ground was carpeted with *Fritillaria nevadensis* (fig. 10), the find of our trip. Usually one head per stem, but sometimes two, the cylindrical flowers varying from green to chestnut to purple. This Fritillaria had short

grey folded twisted leaves. We were remarkably lucky to see these flowers ; they normally sulk under prickly Juniper and Berberis, hiding from the herds of goats. Sure enough, later that day we saw goats advancing up the mountain.

Our next camp was on limestone amid dreadful spiny scrub of *Vella spinosa* and *Erinacea anthyllis* (fig. 11). Under these bushes we found withered flowers, leaves and seedpods of several bulbs. We collected a few and were very excited when flowers proved them to be *Merendera montana* (fig. 12), *Tulipa celsiana* and *Crocus nevadensis* (fig. 13). The pink flowers of Merendera appear in September with petals that are separate and of very unequal lengths when the flower first opens. Gradually as the flower ages the shorter petals lengthen until finally the flowers are a regular shape with all petals similar in size. *Tulipa celsiana* grows six inches tall with creamy yellow flowers tinged red on the outside, an exciting find. Bowles in his book 'Crocus and Colchicum' denigrates *Crocus nevadensis* as a poor flower that seldom opens even in bright sun. Surely he saw an inferior strain. The plants of the Veleta have exquisite purple-veined flowers which open wide in sunshine. Also in this prickly scrub region we found the good silver-leaved *Astragalus nevadensis* and a rare endemic *Silene boryi* (fig. 14). The latter grows four inches tall with remarkably long tubular flowers ending in curled white petals. The most striking of the larger plants were *Onosma echioides*, a very well flowered Verbascum, and a dwarf form of the ordinary Foxglove called *Digitalis purpurea nevadensis*. By a stream we found *Aquilegia pyrenaica*, but a more striking blue was the dancing cloud of *Linum narbonense*, with flowers fully two inches across, growing on limestone scree in full sun. Our final plant of the Veleta, *Convolvulus nitidus*, made a compact silver carpet studded with pink buds opening to pearly white flowers, very choice.

In Granada at the base of the Sierra Nevada, *Lagerstroemia indica* is used as a street tree. This pink tree was also flowering nicely beside the Date palms in the Alhambra gardens. A remarkable hillside of Moorish palaces, fountains and trickling streams, paradise in the hot sun.

Thence to Guadix, the largest troglodyte town in the world, where chimneys and TV aerials sprout out of the red clay soil. Our Andalusian expedition finished with a rapid dash through the Sierra Cazorla. Elegant plants of *Iris xiphium* and *Gladiolus communis* by the roadside, and an astonishing variety of butterflies. Just above the town of

Cazorla we found spikes of peculiar brown and white flowers. A photo sent to the Royal Botanic Garden, Edinburgh, identified this as *Dipcadi serotinum* (fig. 15), the Brown Bluebell. Our short holiday only touched the edge of the great pool of choice plants of Andalusia, a most fascinating part of the world.

Rock Gardening- "from the ground up" - VIII

by HENRY TOD, Ph.D., S.H.M.

AT THIS juncture it may be as well to clear up one or two points of nomenclature which have arisen here and there in this series. The terms "alpines", "rock plants" and "rock garden plants" are only too often used as if they were interchangeable—which they really are not—and to this is often added "saxatile". Let us look at these in turn and see where the differences lie.

The term "alpine" refers—or should refer—to plants which grow above the alpine line, and this, in turn, varies with latitude, for in the Himalayas it may be at, say, 12,000 to 15,000 feet above sea level, while when the Arctic Circle is reached, it lies *at* sea level. Accordingly all plants growing within the Arctic Circle are "Arctic-Alpine", or if in the north circumpolar region, "Boreal Alpine". There is one quite marked exception, however, for many truly alpine plants grow freely and fully in character on the sea shore in lower latitudes down to somewhere about the middle of Britain, and even farther south where the exposure is extremely severe. A classic example is Armeria, which is as much at home on a storm-battered coast as on a mountain top.

A "rock plant" is a name of rather wider connotation, for it covers plants which grow among rocks or in cracks and crevices in them. Thus all alpines are rock plants but not all rock plants are alpines. The term "saxatile" is really the same as rock plant but it is often reserved for the crevice and cliff-face plants by those who are careful in their naming.

By contrast "rock garden plant" embraces any plant which is suitable for growing in a rock garden as we know it. A large number

of rock garden plants are really mountain meadow plants—for example, most of the European gentians—but here the strangest twist of all occurs, for these mountain meadows are the true "alps", and the rocky heights above them are not ! Thus the term "alpine" should really apply to those plants from these lower heights, but the rigid application of the term "alpine" in "alpine line" has been shifted to mean *above* the alpine line as opposed to its true meaning of *below* it—which I believe was the original one many, many years ago.

In actual practice not only are these mountain meadow plants most acceptable as rock garden plants, but so are many which grow on the edge of the woodlands and forests of the mountains. These are welcome as being "neat, not gaudy", while, ironically, some very high alpines such as Incarvilleas from the east and the big high alpine thistle, *Cirsium eriocephalum*, from the west, look oddly out of place. On the other hand, many Mediterranean plants of doubtful hardiness are nearly ideal "rock garden plants" though they may come from only one or two hundred feet above sea level there—or even lower.

To be accurate, most of these are "maquis" plants—members of that very characteristic flora many of which are most delightful dwarf shrubby subjects. Their natural habitat is really tough, rather poor, stony soil, baked in the summer and swept by strong winds—and the one thing that they seem rather unable to cope with is our chilly damp. This is probably much the same problem as that I mentioned (*J.*S.R.G.C. Vol. XII, Pt. 4, page 302) in connection with Dr. Peter Davis's "Near East" plants, with the addition of a possibly greater sensitivity to frost.

Suitability, then, is the crux of the problem and here we come into the question of the size of, firstly, the rock garden, and secondly, the plant. Not all real rock garden plants, or rock plants for that matter, are "tiny little gems"—some are big, sprawling invasive plants that will, when growing happily, cover square yards rather than square inches. *Daphne cneorum* is an example of this, to say nothing of Helianthemums or mossy Phloxes. In a small rock garden any of these can be a menace, swamping any smaller plants as they spread. In a big rock garden they can be superb, for they can be kept in control by judicious clipping, but not in a smaller one, for, if cut hard back to control them, they will be too small to be really in character—and in some cases they may die if cut *too* hard.

In my Buchanan Lecture in 1970 (*J.*S.R.G.C., Vol. XII, Pt. 3, pp.

165-171) I have discussed this question of "in character" fairly fully. This is a very important point which should always be kept in mind by the rock gardener, for, in addition to its true meaning, it has an alternative slant in this matter of size. There are few more heart-breaking things that can happen to a rock gardener with a small rock garden than to see a particularly choice and perhaps much-loved and admired plant grow bigger and bigger until it either swamps or else dwarfs everything else. Then arises the problem, cut it back so hard that it is really mutiliated, scrap it altogether or lift it carefully and give it to someone whose garden is big enough to accommodate it—if it lives through the move.

The real answer is, of course, to find out the size of a mature plant of anything you choose to try, and this is not always easy. Fortunately there are several books and some nursery catalogues which *do* give this information, the first being, as I recall, Mansfield's "Alpines in Colour and Cultivation" which is now, I think, out of print, but still obtainable occasionally—at a price !—second-hand.

The difficulty becomes insoluble in this way, however, if you raise new or very uncommon plants from seed—and such seed is very often available in the various seed exchanges organised by, for example, our Club, the Alpine Garden Society, the American Rock Garden Society and, to a lesser extent, the Royal Horticultural Society. It is not always safe to judge one species of a genus by other species—imagine what would happen if, knowing *Gentiana verna*, you tried *G. asclepiadea* in a small rock garden ! The converse also is true for, if one only knew the big, rather blowsy Penstemons of the herbaceous border, one would hardly imagine that the same genus could include tiny dwarf shrubs with deep blue flowers or odd little bushy species like *P. pinifolius* with its brilliant scarlet tubular blooms.

One possible solution for the enthusiast is to have the rock garden equivalent of a nursery bed. Supposing you raise several plants of a delightful yellow-flowered dwarf Centaurea (one sent in the ACW collection is the one I have in mind), plant one in your nursery bed, pot up the others and plunge the pots. After a year or so you find another plant some distance away from the one in the bed—is it a self-sown seedling or has it "run" ? The answer is to dig up the "new" plant carefully and, if in a year or so it *has* run that far, then most probably you have got a real "ramper". If it is a seedling, then you know that you will have either to cut off the seed-heads (and send the seed to the Seed Exchange !) or else weed out any unwanted seed-

lings which, in turn, will do well as a contribution to your Group's Plant Sale. Just recently I found numerous seedlings in among other seedlings in pots and I could not "spot" the seedlings so I pricked out several dozen. Some months later I identified them from the mature leaves as seedlings from wind-sown seed from a box of Penstemon plants which had flowered nearby.

Of course, if the seed has been collected "in the wild", the collector's notes *should* read "height six inches, yellow flowers one inch across, dry stony soil, running shoots" or the like, but only too often it is "yellow 4-8 in." and nothing else. This is understandable, as the collector in a good area is probably working flat out, but it can lead to problems.

When room is short a very close watch *must* be kept with unknown plants or else you may be faced with my problem with *Linaria cymbalaria* (J.S.R.G.C., Vol. XII, Pt. 4, p. 302). If it is at all possible it is quite a good plan to have one *isolated* area where rampers can be planted and left to fight it out among themselves. This can produce some surprisingly beautiful effects where the plants intertwine in their struggle for room as, frequently, under such strain they will flower very profusely.

Size has been mentioned several times in the foregoing and this may have given rise to some misconceptions. Just because a rock garden is small in area, this does not mean that all the plants must be small cushions, rosette plants or "tinies" in general. Such a rock garden may well contain many rare or difficult plants but the effect can well be distinctly monotonous. If a rock garden, whether one that has been built up, or a rock bank, has only small, rather "flat" plants among the stones, from any distance the whole effect will tend to be lost, for the level of the plants and of the stones protruding from the surface will be much the same. The result will be to give a look of flatness, particularly when the plants are out of bloom.

The solution to this is to use some plants such as dwarf shrubs, choosing smallish ones that do not "ramp", so that while dwarf low-growing lapponicum rhododendrons would suit, helianthemums in general or shrubby potentillas would not. Some of the "maquis" type shrublets mentioned above would also be effective such as Micromeria and Satureia. The bun-type dwarf conifers or other really dwarf ones are, of course, ideal for providing height as well as foliage contrasts. There are, however, dangers in this group. Many of these are quite genuinely "dwarf" compared with their forest counterparts—a

good example is *Thuya occidentalis* 'Rheingold' which will, ultimately, run up to six feet, whereas the forest version *T. occidentalis* grows to sixty feet or more. By contrast *T. o. robusta nana* keeps well under one foot and would be eminently suitable. Similarly, *Picea glauca albertiana conica*, which looks so perfectly suitable for the first few years will, as I have found, grow very slowly but steadily and, as the years roll by almost unnoticed, will ultimately reach five feet high by about three feet across at the base of its perfect conical shape.

One point which should always be kept in mind is this. If a "dwarf conifer" is kept in a pot (and even if the pot is plunged in the soil) it will grow very much more slowly than if it is growing in the open ground. Those conifers that are grown in pots plunged in the soil and lifted occasionally to appear on the show bench will, each time, lose a certain number of small roots in the process and this has the effect of a gentle root pruning. Further, growing in a pot has the effect of restricting root development to some extent and, after all, are not these the basic processes in bonsai ? These two factors quite definitely slow down growth and each lifting provides a slight, but definite check. I first noticed this when I stopped showing one particular conifer which had been growing slowly but steadily in its pot. It had got to the stage when it was definitely getting on the large size for showing, as it was far from popular with the Show Secretaries as it covered quite an area. I planted it out on the rock garden and now, though still unquestionably a dwarf, one could sit comfortably in (not under) its shade—and the time before planting was not much less than half the time *since* planting in the open rock garden.

Accordingly it is wiser to select dwarf conifer varieties from an examination of various ones growing in a *well-established* rock garden rather than from those seen on the show bench in the conifer classes, perfect though they may be in all details. They will not, however, necessarily be absolutely true in *size*. Those which have been growing for a number of years in the open soil of a rock garden will indicate much more reliably their tendencies as to height and width—and habit. After all, though one may expect to have to leave a garden after, say, ten years, one should give some thought at least to one's successor who may find a huge 'Rheingold' completely dominating the whole lay-out and be faced with "putting up with it" or else digging it out, and *that* can be no small undertaking.

It is, also, wise to purchase dwarf conifers from a recognised and reputable dealer rather than some "bargain offer" or from some

fly-by-night firm—or one that with the best will in the world and the best intentions has not really the experience to know just what they are selling. Some of my readers may have seen my slide of "dwarf conifers" planted by a firm who were totally inexperienced in such matters or else just did not care. They, in ten years or so, had towered to heights of six to twenty feet ! (fig. 16). This is, unfortunately, clearly a situation of *caveat emptor*, and it is well worth taking time and trouble in making a selection *and* consulting someone who really knows.

Dwarf shrubs, and particularly flowering ones, are less of a problem. For one thing, they grow much more rapidly and reach maturity much sooner, though a few like the so-called *Syringa palibiniana* can be very misleading. It, and one or two others, flower at a very small size, but do not stop there, growing up to three or more feet tall, by as much through. A further point is that they are definitely cheaper than the dwarf conifers so, if they have to go, the loss is less from a financial point of view and, further, they can usually be propagated much more easily so that the overly-big flowering shrub can be replaced by a smaller equally floriferous "pup".

Odyssey

by SHEILA MAULE

STRICTLY speaking an odyssey is a Greek epic poem, ascribed to Homer, describing the 10 years wandering of Odysseus on his way home from the Trojan Wars to Ithaca, but it also means a tale of wandering, and it is this of which I am going to write.

This odyssey was called Northern Greece, 'Sites and Flowers'. It was a conducted tour with everything most efficiently taken care of, and we were splendidly looked after. We had, as our guides, Mr. and Mrs. Aslet (Mr. Aslet, as many people know, is in charge of the rock garden at Wisley), a charming Greek guide, Aleka, who was a mine of information on all aspects of Greek history with particular emphasis on ancient Greek history and archaeology, and, last but not least, a very skilful bus driver who manoeuvered the bus in a masterly fashion on the narrow, and often difficult mountain roads of Greece.

We were not a large party, about 25 all told, and we were all 'compatible' and got on happily together. The members who were

interested in flowers had a session in the evenings after dinner with Mr. Aslet, whose knowledge of plants was nothing short of amazing. He could name most of the plants collected, and one of the highlights of the day was to see what everybody had collected, and most of all to see what Ken Aslet himself had found, which ranged from alpines to mistletoe growing on pine trees !

We started from Heathrow on May 28th ; we had a most interesting flight, with marvellous glimpses of the Alps glittering in the sunlight, and even more superb views as we neared the Greek coast, a wonderful indented and fragmented coastline, little islands in an incredibly blue sea, and, never out of sight, bare mountain ranges stretching as far as the eye could see.

We had left Scotland in the grip of winter, or should I say the long awaited spring had not yet arrived ! When the plane doors were opened at Athens the hot air hit us as we got out. We were quickly through the customs, and standing waiting was the bus in which we were to travel many miles in the next two weeks.

We had a quick tour of Piraeus and the environs of Athens. The thing that I remember was the beauty of the oleander bushes, *Nerium oleander* ; that mine of information 'Flowers of the Mediterranean' by Polunin & Huxley tells you that 'its leaves contain a poisonous milky juice, it is probably the rose growing by the brook of Ecclesiasticus, it is known as the horse killer in India, and that it is used as a funeral plant in Christian and Hindu regions !' Quite a plant ! It may be the plant growing by the brook, but this particular brook was quite dry and on either side there was a river of pink, some darker than others and an occasional white one ; the road and the oleanders were very dusty, but even that didn't spoil their beauty.

Our destination that night was Delphi, which was 184 km away. The very name conjures up a picture of magic, ritual and much that is bound up with ancient Greece and her history. The Greek countryside was golden and mellow as we bowled along in the evening light, there was little on the roads barring shepherds and their flocks going back to the villages for the night. We saw interesting plants and crops in the fields, including lentils hand pulled, roots and all, and made into small bundles. We stopped at one place where Mr. Aslet got out and picked a branch of *Paliurus spinachristi*, commonly known as Christ's thorn or Jerusalem thorn, the legend being that Christ's crown of thorns was made from this plant.

Delphi seemed a very long way off, and it was still fairly hot, and

as we were not yet used to it, we stopped at a wayside cafe and had a cool drink and a look at the beautiful Greek handicrafts for sale, then off on our journey again. It soon got dark, so we didn't see much for the rest of the journey. We were travelling along a very winding road, and at last we saw the lights of Delphi twinkling in the distance, and as we made our way in and out we kept losing the lights and seeing them again, but at last, about 10 p.m., we were there.

We were ushered into a very nice hotel, and we had to take the lift to go *down* to our bedrooms, as the hotel is built on the side of a ravine. It was lovely and cool, floors made of local marble and very nice traditional furniture, but loveliest of all there was a balcony looking down the valley to Itea, the ancient port of Delphi, which we could plainly see with its lights glinting on the waters of the harbour.

Next morning I woke early and went out to the balcony, such beautiful clear air, with the hills etched against the sky, and a feeling of the heat to come. Again my eyes were drawn to Itea in the distance, looking over a vast olive grove, the second largest in Greece, and of great antiquity, beyond that the sea, and below in the valley a large bird circled in the warm air.

Delphi has that overworked word 'atmosphere', and when I have forgotten a lot of the rest of the tour I shall remember Delphi on the first day and Athens on the last. In ancient times Delphi was considered to be the centre of the world, the legend being that Jupiter sent forth two eagles, one from the east and one from the west, and they met at Delphi, so it was called the 'navel of the earth'. Delphi had a very famous oracle, and notable people came from far and near to consult her, as she sat over the 'omphalos' and gave advice in riddles. Somehow you can sense the majesty that must have been Delphi, the position itself is most impressive, surrounded by high cliffs on one side and the gorge of the Pleistos on the other with the sea in the distance, and what is very noticeable in Greece is the marvellous light that seemed to illuminate the landscape. Above the Castilian Spring, past which the road winds, are the two Phaedriades, called the 'shining rocks' from their glow from the morning sun ; people guilty of sacrilege were hurled from the top, including, so it is said, Aesop of fable fame. It was all very interesting, but from a flower point of view there wasn't much to be seen. Above the Castilian Spring in the rocks was growing Ephedra from which the drug ephedrine comes, looking like green hair trailing down. A visit to the museum was of great interest, the exhibits beautifully shown, with the famous charioteer looking magnificent.

It was very hot in Delphi, so after lunch we had a siesta and went out after tea when it was cooler. As I have said, most of the flowers were over, but up at the Stadium there was a lovely plant of *Capparis spinosa* growing out of the stonework, the flowers pinkish with beautiful long stamens, a most attractive plant, though I imagine it would pine for the sun-baked stones of Greece. It is from the pickled buds of this plant that capers are made.

Some sort of gremlin seems to accompany me on my travels. Wherever I go it is always the hottest, coldest, driest, wettest, earliest, latest season 'they' can remember. This year was no exception; 'they' couldn't ever remember such a hot, early spring, so we were unfortunate that most of the flowers were over.

Led by Mr. Aslet, in the grilling heat, some of the stalwarts sallied forth to find *Daphne jasminea*, and find it they did. Fortunately they didn't think it was in any immediate danger of extinction, because many of the plants were growing where neither two-footed nor four-footed goats could get at them. This is a very rare little daphne with pale flowers.

After three nights at Delphi we were on our way to Yannina. We went down to Itea through the famous olive grove, and in a long procession with an assortment of vehicles, none of them mechanical, were a 'tribe' of gypsies, the true sort, the women with their 'maxi' skirts, in vivid colours with their trousers showing below, accompanied by their menfolk who looked like one's idea of bandits. With them were a motley collection of horses, donkeys, some pulling the carts, others tied behind, dogs running below the carts, and countless children. The women had a beautiful carriage, walking along proudly in bare feet.

We embarked on the ferry boat from Itea to Aiyion in the Peloponnesus, thence to Rhion and by ferry back to the mainland at Antirion. This was one of the highlights of the holiday; we had a marvellous sail, the weather was perfect, tempered by a cool wind. The land was visible all the time, and we could see little villages tucked into the hillsides or hugging small bits of coastline, with towering mountains behind.

We took the coast road to Missolonghi, famous as the place where Byron died, but even that will not make it interesting; we stopped in the bus to peer down between trees to see his statue in the public gardens, and then on to Arta. This was an interesting town, and we went to see a very extraordinary Byzantine church, the Parigorittisa,

the Church of our Lady of Consolation, founded about 1289 on the site of an earlier church. From the outside it is square, but inside it is cruciform. From an architectural point of view it is very interesting and I understand it is unique. We then went to see the famous bridge, originally built in Hellenistic times, but the middle arch was not finished until 1611. It took three years to repair, and it seemed impossible to finish it, so the suggestion to the architect was that there would have to be a sacrifice, so he immured his wife under the middle arch and so the bridge was finished. There are several versions of this story, and it is supposed to be a survival of ancient sacrifices made to river gods. We had dinner inside an old Turkish Fort in which an hotel had been built, and we sat and had a drink surrounded by beds of zinnias and petunias. A book I read about Greece said of Arta 'that underneath the orange trees golden with fruit large snowdrops were already in flower, in late December'.

Yannina is the capital of Epirus, and it is by a lake in a region famous for its silverwork. There are several islands in the lake, one of which we visited to see the Byzantine monasteries and saw the frescoes, many of them defaced by the Turks, eyes gouged out, etc., and many of the frescoes depicting horrible scenes, such as flaying men alive. On the island live the fisher folk, who catch eels in the reeds which surround the island, and also crayfish ; as we went over to the island we could see the eel traps in the reeds.

One afternoon some of the 'flower people' took a taxi and went flower hunting ; we chose a hill behind the town, and off we started, grilling hot as usual. On the outskirts of the town in marshy land we saw patches of the flowering rush, and a little further on, still marshy, a large area of *Orchis laxiflora* ; on checking in 'Flowers of the Mediterranean' I find that in Britain it grows only in the Channel Islands. We stopped to photograph the orchis, and stalking through the marsh were three storks, all very high-stepping and dignified, slowly 'quartering' in the marsh. We asked the taxi driver what they were looking for and he made a snaky movement with his hand, but it turned out to be eels they were hunting. A stork was sitting on a nest on a telegraph pole at the side of the marsh, with meals on the doorstep !

We went on up the hill and stopped at a viewpoint to look down at the lake. The view was spectacular—the blue lake, green islands, and the mountains behind. The hillside behind us was alight with every shade of yellow. There was a species of woad ; I doubt if it was the same plant with which our Pictish ancestors were supposed to daub

themselves, though actually I believe they were tattoed, not woad-painted. This plant was most elegant, with its golden flowers ; intermingled with it was *Phlomis fructicosa*, euphorbias of several kinds, verbascum species, and in among them little annual campanulas and other small plants. Further up the hill we found a beautiful white rose cascading down the rocky margin of the road, and *Crepis rubra*.

The next afternoon, after a morning of sightseeing, we sallied forth to have a look in the pinewoods above the town and see if we could find any orchids. We didn't find any flowers of any sort, but it was glorious up there with the lake and the town below us, and the smell of the hot pine trees. I must have been in some sort of spell, because I did the silliest thing ; I jumped off a small bank on to the road ; I chose to land on a plant on the side of the road, but unfortunately there was a stone under the leaves and I sprained my ankle. I should love to tell you the plant was a mandrake, of evil omen, but nothing so romantic, just a dock ! Well, that put paid to much walking for the rest of the tour, but I did manage to hobble around not too badly.

Our next port of call was Kalambaka, en route to the 'Monasteries of the Air' which we were to visit. We had a wonderful drive over the mountains, and at one point we had to wait till a bulldozer finished the road before we could pass. This was a heaven-sent chance for doing a bit of flower hunting, and among other things we found a very pretty little iris. The road was smoothed out and we went to a town called Metsovon. This town is the great centre of the Koutzovlachs or Roumanian-speaking Vlachs. Metsovon has a trade in woollen goods and cheese. To my mind this was Greece at its best, nothing particularly for the tourist, just life going on as it has done for centuries. Many of the older women were in local costume, very colourful, and grandfather had on white stockings and pompoms on his shoes. I couldn't walk so I sat and watched the world go by, a fascinating pursuit. Mules were bringing in logs of wood, so neatly loaded on their backs, and women in lovely costumes with donkeys laden with goods. I was amused to see ancient and modern side by side at the well, local costumes and the ubiquitous plastic buckets and basins ! We had the most delicious lunch there, superb 'moussaká' and some of the nicest bread I have ever tasted, and last but not least, very good local wine.

Then into our bus again and we climbed over the Pindus mountains ; we had seen them all morning covered with snow on the top, but now we were in them. At a likely looking place we stopped to do

Fig. 15—*Dipcadi serotinum* Photo—H. Taylor

Fig. 16—" Dwarf Conifers ! "

Photo—Dr. Henry Tod

Fig. 18—Dr. H. Tod, D. Livingstone, J. Sutherland, W. H. Ivey and Mrs. C. Greenfield at Discussion Weekend

Photo—Ayrshire Press Agency

a bit of botanising. It was bitterly cold, with patches of snow all around. I hobbled around, and a friend found fritillaria bulbs, and *Daphne oleoides*, not yet in flower, and soldanella was found, and several kinds of crocus sp. This pass is called Katara Pass, and so into the bus again, out of the bitterly cold wind. We saw all sorts of exciting looking plants from the bus, but we were on a very tight schedule and there was not much time for stops, which was rather frustrating.

We were soon off the mountains and had our first glimpse of the monasteries ; they are a most fantastic sight, built on rock pinnacles initially, I believe, to escape persecution, and certainly if the ladder was drawn up nothing could reach you in those days, unless you could fly. However, most of them are empty today, but they are a great tourist attraction.

Kastoria was our next stop, another town on a lake. We stayed in a funny little hotel, with the 'restaurant' on top of the house, glass-enclosed, and looking onto the lake. There are a lot of churches in Kastoria, 76 I think was the number. One of our party had been having a scout round and came back with the news that he had found fritillaria on the hill behind the town. So after tea some of us trooped off, up through the town, through what appeared to be the local tip, with all sorts of unmentionables about. We reached the top of the hill, which seemed to be the outlying part of the tip, but never mind, we found the fritillarias, plenty of them and all under the bushes with the most fiendish thorns, where the goats and sheep couldn't get at them. We had a thoroughly enjoyable time, got some bulbs and a lot of seed, and in my wanderings I found a large tortoise that had gone to bed in a hole. However, I had him out, although he hissed loudly at me, and he had his portrait taken several times before I put him to bed again. Macedonia is a place of tortoises, and we saw them quite often.

The next day was horrible, blowing a gale and raining ; the lake was grey and cold, and quite rough. We visited a monastery at the side of the lake, and cold and miserable we felt. Some of our party who took a taxi and went up to the pass we had been over the previous day were caught in a blinding snowstorm and were unable to do much plant hunting. We knew that *Lilium candidum* grew in Macedonia, and we had seen one lone flower at Yannina ; however, in the public gardens in Kastoria there they were growing. So once more we took a taxi and asked the driver to take us a little way out of the town and stopped at a small pine wood, which proved to be a dead end, so we couldn't have gone any further. We got out and dispersed

◀ Fig. 17—The way to Matokutan Bay (*overleaf*) Photo—V. Vasak

to see what we could find. The pine trees were very small and sparse and there was a little valley below us, so we started down the slope, when all of a sudden there they were ; we saw one first, then others, and the more we looked the more *Lilium candidum* we saw, a really wonderful sight. I had expected to see some cyclamen while we were in Greece, but never a one did I see, but while I was digging up some Lilium bulbs I saw what I thought were some dry cyclamen leaves, so I investigated and found the largest cyclamen corm I have ever seen. However, it was much too large to try and re-establish, but fortunately I got some seed. I also got some good plants of *Iris pumila* ssp. *attica*, which is now growing well in the scree bed ; I do hope they will flower.

Our time was coming to a close ; our next visit was to Pella, the birthplace of Alexander the Great, and recently excavated. The mosaics were a joy, they were all made of small pebbles, which we were told was the earliest method of construction. The floors were largely in geometric designs, in black and white, in excellent condition, but the really lovely ones had been lifted and put on a wall where you could see them better, and they could be protected from the weather. One of Dionysius on a leopard, with what looked like a chiffon scarf over his shoulder and a grin on the leopard's face, was pure delight, all done in coloured pebbles, and there were others.

The next excitement was our visit to the seat of the Gods themselves —Mt. Olympus. We were to stay in Katerini for this expedition. We arrived there in the dark, had dinner and went to bed. We had a very nice room with a balcony, and when we woke up in the morning there was Olympus, rather shrouded in mist at the summit. Breakfast was brought and we had it on the balcony, feasting our eyes on Olympus, and as the sun got stronger, the mist cleared and we saw the snow-covered summit. After breakfast our bus took us to Litochorom, a pleasant small town which is the starting point for the climb. Needless to remark, none of the party contemplated the climb to the top, but Mr. Aslet assured us that he knew a place where the fabulous plant *Jankaea heldreichii* grew, this mountain being the only place in the world where it grows. We trooped off up through the village, skirted the last of the houses and started up the gorge. We hadn't gone very far when we saw a notice saying 'blasting in operation', and we were not allowed to go any further. However, we had arrived, and after a few minutes scrutinising the cliffs one of the party spotted the famous plant, rather shrivelled up in the heat and the flowers were over, but it was a tremendous thrill to see it at home.

The last excitement of the trip was the last day in Athens. We had dinner at a restaurant, out of doors and looking up at the Parthenon. I don't know if it is 'Son et Lumière' who do the lighting, but it has that sort of dramatic quality, which highlighted its unique position and superb beauty. The dinner and the company were excellent, and it was a wonderful climax to our holiday. Next morning we got up early and were at the gates of the Parthenon when they opened, so we had the place more or less to ourselves and we wandered round for a couple of hours and contemplated and marvelled at it all. Then the school children started to pour in, so it was time for us to go as we were leaving Athens that morning. We walked slowly down the hill, admiring the pomegranate flowers ; pomegranate is supposed to be the fruit Paris gave Venus, and from earliest times it has been a symbol of fertility, and the unripened fruits give a red dye which is used for tanning morocco leather. There were also bushes of myrtle in flower (*Myrtus communis*), also known since classical times as a symbol of love and peace ; it was held sacred to Venus, victors at the Olympic games wore wreaths of it, and today it is used in bridal wreaths along with orange blossom. The nymph who didn't like the attentions of Apollo and turned into a myrtle bush to escape from him was called Daphne, and to end on a practical note it makes charcoal of the finest quality.

At the bottom of the hill we took a taxi back to the hotel and so to the airport and home, ending a marvellous holiday with good companions.

An Information Exchange

To SPREAD the knowledge and expertise which some members have to the other three thousand is one of the most important functions of the SRGC. There is a largely unsatisfied demand for information on how to obtain and treat many of the plants we grow. The Council has suggested that a distillation of the Club's wisdom should be made available through the *Journal*. From time to time a call will be made in these pages for facts on various aspects of a particular group of plants. These will be collected and welded into an informative article.

The following headings should serve as a guide to contributors on the subjects to be covered :—

List of species and varieties worth growing.
Features of germination.
Handling the seedlings.
Composts, feeding and watering.
Winter treatment.
Bringing into flower.
Propagation, length of life.

We begin with a compact group, yet one which is the centrepiece of the autumn show: the peat-loving AUTUMN FLOWERING GENTIANS. Will those who grow these lovely plants so successfully please send in notes on how you do it? The address is: Dr. Peter Harper, 16 Leadervale Road, Edinburgh EH16 6PA.

THE SEED EXCHANGE 1973— FOR OVERSEAS MEMBERS IN PARTICULAR

THE Seed Exchange Manager has requested that this notification should be put into the Spring *Journal* for the benefit, especially, of Overseas Members, as serious delays in the delivery of the Autumn *Journal* have occurred.

All Overseas Members will receive automatically, by air mail, the Seed Exchange List as soon as it is published, while Home Members will receive it on request to the Seed Exchange Manager: Dr. L. M. DEAN, 9 Ledcameroch Crescent, Bearsden, by Glasgow G61 4AD, Scotland. Home Members who contribute seed will also receive the List automatically.

Further, the closing date for the receipt of seeds sent in by Members for the Exchange is **31st October 1972.** Seeds should be sent to Dr. Dean at the above address, but if the seeds cannot be sent **for any adequate reason,** a list of the seeds which *will* be sent should be posted so as to reach Dr. Dean by the closing date, 28th December 1972.

This will, of course, be valid for all future years—it is not only for 1972. Would *all* Members please make a note of these dates?

Plant Hunting in Kurile Islands
II. Alpines of the Matokutan (Otriadnoie) Bay

by ING. VLADIMIR VASAK, Pruhonice, Czechoslovakia
and ELENA EGOROVA, Sakhalin, USSR

SHIKOTAN, this means in the language of the native inhabitants—the Ainu—"The best place". Maybe these mysterious inhabitants of East Asia were right, as in the region inhabited by Ainus—the Kurile Islands, the Sakhalin or northern Japan, hardly any place can compete with the qualities of the Shikotan. Our small expedition spent only one week on Shikotan, two days of which took the disembarkment and departure. We came on the island by the steamboat from the harbour of Sakhalin—Korsakov. In comparison with the time-table we had two days' delay. This delay was caused by the strong wind and surf in the zone of the Kuriles, as in such unfavourable climatic conditions neither the steamboat nor the cargo boat could work—to load and to unload. The bays are too shallow so that our "Iakutia", a ship of 2000 tons, could not float there. However, the whole delay was on the Shikotan fully compensated by unusually nice weather. Thus, it was possible on all the days to make full use spent there for the hunting of the rare plants of this little island with such a nice nature.

The next morning after our arrival we investigated the environs of the bay Matokutan (in Russian : Otriadnoie) (fig. 17). Behind the last cottages of the fishery village Malo-Kurilsk in a little forest, consisting mostly of the trees of *Aralia elata*, we found low little shrubs of holly—*Ilex crenata* Thunb. var. *paludosa* (Nakai) Hara. Synonymous names of this variety are *Ilex radicans* Nakai, *I. crenata* subsp. *radicans* Tatew., *I. crenata* var. *radicans* (Nakai) Ohwi and *I. radicans* var. *paludosa* Nakai (Ohwi 1965). While they are small, evergreen little shrubs on the Shikotan, in the south of the area of *Ilex crenata*, on Taiwan and the Philippine island Luzon this tree is up to 7 m high. The distribution area of our variety is the southern part of Sakhalin, the southern Kuriles, Hokkaido and the part of the Honshu island facing the Sea of Japan. In the garden cultures it is fairly well known, in Europe and America about ten garden forms of it are cultivated. The little shrubs we saw were not fertile.

In its neighbourhood we found nice fertile plants of dragon arum —*Arisaema peninsulae* Nakai. With its brightly red fruits on the transparently violet lustrous torus of the fruit spadix, this Arisaema is even more decorative than in its flower time, when the green spathe with its darker and lighter strips is a little suggesting a poisonous snake. *Arisaema peninsulae* Nakai (*A. angustatum* Fr. et Sav. var. *peninsulae* Nakai) grows in Korea, in Manchuria, on the Hokkaido, Honshu, Kyushu Islands, on the islet Moneron and on the Kurile islands Shikotan and Kunashiri (Ohwi 1965. Voroshilov 1966). On 19th September, not far from the fishery village Krabozavodskoie, we met some specimens of *Arisaema peninsulae* Nakai with the purely white receptacle of spadix. We suppose they will have the flowers purely white, or much more light than the typical form. (A specie principali receptaculo spadicis albo differt—*Arisaema peninsulae* Nakai forma *alba* n.—forma nova.) With this white form we have one grower's experience by that time. It is more sensitive against the freezing out than its basic species.

By its greenish strange flower, Arisaema does not remind of a poisonous snake in the plant-empire in vain, it is a poisonous plant, indeed. But in little doses, in the hands of a specialist knowing its power, it is a many-sided medicinal plant which is used in the Chinese medicine against the spasms, for the loosing of phlegms, in the snake-bite and in the dermatic diseases (Balabas). When we were in the evening putting the plants into the papers for drying, we cut the bulbs of Arisaema. They enticed us just to taste them. And this tasting cost dear the third member of our expedition—Miss L. A. Alexejeva—she got an unpleasant blister on her tongue. And in this way we made sure that it is not advisable to trifle with *Arisaema peninsulae*. Its name *Arisaema peninsulae* is derived from the Korean Peninsula.

Along the road on the eroded shady slopes with the loosened vegetation were distributed the fertile little plants of *Viola selkirkii* Pursh, the synonym of which—*Viola umbrosa* Fries—a shady violet—suggests to the growers where and how to cultivate it. And its first name reminds of the hero of our childhood—Robinson Crusoe—Alexander Selkirk. Farrer writes about this tender violet : "makes clumps of handsomely scalloped leafage . . . it is a small and rather delicate thing . . .". *Viola selkirkii* is really a miniature in the genus Viola, with minute lilac flowers. It is a species widespread on the Northern Hemisphere.

And yet we wish to mention the last forest species, before we climb

on the grassy slopes of the Matokutan bay : butterfly orchid—*Platanthera tipuloides* (L. fil.) Lindl.—with one leaf which is narrower than 2 cm and with rather little greenish flowers. It is distributed in N.E. Siberia, on the Kamchatka, in Japan, on the Sakhalin and on the Kurile Islands. It is not too beautiful, but the family Orchidaceae merits to be represented.

Now let us really climb the grassy slopes above the coast cliffs and rocks. We shall remember the grass eulalia—*Miscanthus sinensis* Anderss., which of course, owing to its height, does not belong into an alpine rock garden (it reaches up to 2 m height), but owing to its beauty it has occupied its place in the garden a long time ago. It is always a nice experience to see such a well known decorative grass free growing in its native country. We have got from this meeting with it a nice colour slide and some seeds.

In the grass on the sites with a lot of humus were widespread the plants of dogwood—*Cornus suecica* L. with the red edible berries. It is true that the berries are edible, but they have no excellent taste, and their pulp is more cottonwool-like than juicy. But one must admit that its bright red fruits are really very nice and so are the flowers. It is interesting that owing to its generic name Cornus it came even into the dendrological books together with *Cornus canadensis* in spite of the fact that except their names, they are no woody plants, but they are the typical herbs of rather little growth. In cultivation they claim for plenty of moisture and humus soil with a higher content of peat ; they are most impressive in a great number when covering densely the ground with their nice leaves and looking out like a nice green carpet.

In some places there grew also the sparse groups of wind-flowers—*Anemone villosissima* (DC.) Juz., which was named by the Japanese botanists *Anemone narcissiflora* L. var. *sachalinensis* Miyabe et Miyake. It differs from the basic species *Anemone narcissiflora* by its more dense pubescence. We stop again at violet—*Viola verecunda* A. Gray which has whitish little flowers with the darker veins, without any scent. We collected it fully matured, with the seeds. *Viola verecunda* is a variable species, its synonymous names are : *Viola alata* subsp. *verecunda* (A. Gray) W. Becker, *V. japonica* Fr. et Sav., non Langsd., incl. var. *typica* Fr. et Sav., var. *subaequiloba* Fr. et Sav., var. *decumbens* Fr. et Sav., var. *pusilla* Fr. et Sav. Besides, on the Japanese Islands there grows *Viola verecunda* A. Gray var. *fibrillosa* (W. Becker) Ohwi, var. *yakusimana* (Nakai) Ohwi, var. *semilunaris* Maxim. and var. *excisa* (Hance) Maxim., mostly in high mountains.

And now we come to the plants, which live on the rocks, in the crevices and on the scree. If we had met a small starwort which we found in the crevices, in its flower time, it would have been certainly the nicest rock plant of the Matokutan Bay. It was *Aster dubius* (Thunb.) Onno. On the Shikotan occurs a white-flowering form, *Aster dubius* (Thunb.) Onno forma *alba* Takeda. It is a very good-looking rock plant which has not been much mentioned in the literature until now. However, the Japanese growers appreciate it, and Ohwi (1965) treats it under the name *Erigeron thunbergii* A. Gray var. *glabratus* A. Gray—synonyms *Aster consanguineus* Ledeb., *Erigeron dubius* var. *alpicola* Makino, *E. alpicola* (Makino) Makino, *E. dubius* var. *glabratus* (A. Gray) Makino, *E. thunbergii* subsp. *glabratus* (A. Gray) Hara ; Japanese name : miyama-azumagiku. It is distributed on the Middle and Northern Honshu, on the Hokkaido, on the Kurile islands Shikotan and Iturup (Etorofu), in Korea, Manchuria, Kamchatka and Siberia. By its leaves it resembles a smaller *Aster alpinus*, and its flowers suggest some nice Erigeron. In culture it grows very well and its tufts are besprinkled with flowers. Takeda recommends literally to cultivate it in two parts of leaf mould, one part of loam and seven parts of fine gravel and to lay it out in the full sun. In the pot culture it is to be manured once or twice in a month, and moderately, rather less, to be watered. It is well cultivated from the seed, or it is propagated by dividing of tufts.

The pretty little yellow *Patrinia sibirica* (L.) Juss. (syn. *Valeriana sibirica* L.) grows also only in the crevices and near the boulders. It is a lovely thing having sweetly smelling yellow flowers and in addition it is a valuable medicinal plant. The volatile oils (etheric oils) from its herbs are even a remedy for some skin mycoses, which until now have been considered as incurable. Its less pretty, taller (60-100 cm) related *Patrinia scabiosaefolia* Fisch. (syn. *P. serratulaefolia* Fisch., *P. hispida* Bunge, *P. parviflora* Sieb. et Zucc.) grows on the meadows below the summit rocks. *Patrinia scabiosaefolia* has also good properties from the ornamental point of view—it flowers late, in July and August. It is—like *Patrinia sibirica*—a medicinal plant. Its distribution area extends on the East Asiatic islands from the Sakhalin to Formosa (Taiwan) and on the eastern borders of the Asiatic continent. The Patrinias are plants relatively unpretentious on humidity, but they claim for the full sun. *Patrinia sibirica* can be cultivated also as pot rock plant, but it must not be too much watered and must have a good drainage.

In the moister sites on the rocks there occurred rather frequently the fertile plants of honey-suckle—*Hedysarum komarovii* B. Fedtsch., which are much like the European high mountain plant—*Hedysarum hedysaroides* (L.) Schinz et Thell. (syn. *H. obscurum* L.). This honey-suckle is distributed on two islands only—on the Shikotan and on Moneron, a small island SW from Sakhalin. It is probable that *Hedysarum hedysaroides*, described by Ohwi from the Japanese islet Rebun, also belongs to the above-mentioned little species which was described by the Russian botanist B. Fedtschenko as late as in 1939 (Voroshilov 1966). This plant at the time of its full blooming belongs to the nicest decoration of the coastal slopes of the Shikotan.

In the highest and the most wind-exposed sites we met the green cushion of crowberry—*Empetrum asiaticum* Nakai. Its synonyms are *Empetrum nigrum* L. var. *asiaticum* Nakai, *E. n.* var. *japonicum* K. Koch, *E. nigrum* sensu auct. Japon., non L., *E. kurilense* Vass., *E. albidum* Vass. *Empetrum asiaticum* differs from *Empetrum nigrum* by the longer leaves and the bigger fruits of more blue colour. Sergi-Jevskalia writes about the medicinal properties of crowberry. In Transbaikalia (Dauria) it is used in the people's medicine against the paralysis, in the Tibetan medicine against the headache. Pharmacologically it was stated that *Empetrum asiaticum* is a prospective medicinal plant against epilepsy, and of course it is a very nice evergreen rock plant. Its little watery lately mealy palatable berries are in Iceland consumed with sour milk and in Greenland by Eskimos with fat of seal as food. (Uphof 1959).

The last rock plant of our plant hunting on that day (15th September 1968) was the rock-brake (parsley-fern)—*Cryptogramma crispa* (L.) R. Br. var. *japonica* Miy. et Kudo, which was sheltered in the rock nooks. From all the Kurile islands only the Shikotan can boast of this mountain fern, widespread in the European and Asiatic mountains and in other temperate regions.

On our return we had an occasion to verify how disadvantageous it can be sometimes to short cut our way. We preferred an indistinctly beaten path leading to Malo-Kurilsk bay, which finished at once with a steep hill. As it seemed to us to be impossible to surmount this unexpected bar and we as the botanists and plant hunters did not want to sprain our ankles, etc., we decided to return to the start of our journey. But fortunately we met just two fishers—Koreans, who helped us to climb down the steep hill, so that we—already very tired—had not to climb up again with our heavy rucksacks packed with the

collected plants. And so—exhausted but content—we came back to our botanical base, the Seismic laboratory. In the same evening and night there was a lot of work : to deposit 500 sheets of herbarium specimens, the greatest part of our gain from our Kurile expedition.

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NOTICE TO MEMBERS IN CZECHOSLOVAKIA

Clenove klubu v Ceskoslovensku nemaji moznost opatrit si starsi cisla "Journal of the SRGC". Skotsti clenove nam proto zaslali vsechna dosazitelna cisla na adresu : Ing. Vladimir Vasak, Botanickyustav CSAV, Stanice alpinek Cernolice, p. Ritka, okr. Praha-zapad. Zde jsou vsechna cisla k disposici pro studium i k zapujceni.

THE CLUB, realising that members in Czechoslovakia are unable to obtain past issues of the *Journal*, have presented copies of all available issues to the address : Ing. Vladimir Vasak C.Sc. Czechoslovak Academy of Sciences, Botanical Institute, Experimental Station of Rock Plants, Cernolice p. Ritka, o. Praha-zapad, Czechoslovakia.

The Propagation of Ericaceae from Cuttings

by CHARLES M. SIMPSON

THE FOLLOWING is the substance of a talk delivered at the Discussion Weekend, Seamill Hydro (fig. 18) on Sunday 31st October 1971 and dealing mainly with the plants suggested by the title but including some dwarf conifers and other dwarf shrubs similarly propagated. Only plants which have actually been propagated from cuttings by the methods given will be mentioned by name.

Commencing with dwarf rhododendrons, i.e. those growing to an ultimate height of about three feet, the first group consists of those of

a deciduous or semi-deciduous nature, namely *Rr. camtschaticum, lowndesii* and *ludlowii* and many of the azalea section. These are best propagated during May and June, since the cuttings have not only to root but require to develop into plants strong enough to survive the winter in a deciduous state.

Regarding the evergreen rhododendrons it has been stated that the larger the leaves the earlier the cuttings should be taken and the warmer the cutting frame should be. This would make the cutting time for such small-leaved plants as *Rr. pumilum, keleticum*, etc., as October to December and the conditions of a cold frame, throughout the winter, quite suitable. The following have been taken successfully at this time : *Rr. calostrotum, campylogynum* vars., *glaucum, impeditum, keleticum, lapponicum, nitens, pemakoense, prostratum, pumilum, scintillans, williamsianum*, 'Augfast', 'Blue Diamond', 'Blue Tit', x *cilpinense*, 'Humming Bird', 'Remo', 'Sapphire' and 'Scarlet Wonder'.

While this is an easy way to increase one's stock if no other facilities are available, the casualty rate is likely to be high. More cuttings will survive to root if kept frost free. Even a frost free windowsill of a room will suffice. A further difficulty with the cold rooting of cuttings is the time taken to root, anything from 5 to 8 months, so that the young plants do not make much growth during the first season.

Providing that suitable facilities are available, however, most dwarf rhododendrons will root much more quickly if taken in October and rooted in heat, 70 degrees F., particularly if given artificial lighting. Most of the species and hybrids already mentioned were rooted under these conditions in October and indeed under similar conditions throughout the summer from June onwards. The following additional items were rooted in heat and under light from June to October : *Rr. calostrotum* 'Gigha form', *campylogynum* var. *charopoem* and var. *cremastum, cephalanthum* var. *crebreflorum, chryseum, forrestii* various forms, *imperator, keleticum* Rock 58, *leucaspis, nakaharai, radicans, sargentianum, uniflorum*, 'Carmen', 'Chikor', 'Golden Fleece', 'Pipit', x *prostigiatum* and 'Ptarmigan'. The rooting period under heat and light was reduced to from 4 to 10 weeks, *R. imperator* and 'Ptarmigan' being the quickest to root and *R. forrestii* and x *prostigiatum* the slowest.

MISCELLANEOUS ERICACEAE (etc.).—In general this follows much the same pattern as for dwarf rhododendrons except that it is largely a waste of time to attempt cold rooting during the winter. As before,

deciduous subjects, such as *Menziesia ciliicalyx* and *Syringa palabiniana* should be taken in May or June.

Cassiopes I find very accommodating. If after flowering it is decided to cut back plants to encourage basal growth, plenty of cuttings are automatically available. In a temperature of 60 degrees F. or so it is not difficult to root 50% of the cuttings in from 5 to 10 weeks. Even better results, 14 species and hybrids of Cassiope, were obtained from October cuttings under heat and light. Note that Cassiopes, e.g. *lycopodioides* and *mertensiana gracilis*, may profitably be rooted by striking a bunch of growths instead of single stems.

PHYLLODOCES.—*Pp. aleutica, coerulea, coerulea japonica, empetriformis* and *nipponica* rooted best from soft tip cuttings in July under greenhouse or propagator conditions, though they were still successful with rather larger cuttings in October. *P. breweri*, a rather difficult subject to root, gave better results in July.

MISCELLANEOUS.—The following rooted well during June and July, in heat, taking about 5 to 6 weeks : *Gaultheria merrilliana* and *sinensis, Kalmiopsis leachiana, Ledum hypoleucum, Leptospermum nicholsii nanum, Pernettya tasmanica, Philesia magellanica.* They also rooted well in October with heat and light, plus *Gaultheria cuneata, Pernettya pumila* and *Arcterica nana.*

In general it would appear that with heat and light, cuttings of many ericaceous plants root well between June and early November using soft tip cuttings during the early period and ripened young wood during the autumn. With the exception of *Corokia cotoneaster, Epigaea repens* and *R. uniflorum* from February cuttings, rooting during the late winter and early spring was poor. Should cuttings of some desirable plant come your way, however, it is always worth trying to root them at any time of the year, even if the book suggests that it is quite the wrong time for rooting cuttings.

DWARF CONIFERS.—No comparative tests have been made as yet to determine the best times for rooting the individual species. A number have, however, been rooted in from 5 to 9 weeks during November to April with heat and light, using sizeable cuttings—up to 3 inches according to species—all with heels. These were : *Chamaecyparis pisifera plumosa albo-picta, nana, nana compacta* and *nana compressa, pisifera aurea, obtusa nana* and *caespitosa* (5 months), 'Boulevard' and *thyoides ericoides, Cryptomeria vilmoriniana, Microcachrys tetragona,*

Thuya occidentalis rogersii aurea and 'Rheingold', plus a further dozen or so whose names at present are unknown.

TAKING AND ROOTING THE CUTTINGS.—In most cases cuttings will be between ¾ and 2 inches long according to the normal growth of the plant concerned. No particular attempt is made to take heel cuttings —you cannot in any case with tip cuttings—and with autumn cuttings use non-flowering wood for preference ; they root more quickly. When taking cuttings, it is advisable to drop them into a previously labelled polythene bag to keep them fresh.

When one is ready to insert the cuttings, and not before, remove with a razor blade any leaves liable to rest on the cutting compost, trim the heel if present or cut beneath a joint. Insert and firm in the compost with a suitably sized dibber. Cuttings should be inserted no deeper than is necessary to support them.

A suitable cutting compost for any of the above-mentioned plants is a 50/50 mixture of sharp, lime-free sand and sieved peat. Since autumn 1970, on the recommendation of Mr. Hulme, Director of the University of Liverpool Botanic Gardens, I have been using a 50/50 mixture of Perlite and peat, without sand. This retains moisture yet does not become soggy, gives a good root system on the cuttings and these are easily removed without damage. The containers used are 8½ in. × 6½ in. plastic seed trays fitted with "cloche" covers. These will take from 40 to 80 cuttings according to size. Some gravel to cover the holes in the trays will suffice for drainage. Fill the trays with moistened compost, level and press down evenly with a flat board. Soak filled trays in warm water and drain to remove surplus water.

The covers will save a great deal of time in watering since there is little evaporation from them. Try cuttings for rooting about 5 weeks after insertion by giving one or two a *gentle* pull. If rooted, prick out, otherwise re-insert and firm any disturbed cuttings. Note that under the light mentioned later there is sometimes a surprising amount of growth before rooting takes place.

Rooted cuttings may be pricked off about 24 to 30 per seed tray. I use a compost of 3 parts sieved, flaky leafmould to 1 part each of soil, coarse sand and peat, plus a dash of J.I. Base. Cloche up the rooted cuttings and keep under the same conditions as those unrooted until growing well, before gradually hardening off, potting or removal to a growing on frame.

Young ericaceous plants will grow much better if planted out in a growing-on frame instead of potting. The beds are prepared with a

surface layer of 3 to 4 inches of the compost already mentioned, but there is no need for sieving. This bed will be found excellent for growing on Meconopsis and Primulas. Sashes are of light timber covered with semi-rigid plastic. During the summer these are replaced by Netlon greenhouse shading.

Perhaps the most useful innovation in rooting ericaceous and other shrub cuttings through the autumn and winter has been the use of artificial illumination. The propagator measures about 48 × 20 × 30 inches and was originally a show case. With the exception of the sliding doors, the plate glass roof and sides were replaced by plywood, covered with white polystyrene tiles to conserve heat and reflect light. Heating is provided by two soil-warming cables on wire frames, one at the back and the other just above the floor. These are controlled by an aquarium thermostat to give a temperature of about 70 degrees F. Humidity of around 60% is obtained from plastic trays filled with water and placed above the floor heating cable. The humidity inside the cloches is about 85 to 90%. The propagator is kept in my attic and receives little natural light. Illumination is therefore provided by a 4 feet 40 watt GROLUX (Atlas) tube in a standard tube fitting, four inches above the cloches. This is switched on from 0800 to 2400 hours daily by a time clock. Note that GROLUX tubes are specially formulated for plant growth and that normal fluorescent tubes are not so satisfactory. This lighting not only encourages rooting but enables rooted cuttings to grow on throughout the winter.

It may be noted that there has been no mention of the use of hormone rooting aids. The powder form has been used but did not appear to make any difference when comparing treated with untreated examples of the same cuttings.

So far, *Cassiope wardii* and *Gaultheria tricophylla* have proved impossible from cuttings and *Rhododendron campylogynum* var. *myrtilloides* (pink form) and *R. microleucum* are loth to root. It is possible that these and other awkward plants may only have a very limited period during which their cuttings will root. There is also the possibility that with some, some clones may be easier to root than others. Both of these points would make interesting subjects for experiment.

Joint Rock-Garden Plant Committee

EDINBURGH—10th SEPTEMBER 1971

AWARD TO PLANT

AWARD OF MERIT

To *Pernettya tasmanica* as a fruiting plant for the rock garden, exhibited by Dr. and Mrs. I. Simson Hall, 93 Whitehouse Road, Edinburgh 4.

AWARD TO EXHIBITOR

CERTIFICATE OF CULTURAL COMMENDATION

To Harold Esslemont, Esq., 9 Forest Road, Aberdeen, for a fine plant of *Cyclamen neapolitanum*.

Photographic Competition

The result of the adjudication of this competition is as follows :—

First Prize : Mr. Duncan Turnbull, 62 Lairhills Road, East Kilbride, Glasgow G75 0LQ. *Tulipa turkestanica.*

Second Prize : Mr. R. D. Nutt, F.I.C.E., F.L.S., Flat 1, 15 Upper Addison Gardens, London W 14. *Paris quadrifolia.*

Third Prize : Miss Denise Holford, Owl's Rest, Hermitage, Dorchester, Dorset. *Geum reptans.*

Tours for Gardeners and Botanists—1972

SWITZERLAND—By special request, an extra tour for Alpine Gardeners has been arranged to take place from 28 June to 11 July this year, to CHAMPEX LAC, which lies at over 4,500 ft. in the Valais region and is known for the profusion and variety of its wild flowers. There are excellent walks of all kinds in the vicinity and there is a chairlift to the higher alps which takes you up to 7,400 ft. The tour will be accompanied by Mr. W. K. Aslet, Superintendent of the Rock Garden Department of the R.H.S. Gardens at Wisley, and the price of £96 includes scheduled flights to and from Geneva.

KASHMIR—A FLOWER-TREKKING HOLIDAY
After a week's stay in houseboats at Srinagar, Mr. Oleg Polunin will lead a small party of intrepid naturalists into the heart of the Himalayan foothills on a ten day trek on pony-back to Lake Gangabal, at the foot of the great Harmukh Glacier. Here, at 12,000 feet, you camp for three days surrounded by flower-filled pastures, where gentians, primulae and countless other Himalayan alpines are to be found—including, if you are lucky, the blue poppy. Here you can walk, ride, observe the rich variety of bird life, or go trout fishing. Departures are from 23 July to 12 August or from 6 to 26 August, and the price of £419 includes scheduled flights to and from Delhi and Srinagar.

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