

The *Bulletin* is now the chief link between members. Everyone is fully aware of the great shortage of paper and we are living a rather hand to mouth existence with regard to supplies; but every endeavour will be made to carry on. The Committee feels, however, that in view of the nation's needs the Society should restrict its consumption and therefore the number of text pages will in future be reduced from sixty-four to forty-eight per issue; this, together with the smaller number of copies that are required for the smaller membership, will effect a very considerable reduction in our total consumption. Costs are still rising but these can be met if there is no serious falling off in membership, and they can be met more easily if members would answer the Treasurer's appeal on p. 333 and send their subscriptions promptly. If the Treasurer had no reminders to send out he would have several more precious hours to spend amongst his plants, and the Society would be saved an unnecessary expenditure on postage.

IRIS LAWRENCE.

PLANT AWARDS.

AUGUST—OCTOBER, 1941.

PRELIMINARY COMMENDATION.

VACCINIUM PRAESTANS Lambert
ERICACEAE.

Shown on September 16, 1941, by T. West, Merstham, Surrey.

This vaccinium differs from other members of the genus in the large leaves which may be over 2in. long and 1½in. wide; they are broadly oval, tapered into a short stalk; the plant is low growing, from 3 to 6in. high. The flowers are pinkish white, appearing in June, two or three together at the base of the leafy part of the stem; and they are succeeded by comparatively large round berries, up to ½in. across, of a bright glossy red. The plant comes from Japan, Kamtschatka and Saghalien; it was originally described in 1810 but does not appear to have been introduced to cultivation until Wilson sent it back in 1914; and it is not common in cultivation now. As it normally endures cold winters and is often found growing in sphagnum it should prove quite hardy here, as indeed it seems to be. (Illustration p. 389.)

ROCK GARDENING IN MANCHESTER.

By PAUL H. SCHILL.

People who reside in localities with conditions more favourable than those prevailing in Manchester for indulging in the hobby of alpine growing and rock gardening are apt to be somewhat scathing about this neighbourhood, taking the view that nothing can be grown satisfactorily and that it is well nigh hopeless to attempt such a thing. It must be admitted that there is some ground for this point of view, for the humid climate, combined with the far worse feature of a chemical laden atmosphere, cannot truthfully be said to constitute the finest health resort for alpine and many other rock garden plants. Nevertheless, if any inhabitants of Manchester should become enthusiastic and wishful to try their hand at it, are they to be discouraged by such a pessimistic view? My answer to that question is "certainly not"; much, even very much, can be achieved, both in the rock garden and in the alpine house and it is astonishing what results can be produced by careful study, close and constant care, and taking "Nil Desperandum" as the motto.

Facing up to difficulties, refusing to knuckle under to them without trying out every means of overcoming them, employing both orthodox and unorthodox methods and in the end achieving a certain amount of success is, in my humble opinion, a great incentive and a great satisfaction in any form of gardening, as indeed, it is in any other walk of life.

I have always maintained that to have fought against odds and to prevail by putting up something of a show, to say nothing of succeeding with some difficult or delicate subjects, is an infinitely greater satisfaction than to achieve the same or better results where everything is favourable.

There are certain basic factors which it is as well to bear in mind. In view, for instance, of the detrimental atmosphere everything must be done to give the plants the very best conditions possible in other directions and to use strong and healthy material when planting out. One lesson learnt from long experience is that hirsute plants (unless of herbaceous nature) are best left alone. The glandular hairs absorb the chemicals from the air, the plants turn sickly and finally die; this may be a short process or it may lead to an annually dwindling existence, but the end is certain.

Another point is that, although the sun can be extremely hot here at times, yet there is an invisible sort of film over it taking out some of the fierceness with the result that it is inadvisable to adhere slavishly to the advice of text-books which lay down shade or half-shade as the aspect for certain plants. Shade plants will often do better in half-shade and half-shade in almost full sun in this district.

My efforts, such as they have been, extend over some 35 years in a locality well within the city boundary, being in fact only four miles from the centre of the city and on the south side, which is, perhaps, the most favoured owing to the prevailing winds. My first little affair only covered some 3 or 4 sq. yards in an unsuitable position, but it served as a start and an appetiser. Thereafter the site was moved several times and the area increased considerably and the construction improved with each move until some 20 years ago I determined to embark upon a somewhat more ambitious scheme. The site which I chose for this was a flat piece of land about three-quarters of an acre and covered with a jungle of growth of every description, but containing also a number of fine old trees; the best of these were so placed that they could be used to form the rock garden into a valley running down between them and that was the plan on which I worked. The stone employed was red sandstone, there being several reasons for this decision; first, it is a stone which always appeals to me on account of its friendly warmth of colour, its restfulness, its adaptability for building purposes and for producing good strata effects; secondly, it weathers down very quickly and pleasingly in our atmosphere, and lastly, I consider it is the most suitable stone for the great majority of the plants—lime can always be supplied in the composts in one form or another, the best of which is old mortar rubble. Further, in my case it could be brought by road from a quarry some 12 miles or so distant, no small consideration because before it was all finished it swallowed up nearly 750 tons of stone.

The "pockets," or planting spaces, are all built up from a depth of 30 inches and might perhaps be called a sort of semi-sceec. The bottom 8 inches is filled in with $2\frac{1}{2}$ inches drainage over which comes a 6 inch layer of compost; then a 6 inch layer of 2 inches drainage, followed by 4 inches of compost, a 2 inch layer of $\frac{3}{4}$ inch chippings and topped up with 4 inches of compost. This ensures a sharp drainage and also moisture which is retained on the underside of the stones; I use ordinary road metal or



Maiby.

Vaccinium praestans. (See p. 286)



The Rock Garden Site after cleaning, but before beginning work, 1920. P. H. Schill

ROCK GARDENING IN MANCHESTER.

granite for the purpose, although this can be replaced by limestone where especially desired.

It is certainly advisable to create a rather larger reserve nursery than may be necessary in many localities in order to meet the danger of casualties caused by the vagaries of our winter conditions and to be able to replace them as far as possible. Propagation presents no special difficulties here, whether by seed, division, layering or cuttings, and on the average I have had considerable success with the latter, even with some of the more difficult species. I make my own small portable cutting frames, with a sloping top for the glass sheet, and use them either in sun or shade. At the bottom I place a thin layer of broken crock drainage, then some 4 inches or so of Sorbex Peat and top this with an inch or two of sand; I find this more satisfactory than pure sand, though I employed that method for many years and with success, too. I have tried out three different kinds of sand, ordinary sand dug out of certain spots in my own ground and which is not very sharp, pure silver sand, and lastly a type of grey gravelly sand from the bed of Lake Windermere. This latter I have found quite the best and the quickest rooting medium. The ordinary sand is apt after a time to develop a greenish caked surface, especially if some cuttings take rather a long time to strike and require several overhead waterings; silver sand I find dries out too quickly however damp the Sorbex below may be and calls for frequent watering, which is undesirable. The Lake sand, however, holds the moisture very well indeed, yet it is sharp and appears to contain some quality that is conducive to rooting.

Apart from our local atmospheric conditions, other difficulties arise from the continuous creeping out of a large city, a process which is accelerated by the demolition of condemned slum areas in the heart of the town and has caused the gradual disappearance of fields and of the larger houses with good-sized gardens, these being replaced by thousands of the very small type of house. One result of this change is that a garden like mine, containing large trees and shrubs, tends to become a sort of bird sanctuary. This is, of course, very delightful but has definite disadvantages in the rock garden. The fact that their feeding grounds have shrunk to such a small proportion naturally tends to intensify their search for subsistence, and this leads to their turning over and pulling to pieces rock garden plants in their urgent quest of grubs. Thus it is becoming practically impossible to grow sempervivums, which are amongst the easiest plants to grow

anywhere and of which I had at one time an extensive collection; they do not merely root out small plants but tackle really large mats, pulling them to pieces and scattering them over a wide area. Silver saxifrages are another group which they treat in the same cavalier manner, so that practically the only way to grow these two genera is in vertical cracks between rocks, and that sort of accommodation is not unlimited. A further irritating habit of the birds is that they continually pull out labels and are not particular where they scatter them. This is probably a combination of pure mischief and grub seeking but the result is somewhat disastrous. Children, too, are a nuisance inasmuch as they get into gardens and sometimes do a great deal of wanton damage; they, too, are attracted by labels, pulling them up wholesale at times and, sometimes, which is even worse, they change them about.

As regards the plants themselves there are certain genera which do very well indeed and first amongst these are the campanulas. Except some of the more tender and difficult ones, they put up as brave a show as I have seen anywhere, some large drifts of *C. turbinata* (true) and some of its varied forms are just one solid satisfying mass of colour. *Dianthus* also give no trouble and put up a good show of bloom. The climate seems to suit many of the primulas quite well and I used to derive much pleasure from a not inconsiderable collection of this enchanting family. Unfortunately, however, trouble appeared amongst them and plants began to shrivel and then brown off and die. On examining the plants thus affected I found that they were sitting on the ground quite loose without roots. Investigation of the ground revealed the presence of a white grub, the larva of one of our weevils. These grubs sever the roots just below the crown of the plant, thus inevitably causing its decease. Primulas are their favourite victims, though I have known them also attack other plants and their onslaught was by no means confined to the open rock garden, for they very quickly invaded the pot plants in the reserve nurseries where I have occasionally found as many as 10 or 12 grubs in one 3-inch pot. There seems to be no remedy against them in the open beds but they can be effectively prevented in the nurseries by adding 1 or 2 oz. of arsenate of lead in powder form to a bushel of compost. I have done this systematically with every kind of compost for many years past and to the best of my recollection I have not lost a single plant of any kind from this cause, nor have I ever found a grub when turning out the pots. I have alluded purposely to



The same site in 1923; on the right the Mound, unfinished.



The Bottom Pool and Gorge.

P. H. SCHMIDT

the above because others may suffer from this pest and be unaware of the antidote.

Some of the gentians do not object to our climate and acquit themselves well as regards bloom. *Sino-ornata* will, of course, do almost anywhere and *septemfida*, *lagodechiiana*, *Kesselringii* and some others do very well and I have at times been very successful with *verna*, although it is not at all happy with me in the scree. Our winter conditions are not kind to aubrietias. Every spring they have to be drastically cut back, often right to the base, with the result that they are seldom able to make really good mats of solid colour. This is a definite loss in spots where good splashes of colour would be very useful.

Many of the androsas can be grown satisfactorily, particularly those of the *Sarmentosa* group, while *lanuginosa* and *Leichleimii* also do well, and lewisias can be grown and flowered quite passably in the scree.

Daphnes are also well worth growing and I have little difficulty in propagating these from cuttings. I have raised a good many *retusa* and *Cneorum* in this way and have occasionally been successful with *Blagayana*, although this is admittedly not too easy. Saxifrages of the *Kabshia* and *Engleria* sections and their many crosses do well on the whole and give a good display, and some of the *meconopsis* are quite worth growing, even though they do not attain the size of plant, or height of bloom spike to be seen under more favourable conditions. Phloxes and helianthemums are unfortunately not to be depended upon, though I have at times had fine displays of many varieties of both groups but it is a case of constant propagation and reserve stock. I have found *Phlox* "Sprite" and *lilacina* and *Helianthemum* "Canary Bird" most reliable. *Phlox adsurgens* is worth persevering with and will succeed with a little care and trouble.

Onosmas are not too fond of our winter climate although I had a plant of *O. taurica* a few years ago which came well through one or two favourable winters and made a mat of about 2ft. or so in diameter and clothed itself with some 200 or more flower-spikes. The display of such innumerable golden bells made quite the show-piece in the rock garden that season. *Uoullaria grandiflora* is, I understand, not too easy in every locality, but I have a good clump of it in a fairly shady spot where each year it throws up a sheaf of spikes adorned with its lovely long tassels of gold.

I think I have said enough to prove that in spite of all difficulties it is really worth anybody's while to take up rock

gardening within this locality provided that they are keen and enthusiastic and do not mind taking some trouble and put up with some set backs and disappointments.

With regard to shrubs and small trees, ericas are, generally speaking, very well worth growing in this district and give a good account of themselves. There has been much correspondence of late years in some of the gardening papers as to whether ericas will seed readily. My experience is that many of them do so to such an extent as to become a perfect nuisance. They germinate in any ground which is not disturbed, be it any sort of soil or compost, solid clay, cinders, scree, and even broken brick rubble. Perhaps the quaintest place of all is on the moss that forms on the vertical face of many of the sandstone rocks; this is, of course, only a very thin layer but I have seen many plants up to 16 or 18 inches high and flowering profusely. Sooner or later their doom is sealed, but as often as not they flourish until the moss flakes off which is always its ultimate fate.

I had a fine specimen of *Erica arborea* some 8 feet high and as much across but the winter of 1939-40 killed it outright. I gave it plenty of time to see whether it would throw up from the base but it firmly remained a casualty, although the *E. arborea alpina* plants came through without turning a hair. Judging from the various reports of damage done, which appeared in the *Bulletin*, this seems to have been a very general experience.

This whole locality is not a favourable one for Conifers generally, although some of the dwarf species are worth growing in the rock garden. *Cupressus tamariscifolia* does well and is very useful, *obtusata nana* and *plumosa nana* are also satisfactory as well as *Picea Albertiana conica*. I have had one of this latter species for a number of years and it has now reached a height of 20 inches with a diameter at the base of about 14 inches; it is a very good typical shape, closely "feathered" from the ground upwards and without any brown patches. There are others quite well worth growing, but *Juniperus hibernica compressa nana* is best left out. I have tried it often but as time and successive winters pass it gradually deteriorates and becomes unsightly.

It must be said that no Conifers look their best in Manchester, having a somewhat dark and dingy complexion due to the smoke-charged atmosphere, but still they are worth their place in the scheme of things and there is always one time of the year when for some weeks they really show off and that is, of course, when they put out their fresh young growth each spring until the smoke once more commences its begriming process.

Several of the lovely daphne family repay any trouble taken with them. *D. Mezereum* and *M. album* are easy and do well; *Cneorum* makes a nice show if attention is paid to layering down the growths with compost held down by chunks of limestone. *Blagayana* will do quite well if similarly treated and an old shrub of *D. retusa* flowers regularly and has reached the dimensions of 17 inches in height and the same in diameter—quite a good specimen for such a slow growing shrub.

Many of the dwarf rhododendron species are not happy here, but some can be fairly well relied on. The *Impeditum* and *Imbricatum* group give quite a good account of themselves; *Williamsonianum* grows well but is unfortunately a shy bloomer, as is also the beautiful yellow *primulinum*. *R. praecox* puts up a fine show although the blooms are, of course, often caught and destroyed by frosts. *Racemosum* is also well worth growing. It is advisable, however, to propagate a few of some of them every year and thus create a reserve stock to replace casualties.

Most of the cotoneasters and berberis can be safely employed although the latter fail to display the lovely bright colouring which so many of them put on in the autumn in clearer atmospheres.

Some of the dwarf azaleas are extremely useful for a really bright display, but the Japanese species, *Hinodegeri*, etc., are not too happy here and as with *R. praecox* it is wise to create a reserve stock.

Most of the brooms will flourish almost anywhere. Our native *Genista prostrata* and *villosa* make large mats and are best grown where they can hang down the face of a vertical rock where they can show off to full advantage their glorious sheets of gold every spring. *G. nigricans* is in my opinion a very good shrub for the rock garden and if each shoot is pruned down in April—tedious though the job is—the result is a fine crop of new upstanding growths to turn later on into golden candles. *Cytisus purpureus* blooms freely and spreads to such an extent that it becomes a nuisance if not checked, and the low-growing *C. Ardoimii* and *humifusa* also do well and give a good display.

I have never succeeded with *Kalmia latifolia*, but on the other hand the charming *K. angustifolia* is quite at home. The shrubby potentillas are not really happy here and although they linger on and bloom a little, they never make good shrubs, suffer a great deal from die-back and consequent dead wood has to be cut away, and so they are best left out. Some of the bamboos are

quite at home and romp away; they are, of course, very useful in the margin of pools.

The only viburnum which I have grown is *V. fragans alba* which is satisfactory and I think that *Carlesii* and some of the others would give an equally good account of themselves. Several of the Yuccas can be grown with advantage and I have at times had a really good show of *filamentosa* and *fibros*.

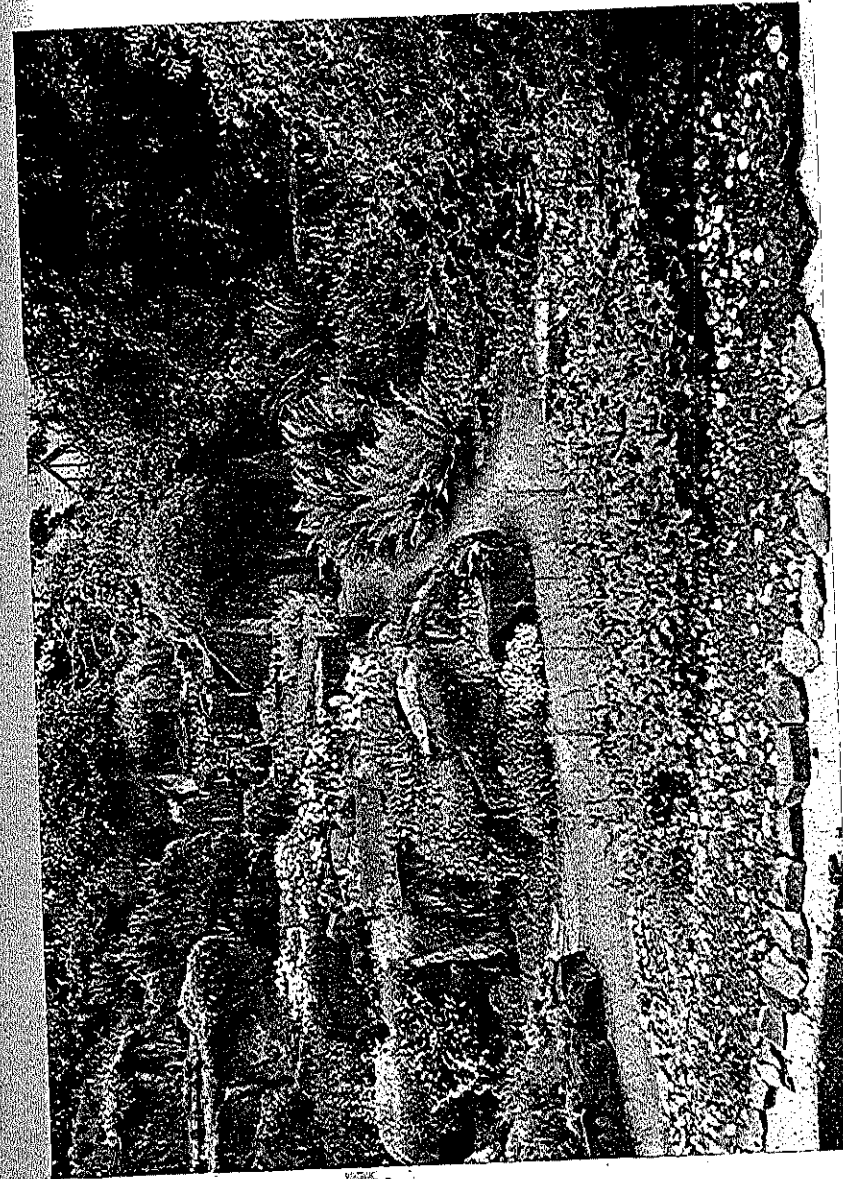
The Salix family are well worth consideration and some of them do quite well. The prostrate *S. serpyllifolia*, though not, of course, one of the gems, is nevertheless useful, if kept within bounds, and in early spring the little catkins are very pleasing.

This is not the ideal locality for the sun roses or *Cistus*. They vary of course in being somewhat tender or rather more hardy; probably the easiest and hardiest here are the Algarvensis group and I have had groups of *ladanifolius* up to 5 and 6 feet in height and putting forth a wealth of bloom each morning. With a reasonable run of favourable winters many others can be grown, but here again it is wise to propagate a few each year.

The shrubby Penstemons, such as "Newbury" and its varieties, do quite well and make a very bright contribution when in bloom, and incidentally often layer themselves quite freely. On the other hand *P. Scouleri* and other opalescent species are not really happy here.

Turning now to the question of inside or alpine house culture, it can be truthfully said that a very large measure of success can be achieved. There are, of course, very many different types of alpine houses on the market, some of which are so built that they can never be quite closed. This is, in my opinion, not a suitable type for this district as it is necessary upon occasion to keep out sulphur-laden fogs, or even very severe frosts; this latter on account of our atmosphere being damp which causes very low temperatures to be somewhat detrimental.

I concentrated chiefly, though not entirely, on saxifrages, of which I put together a considerable collection of about 200 species and hybrids, all grown in pans. In the late autumn they were brought under cover into a large cold greenhouse with ample means of ventilation and kept there during the flowering period, after which, *i.e.*, in the late spring, they were moved out again for the summer. When the flowering season came round, all time and trouble spent upon the plants were amply repaid. I recollect that one year when they were at their best, a leading alpine-nurseryman from a favoured district happened to drop in and was somewhat amazed at the show and paid me



P. H. Schill.

Looking up to one end of the Mound, 1936.



Daphne Cneorum. (See p. 287)

P. H. Schill.

the compliment of saying that as regards bloom I left him standing, although very naturally the foliage of his plants was cleaner and brighter.

As time went on I began to have less time to devote to the plants (also I was not getting any younger) with the result that many of them lost condition and quite a few of them even died, amongst them some of the rarest and the more difficult.

It always sad to me to see plants deteriorating owing to lack of care, and yet I did not wish to split up the collection and scatter it about in many directions. Fortunately, the solution presented itself, as often happens in life; some time previously I had the pleasure of making the acquaintance of a young man who was beginning to show a decided interest in alpine, which he told me was largely due to seeing my rock garden and the pan and pot plants. He became a constant visitor, a keen enthusiast and eager to learn all he could by questions, observation and reading. At that time he was living in a congested area in this suburban district with a tiny, hemmed in back garden, in which, however, he possessed a small rock garden and an excellent self-built small alpine house and frames. There he put together a nice little collection of alpine and tended them so well and carefully that they were a real oasis in the desert and would have been a credit to any locality. From there he showed and very successfully at the little Manchester Shows.

Here indeed was intelligent enthusiasm personified and I suggested that he should become a member of the A.G.S., which he promptly did and H. Langford has figured for some years in your membership list. Then came the opportunity of being able to offer him the tenancy of a bungalow at one end of my garden along with a small plot of land. He was extremely pleased about this and took possession without delay, bringing along the alpine house and setting up the necessary frames. He requested me to plan out the garden for him with a rock garden as its main feature and I derived much pleasure from doing this. We then set about constructing the latter entirely from tufa and I am glad to say that it has turned out very satisfactory. The silver saxifrages respond particularly well to tufa.

By this time we were working very closely together in alpine work and so my opportunity came and I handed over my pan plants into his care, with the result that the amalgamation has established a really nice collection which we both look on as "ours" and I am rid of the work and care of tending and looking after them.

Langford entered a number of plants in the Novices and Junior Sections at Southport in 1939 with very creditable results, figuring substantially in the prize list and including several firsts.

He is now on service with the Air Force, so unfortunately, and like many other things due to this life and death struggle, the plants are once more suffering through lack of detailed attention, although his wife, who is also becoming much interested, is doing her best to look after them during his absence.

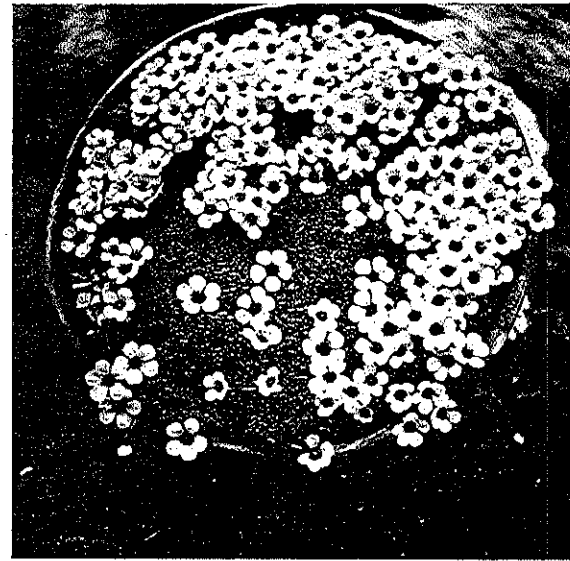
I have endeavoured to give some insight into what results can be attained in Manchester and I may say that an immense amount of pleasure is derived therefrom.

A few photos of saxifrages accompany this article just to illustrate some results which can be obtained even in Manchester; the collection is, however, by no means confined to this genus and includes plants of many other families. I will just mention a few of these at random such as *Cupressus obtusa caespitosa*, *C. plumosa nana compressa*, *C. obtusa tetragona minima*, *C. obtusa flabelliformis* and *Juniperus Sanderi* for Conifers.

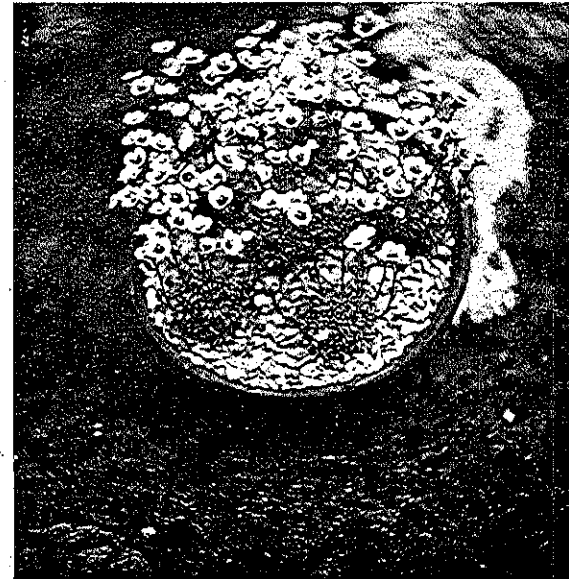
Other representatives are *Silene Hookeri*, *Boykinia Jamesii*, *Omphalodes Luciliae*, *Androsace hirtella*, *Dianthus Freynii*, *Daphne rupestris grandiflora*, *D. Verlotii*, lewisias, *Viola pedata* and *V. p. bicolor*, *Jeffersonia dubia*, *Sedum capablanca*, *S. edinense*, *Schizocodon illicifolia*, *Anacyclus depressus*, *Primula* "Linda Pope," "Marven," "Rufus" and others, drabas, wahlenbergias, *Salix Boydii*, *Campamula Allionii* "F. Barker," etc.

Of larger plants *Glaucidium palmatum* acquits itself well and might, I think, be successful in the right spot in the open rock garden. The saxifrages are grown mostly in 4-inch pans, though some are in smaller and others in larger ones up to 10-inch. These latter usually contain several plants and when these fill the pan and are covered with bloom they make a really fine show. Individual plants are grown into good-sized specimens, one *S. Jenkinsii* measures 5 inches across and is domed up to 5½ inches and was this year smothered in bloom. Many other species and varieties have achieved the same and even larger dimensions.

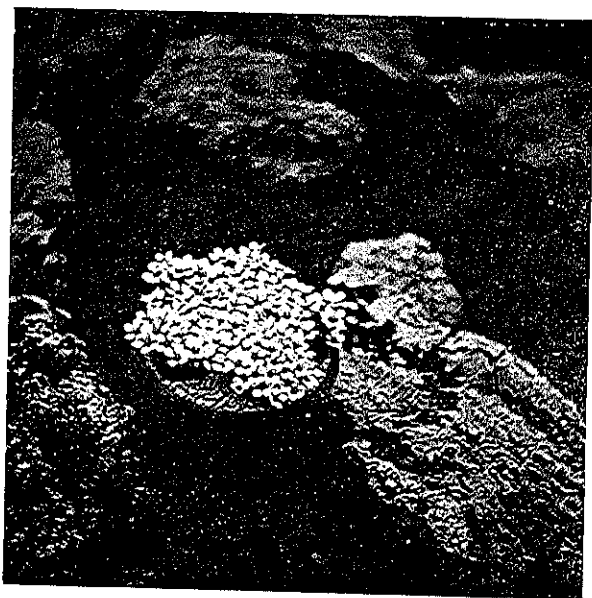
In conclusion I must admit that alpine culture in the open has become more difficult during the last decade or so and there are a number of things which were formerly comparatively easy but can no longer be grown satisfactorily now. Even so, however, quite enough can be successfully achieved to make the hobby both interesting and showy and well worth any care and trouble; and, moreover, I do not think that conditions will get worse from now onwards, at least for some time to come.



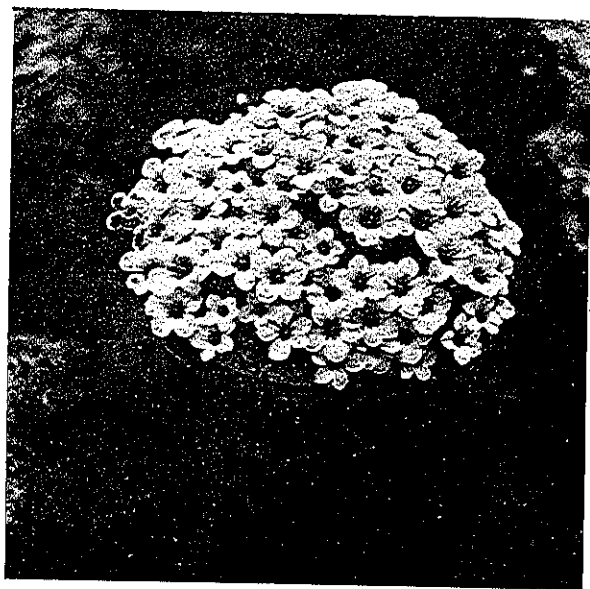
Saxifraga "Cranbourne." P. H. Schill.



Saxifraga "Iris Prichard." P. H. Schill.



P. H. Schill.
Saxifraga Burscriana magna.



P. H. Schill.
Saxifraga "Mother of Pearl."
4½ in. across, with 209 blooms.

THE STUFF OF WHICH PLANTS ARE MADE.

By G. H. WYATT, Ph.D., A.I.C.

(Continued from p. 217.)

Those who have read the account of the carbo-hydrates, proteins and acids, which formed the first part of this article, may be commenting upon the use of strange names, but, as in botany, there are no others. The names of the chemicals are often derived from those of the plants in which they occur, but can the perpetrators of *Boeninghausenia* and *Przewalskii* (to mention only two from the index of the *Bulletin*) throw stones? It can at least be maintained that there are no such apparent contradictions as *Lithospermum prostratum erectum* or *Veronica rosea coerulea*! Perhaps it would not be diplomatic to quote from Basil Valentine, a mediaeval alchemist who was apparently not sympathetic towards the beginner: "Whosoever thou art that presumest to dive into the fountain of our work and hopest to obtain by my ambitious enterprise the reward of truths . . . if you do not understand this that you ought to understand, you are not adapted for Philosophy or God concealeth it from thee. Proceed in the name of the Lord to the work itself."

We will continue our enterprise with another group of compounds which contribute to the flavour of fruits, and which are responsible for the odours of many flowers, fruits, etc. This class of materials is known as the "essential oils" or terpenes. It comprises a large number of substances which may all be regarded as built up from a common unit, a material called isoprene. This chemical does not occur naturally in an uncombined state, but is widely distributed in the vegetable kingdom in more complex forms. The majority of the terpenes contain two of these isoprene units joined together, but as many as six units may be involved in the structure of a terpene molecule and they may be linked in various ways. A large number of such materials has been examined and their constitutions established, but it need be stated here only that the various members of the series have different groups of atoms attached to the framework, or, when one group is common to a number of compounds, it is attached at various positions. The following short list of a few essential oils will indicate the variety of their sources.