GROWING ALPINE GESNERIADS

An in-depth look at how to raise and grow the alpine members of this mainly tropical family

by MAUREEN & BRIAN WILSON

WHY gesneriads? It all started about 25 years ago when we bought our first house and a hitherto passive interest in plants became an active one. An article on saintpaulias in a popular gardening magazine said that they were a "challenge to grow" and thus the involvement began. Many years later we became bitten by the 'Alpine Bug' and it seemed a logical step to shift our interests sideways to growing the alpine members of the family.

Getting started was almost as challenging as achieving results. More specialist growers are offering plants nowadays than when we ventured on the scene about 10 years ago. Our introduction into which plants belonged in the 'colder end' of the growing range of this mainly tropical family was the review article by F. E. B. Ferns "Gesneriaceae of alpine affinity" (Quart. Bull. AGS 1979, 47, pp123-152) to which we still refer. Membership of the SRGC, AGS and AGGS (American Gloxinia and Gesneriad Society) is a source of seed and information, and once people of similar interests know of you, a great deal of swapping goes on.

SEED

Seed of the Gesneriaceae is minute, and the first mistake we made was to attempt to raise plants in the same way as most alpines from seed are raised, i.e. the pots overwintered in a cold frame, with periodic inspections in spring to see what has germinated. Even with spring sowing, although germination occurred, the minute, painfully slow growing seedings were swamped by mosses and liverworts and did not survive. After a couple of false starts we decided on a different approach:

BASIC GROWING METHOD

The compost used for sowing consists of one third each sterilised garden loam, coarse sand and sieved peat. It is covered by a 5mm layer of coarse sand topped off with a single layer of 2mm diameter

grit which discourages moss growth. Seed is sown on top of the grit and washed in using a fine misting from a hand sprayer. The plastic pot is covered with 'cling' film with a few pin pricks made for ventilation. It is then placed in a position where the temperature can be maintained at around 18 - 20°C, this being in a shady part of the greenhouse, a propagator, or on a house windowsill.

SEEDLINGS

Germination occurs in 14 - 28 days and it is a fair generalisation to say that what fails to germinate within this period never does. The 'cling' film remains on until the seedlings are almost touching it, when it is replaced by an upturned disposable petri dish (or clear convenience food container) with ventilation holes. Any watering necessary up until this stage is done by misting from a hand sprayer as the surface can and does dry out despite the 'cling' film. Bottom watering is only practised when sufficient growth has been achieved to warrant it. Allowing seedlings to dry out is not to be recommended, as although not always fatal, they do not have the spectacular recuperative powers shown by some mature members of the family after periods of drought.

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Pricking out is done when the seedlings are about 5 - 7mm in diameter. Plastic thumb pots are used for individual seedlings, and they are kept covered as before. Timing depends on when the seedlings reach potting-on stage – if there is enough growing season left, they are potted on – if however, autumn is approaching by the time they are ready, they are left until the following spring. Individual plants are grown on, weaned off the lids, and potted up as necessary. They are given occasional dilute feeds in the growing season, initially of high N followed by high K as flowering size is approached.

GROWING METHODS

Using the above method, *Ramonda myconi* and *Haberlea rhodopensis* (Fig.49, p.181) flowered in 3 years from sowing. Some plants were planted vertically in a north facing retaining wall in order to prevent water from sitting in the crowns and causing winter rot. In this position, they have gone from strength to strength and remain perfectly hardy in our frost-pocket garden, where temperatures

on occasion drop to as low as −12°C. *Ramonda serbica* has been raised more recently, and some plants were put into a north facing crevice of a limestone trough in the summer of 1994. This species is reputed to be less hardy than the other ramondas, and the trough is currently covered for the winter – time will tell. Other ramondas and haberleas are kept in clay pots plunged in sand in a shady, sheltered cold frame. These plants are re-potted annually into the original mix with the addition of some crushed tufa (minus the dust) and 'Osmocote' slow release fertiliser.

The above growing method 'evolved' in the early days after the initial false starts of 10 years ago. We have not raised ramondas or haberleas from seed since, but were we to do so we might adopt the method we later used when eventually we acquired seed of *Jankaea*[1] *heldreichii*. The compost remains the same except for the addition of some crushed tufa, and the sowing, covering and germination method are unaltered. Now the difference: Brian thought that the reason for the failure of *Jankaea* seedlings in the first winter is that they remain so small for so long, and have insufficient reserves to sustain life because of the poor quality and quantity of daylight encountered at a latitude of 57°N.

Covered pots of seedlings were kept in the centrally heated house throughout the winter with daylight hours extended by fluorescent lighting

FLUORESCENT LIGHTING AND CENTRAL HEATING

To overcome this, the covered pot of seedlings was kept in the centrally heated house throughout the winter with daylight hours extended by fluorescent lighting (900mm warm, white tube) to a maximum of 14 hours daily. The pot was placed 15 - 23cm under the lights. On very dull days the lights were left on all day. Using this method, the seedlings thrived, and pricking out was done the following spring, 11 months after sowing, into individual plastic thumb pots. As potted-on plantlets reached the edge of the pot, the whole pot was 'double potted' into a larger pot, the outer pot containing moist peat, and a new, larger transparent cover placed over both pots. Care was needed to avoid scorching, because the addition of the deeper outer pot raised the plants closer to the lights – we found out the hard way. Another pitfall can be avoided

[1] The spelling of *Jankaea* was changed to Jancaea by ICBN in 1988 but this change has not yet been fully adopted so ***The Rock Garden*** will continue to use Jankaea for the present (Ed).

by carefully weaning the plants off the lights as the natural daylight hours increase in the spring. Occasional dilute feed was given throughout the winter as the plants were in active growth.

The plants were grown on in the house throughout the following summer and the second winter. From a 1990 sowing, one plant was transferred to the shady plunge of a (just) frost-free greenhouse in the summer of 1992 where it remained. At this stage it was weaned off the cover, and was by now in a 9cm clay pot and about 10cm across. After a winter in these conditions, it flowered the following season (1993). The same plant flowered again in May 1994 with five scapes compared with the previous year's three. Two other plants sown at the same time, but transferred to the greenhouse a year later because of their smaller size, did not flower in 1994 as anticipated. This was disappointing, as we had hoped to obtain seed from cross pollination of the different clones. Self-pollination was attempted by hand, but as anticipated, no seed was set. The secret with *Jankaea* is never to take anything for granted; success does not mean mastery of this fickle goddess. Our aim is to build on the achievement to date, and hopefully reach a stage when we shall have spare material to share around.

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Following the above method of culture for *Jankaea*, all new gesneriad seedlings are overwintered indoors with supplementary lighting. This is purely to accelerate the painfully slow growth rate and so prevent the minute seedlings from succumbing. We do not expect plants to flower under these conditions, and it is not generally used for more mature plants. Another advantage of the system is that seeds which arrive in the depths of winter can be sown immediately, thus saving valuable time. We have even potted-up seedlings to grow on under lights in winter.

GREENHOUSE SHADE PLUNGE

The regime for plants which have been transferred from the house to the greenhouse shade plunge is to re-pot only when they have become pot bound, and only in June/July when they are in active growth. In addition to extra shading, a high humidity is maintained in summer by keeping the sand plunge well watered. The necessity for direct watering is infrequent, except in the

hottest weather – the amount depending on the species. In particular, over-watering must be avoided and care taken to prevent leaf burn from water-marking of the foliage. No water is given directly to the plants in winter, but the sand is maintained in a barely moist condition. Plants are given a precautionary spray of 'Benlate' before the onset of winter. Occasional aphids are encountered and systemic insecticide spraying is carried out in warm conditions when the leaves can dry off rapidly. Regular inspections under leaves and around the sides of pots for slugs is necessary. Why are we blessed with the most discerning race of gourmet slugs who put *Jankaea* at the top of their menu choice?

VEGETATIVE PROPAGATION

Gesneriaceae is one of the few families of plants which can be grown from leaf cuttings, and we have propagated ramondas and haberleas by this method. This was achieved by inserting mature but not senile leaves into a peat/sand mixture and placing them in a propagator under the bench at summer greenhouse temperatures. As we remember, rooting occurred in about four weeks, but it took a considerable time longer for plantlets to appear. As with saintpaulias, the secret of success is not to be tempted to pot them on too soon. For instance, leaves of *Haberlea rhodopensis virginalis* given to us one May were transferred to the house in mid September and put under the lights. Plantlets appeared on Christmas eve and it was well over a year from leaf insertion before they were big enough to separate. We have found that it is not necessary to have an axillary bud on the leaf stalk to achieve success. We were given two leaves of X *Brigandra calliantha* 'Tinney's Tawny', one with a bud and one without. The leaf without produced plantlets ahead of the budded leaf.

Indeed, experience has shown that remarkably little material is required for propagation. A newly purchased plant of X *Jankaemonda vandedemi* did a slow dying act on us, and by the end of the growing season we resorted to desperate measures. Three pieces of green tissue each no bigger than a pinhead were excised from the otherwise dead mass and potted up individually. These were put under the lights in September, and by the following spring had become recognisable plants which could be seen without the use of a hand lens. Similarly after receiving some leaves of *Opithandra primuloides* which had been mangled by the postal franking machine, tiny fragments of undamaged tissue were cut out, dusted with fungicide, and given the same treatment. The outcome was that we now have mature flowering plants.

Plants can also be grown from offsets or side-crowns. As an insurance policy, whenever a new addition to the collection is acquired, it is propagated as soon as material can be spared. Ideally, side-crowns are carefully detached from the main plant, often coming away with small pieces of root attached. Any wound is dusted with flowers-of-sulphur as a precaution, and the offset potted up and grown on as for leaf cuttings. This has been done with *Haberlea ferdinandi-coburgii* and *Ramonda nathaliae alba*, and indeed last summer with *Jankaea heldreichii*, although this happened as a result of accidentally removing a side-crown when pulling off a dead leaf. Roots developed after 2 months in a humid, heated propagator kept at 20-23°C. The new plant was carefully 'weaned' and transferred to the greenhouse shade plunge, where it has continued to make slow growth.

SPECIES AND HYBRIDS

So far we have dealt mainly with the Old World gesneriads, the tertiary relicts from the Ice Age. We have adopted the same basic method of culture for the other 'alpine' gesneriads from around the world, but omitted the tufa from the compost of species known not to inhabit limestone areas. Here are some observations on individual species/hybrids:

X *BRIGANDRA CALLIANTHA*

Raised originally by the late Otto Schwarz of Jena, this intergeneric hybrid is easily grown and propagated from leaf cuttings or side-crowns. It has a long flowering period of 6-8 weeks. Now the surprise – a plant acclimatised slowly to outdoor conditions and planted in a sheltered spot with overhead winter protection has survived for two winters and subsequently flowered. Conversely, a plant overwintered in the cold frame (not frost free) was not happy, and showed the characteristic distorted foliage of a gesneriad suffering from cold.

BRIGGSIA AURANTIACA (Fig.48, p.180)

This Tibetan endemic is another plant with a long flowering season, and is the female parent of the above. It is self-fertile, and sets viable seed. Slow at first, even under lights, it flowers in two years on small single rosettes, subsequent to which it grows rapidly. It is tricky to keep over the winter, even in the frost-free greenhouse. The dividing line between keeping it too dry when the leaves shrivel (permanently) and too wet, when it goes mouldy, is a very fine one.

BRIGGSIA MUSCICOLA

This charming plant comes from the Himalayan regions of Bhutan through to Yunnan in China where it lives on rocks and mossy pine trunks in deep shade at an altitude of around 3,500m. It has velvety apple-green foliage and yellow tubular flowers, but does not make a good show plant because of its droopy habit and summer flowering. Self-fertile, and a rapid grower from seed, it did not survive outdoors, and even winter cold frame treatment results in distorted leaves.

CONANDRON RAMONDIOIDES

Grown from seed originally, we find this Japanese member of the family unexciting, but we keep it because it is part of the collection. It dies down in autumn to resting buds from which it is easily propagated. In spring it requires high humidity to prevent the newly emerging leaves from developing shrivelled edges. We overcame this last year by starting it off under a plastic propagator lid, but because of its cabbage-like nature it cannot be contained for long. It just survives winter in the cold frame, but this is not a practical idea, since it takes the whole of the next season to recover.

CORALLODISCUS LANUGINOSUS (KEKE 1133)

Sown in 1990, one seed germinated and for 10 months remained visible only through a hand lens. It was kept under lights where it first flowered in the winter of 1992, still in a thumb pot. Two years on, it is now in the greenhouse plunge but is still a single crowned rosette with a diameter of only 11cm. Native to the Himalaya, we are told that in the wild, plants spend the dry season completely shrivelled and apparently lifeless. This could have been our difficulty, since we hadn't the courage to let our only plant go into this state. Another *Corallodiscus* sp. (SDR 108) collected by David and Stella Rankin in China in 1993 is proving to be just as slow growing.

X *JANKAEMONDA VANDEDEMI* (Fig.46, p.179)

An intergeneric hybrid between *Jankaea heldreichii* and (it is thought) *Ramonda myconi*. It is a very rewarding plant with flowers lasting over a month, and looks good on the show bench. Despite the original near failure which we attribute to inexperience at the time, there appears to be nothing difficult or different in growing *Jankaemonda* from any of the other plants in the collection. It survives the cold frame, but the edges of the leaves can turn brown. Occasionally a second flowering occurs in late June/July, but always with fewer scapes.

LYSIONOTUS

Coming from Asia, *LL. pauciflorus* and *montanus* are evergreen epiphytic shrubs about 30cm tall. They are easily propagated by dividing their surface-rooting rhizomes. Both have pale lavender tubular flowers with yellow throats and purple veining, the veining being less marked in *L. montanus*. They do well through the winter months in the plunge bed, but suffer some die back in the summer. A compost more suited to epiphytes and a spell outdoors in the growing season might improve this situation.

OPITHANDRA PRIMULOIDES

The second of the two Japanese species, and the male parent of X *Brigandra calliantha*, this plant was slow to get going from leaf fragments. It is the thirstiest member of the collection in the growing season and is therefore a useful 'indicator' plant. The fleshy, hairy leaves make this species a little tricky to bring through the winter in the plunge although a 'test plant' survived the cold frame well.

PETROCOSMEA

Of the 4 species from south-east Asia known to be in cultivation we have experience of *PP. kerrii* and *flaccida*. Both are rosette forming evergreens with fleshy, hairy foliage. Indeed, *P. flaccida* can make an attractive foliage plant alone forming a very tight grey/green rosette not unlike a sempervivum. Both plants have a striking resemblance to *Saintpaulia, P. flaccida* with unmarked deep violet flowers held well clear of the foliage and *P. kerrii* (Fig.50, p.181) having white blooms with a strong yellow blotch. Both flower over a long period, the latter throughout the summer, the former in the autumn, although our plants of *P. flaccida* have not been without a bloom in over a year. *P. kerrii* needs regular re-potting to keep it in a vigorous, healthy condition. Trial plants of both species failed to survive winter in the cold frame, although one American grower had an outdoor plant of *P. flaccida* which tolerated −6°C.

THE SOUTH AMERICAN TRIO – *SARMIENTA REPENS, MITRARIA COCCINEA, ASTERANTHERA OVATA*

All are shrubby, scrambling evergreens which enjoy woodland conditions. They are easily propagated from stem cuttings and in the case of *Mitraria* and *Asteranthera* make rapid growth. We grow *Sarmienta* (Fig.47, p.180) and *Asteranthera* on chunky moss poles, the latter in a hollowed out log which spends the summer months outside in a shady spot. In all 3 species, red flowers appear in summer on growth made in the previous autumn and winter. *Mitraria* and

Asteranthera are hardy in sheltered Scottish gardens, but will not survive beyond the cold frame in ours. *Asteranthera* is grown as ground cover at Bodnant in Wales. *Sarmienta* sets viable seed for us, which germinates in three days in warmth under lights in late autumn.

WHERE NEXT?

This has by no means been a comprehensive guide to growing the gesneriads of alpine affinity. While the list of other species is not limitless, there remain several of which we have no experience. There are also other intergeneric hybrids which are not commercially available. It may be that in order to acquire these hybrids, we shall have to breed our own, and this is a field in which we have started to dabble. Watch this space . . .

GOLDEN JUBILEE SALVER

for outstanding services to the Club to
Mr Bill MacKenzie

NOT only was Bill MacKenzie a founding member, but despite living for many years in the south of England, he had maintained a close interest in and loyalty towards the SRGC over many years. He had recently gifted the Rutland Salver to the Club and attended last year's Discussion Weekend. It would be fitting in the year that he had reached 90 years of age, for Bill MacKenzie to be given this award for outstanding service to the Club.

It was unfortunate that Bill could not be present at the AGM to receive the Salver personally but it was hoped that the Club's youngest member, Joanna Leven, would be able to present this to our oldest member with the Golden Jubilee Salver when on holiday in England.