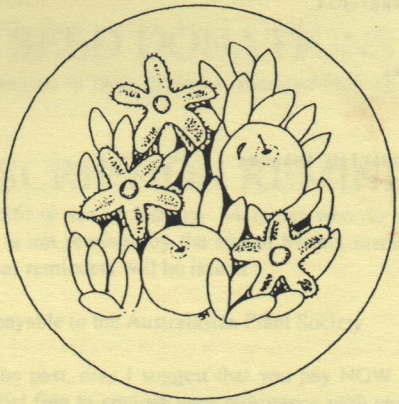
PENTACHONDRA

NEWSLETTER OF THE AUSTRALASIAN PLANT SOCIETY



ISSUE 23 DECEMBER 1999

AUSTRALASIAN PLANT SOCIETY

Newsletter No. 23
December 1999

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EDITORIAL

QUESTIONNAIRE

Enclosed with your newsletter you will find a questionnaire. We would like to know your views on various aspects of the Australasian Plant Society and what you, as a member, would like to receive for your annual subscription. Please take time to read it and provide some answers, anonymously if required! This way we can hopefully supply what you require. A self adhesive return label, to Sue Hyams, is enclosed.

PLANT HUNTING IN TASMANIA - ADDENDUM

An addendum to the booklet of the same title, issued with the Spring issue of Pentachondra, can be found on the back page of the questionnaire. It has been produced this way purely as a means to saving printing costs. Please remove the page and insert into your booklet.

SEED DONATIONS

Many thanks for seed donations to Nick Andrews, Einnions Hughes, Thomas Naylor and Tony Parry.

SUBSCRIPTION REMINDERS

The annual subscription (£6) is due in January. Members who do not pay by direct debit are reminded that if payment is not received by the end of March, membership will be deemed to have terminated. No further reminders will be issued.

Cheques should be made payable to the Australasian Plant Society.

If you have forgotten in the past, may I suggest that you pay NOW while you remember! To save postal costs, please feel free to enclose your remittance with your questionnaire, using the self adhesive address label enclosed. Alternatively send your cheque to Tony Entwistle, 113 Station Road, Delamere, Nantwich, Cheshire, CW8 2HZ.

THANK YOU

Many thanks to all members who have contributed to Pentachondra. If you have any news, however small, jot it down and put it in an envelope.

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Late Addition : New members not on Members List:

M Smith, 90 Astwood Rd, Worcester, WR3 8EZ

N J Bulloss, South Lodge, Brodick, Isle of Arran, KA27 8DD

AGM 1999

Hymenosporum flavum
Commonly known as the Native Frangipani and often used as a street tree in Queensland and warm sheltered areas of NSW. It is a slender tree with shiny dark green leaves and large fragrant creamy flowers which darken to yellow with age.



At 2pm on Saturday 26th June, a group of members assembled at Ness Gardens for this year's AGM.

For the first part of the meeting we were treated to an armchair tour around Australia, in the form of a slideshow by Rodger and Gwen Elliot, Australian botanists and horticulturalists. Rodger was in Britain to receive the Gold Veitch Memorial Medal awarded by the RHS.

We travelled from arid desert to moist rainforest, from alpine area to coastal zone, looking at various terrains and their associated flora.

Some of the plants featured were *Lambertia formosa*, *Hymenosporum flavum*, *Swainsona formosa* (a plant I tried to grow this year - I managed to germinate the seed but then snails moved in and devoured every seedling), *Ranunculus anemoneus* growing on Mount Kosciusko, *Eremophila alternifolia* on the cliffs above the Great Australian Bight, *Banksia caleyi* native to W.A. and having pendent flower spikes with an apparently unpleasant mammalian odour, and *Hovea elliptica* in the Karri forests of South Western W.A. (I grew this plant for several years successfully in the greenhouse border until I decided to move it. It subsequently died! I've just sown seed (mid July) so hope to start again.)

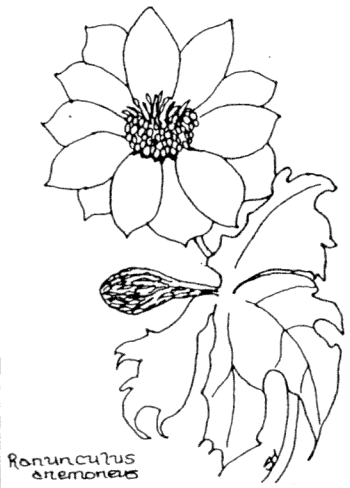
Following the slideshow, there was a very brief meeting to deal with AGM business. The Secretary, Treasurer and Newsletter Editor were re-elected for the next three years.

Jeff mentioned that the Society appears to be a fairly inactive group. There have been no Northern Meetings so far this year, although previously they have been twice yearly. Other areas have yet to form their own regional meetings. If anyone would like to set up such a group, the Society is happy to help with stationery costs and advice. A membership list appears with this issue so you can see who else lives in your area.

Jeff and Tony mentioned that they had worked hard putting together a display for the Tatton Park Show. Unfortunately very few 'local' members had apparently offered help to man the stall over the show period. (A report on the Show appears elsewhere.)

The APS now has a website currently run by Tony Parry. Internet users are able to view articles from previous newsletters plus information on what the Society offers and how to join.

The final part of the AGM was a guided tour, by Jeff Irons, round the Australasian plants growing at Ness. Ness Gardens were founded by Arthur Kilpin Bulley, a Liverpool Cotton Broker, in 1898. Plant collectors brought back many new species particularly from the temperate regions of the Far East. In 1948, after Bulley's death, his daughter Lois bequeathed the gardens to the University of Liverpool. Amongst the 25 hectares of gardens is a conservatory which was our first port of call. Entering the conservatory we were greeted by Mediterranean Giant Echiums *Echium pininiana*, touching the roof. Nearby grew *Monotoca elliptica*, an Australian shrub with prickly leaf tips.



Snow buttercup. Perennial upto 60cm high, with white flowers upto 6cm across and numerous yellow stamens.

In one corner several *Dicksonia antarctica* tree ferns grew underplanted with flowering *Viola hederacea*. In another corner were 3 Black Boys, *Xanthorrhoea* sp, surrounded by chunks of reddish rock over which *Kennedya rubicunda* scrambled.

Other plants featured include several specimens of yellow-flowering *Hibbertia tetandra*, *Anigozanthos flavidus* and the red-flowered form, all in bloom. From New Zealand *Corokia buddlejoides* showed off the last of its yellow 5-petalled star-like flowers while *Metrosideros diffusa* was just coming into bloom. Also to be seen : *Acacia cultiformis*, *Acacia baileyana* - lots of old seed pods attached, *Leptospermum* 'Red Damask' in bloom, *Pimelea nivea*, *Banksia speciosa* and *Restio tetraphyllus*.

Outside the conservatory is a large specimen of *Coprosma* 'Beatsons Gold' at least 2m high x 2.5m wide.

In one of the staff greenhouses was a four-year-old specimen of *Calomeria amaranthoides*. Usually biennial, this native of NSW and Victoria was at least 2m tall with red plume-like terminal flower heads with a strong fragrance which is either liked or disliked.

Amongst other Australasians in the grounds are various eucalypts, grevilleas and melaleucas.

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Many thanks to Jeff for organising such an interesting A.G.M. If you've never been to one of the Society's meetings in the past, please try to get to the one in 2000; details will be in the next issue.

RONALD CAMPBELL GUNN

By Brian Halliwell

Recently I was reading the book 'Wild Flowers of the Great Dominions of the British Empire' by Lady Rockley, published in 1935. In the section on Tasmania she comments on 50 plants named after Robert Campbell Gunn. Because I was sure she had his first name wrong, I began to research Gunn and this article has resulted.

Ronald Campbell Gunn, though self taught, was probably the first and amongst the most important of 19th century Tasmanian botanists. Along with other amateurs, eg. Joseph Milligan, a surgeon, William Archer, a botanist and Robert Lawrence, a landowner, the unknown flora of the newly established colony of Van Diemen's Land became known.

Gunn was born in Capetown in 1808. At the age of 18 he was to marry, and when his wife died in 1836, she left him with 5 children. He remarried in 1841 and his second wife also bore him 5 children.

His brother, William Gunn, went out to Tasmania in 1823 and took up a grant of land. Following an invitation to visit him, Ronald arrived in Hobart in 1830, liked the island and decided to settle. Under William's supervision, Ronald was appointed superintendent of a convict barracks in Hobart. Later in the same year he was transferred to Launceston as Assistant Superintendent on convicts for Northern Tasmania. At the age of 24 he had been raised to Superintendent and appointed a police magistrate.

Whilst in Launceston he met Robert Lawrence, a year older than himself, who was manager of his father's extensive estates in the north of Tasmania. Lawrence and Gunn became firm friends. It was through Lawrence that Gunn became interested in botany. Lawrence had been corresponding with W.J. Hooker who was Professor of Botany at Glasgow University; he introduced Gunn to Hooker. After Lawrence's sudden death in 1833 Gunn continued the correspondence, which lasted to the end of Hooker's life. Hooker prevailed upon Gunn to collect and prepare botanical specimens and send them to him. Duplicate specimens were kept by Gunn who assembled a considerable herbarium which he presented to the Tasmanian Museum in 1878 which in turn transferred it to the National Herbarium in Sydney in 1904. For all plant consignments sent to England, Gunn would accept no cash remuneration but asked for botanical books instead. At the time of Gunn's death, he had one of the most extensive botanical libraries in private hands in Autsralia. In 1834 Gunn was to start his own botanical garden in Launceston, some 14 years after the State Botanical Garden was founded in Hobart.

In 1837 Sir John Franklin was appointed Lieutenant Governor of Tasmania. Sir John and Lady Franklin were interested on science, especially natural history. Gunn's name had been given to them by W.J. Hooker. In 1838 Gunn returned to Hobart as Assistant Police Magistrate. The following year he became secretary of the newly formed horticultural society. In 1840 he was appointed secretary and editor of the Tasmanian Society which had been set up by Sir John

Franklin to promote scientific investigation; this organisation was subsequently to become the Royal Society of Tasmania. In the same year Gunn became private secretary to Sir John Franklin and clerk to the Legislative Assembly.

Between 1839 and 1843 and expedition of two ships: HMS Erebus and HMS Terror under the command of Captain James Ross were undertaking a magnetic survey of the southern oceans and exploring the fringes of Antarctica. The expedition's surgeon-naturalist was Joseph Dalton Hooker who was son of W.J. Hooker. In 1840 the expedition called in at Hobart where J.D. Hooker was to meet Sir John Franklin's secretary. Hooker with Gunn as guide and William Archer as assistant set off to explore Tasmania botanically. After his return to England J.D. Hooker was to publish in 1860, Flora Tasmaniae which was dedicated to R.C. Gunn and W. Archer. Some of the illustrations of orchids in this book had been prepared by Archer.

In recognition of his botanical work in Tasmania, Gunn was elected Fellow of the Linnaean Society in 1850 and in 1854 became the first Tasmanian Fellow of the Royal Society of London.

In 1841, Robert Lawrence's father died and Gunn resigned all government appointments and returned north to manage the extensive Lawrence estates. Gunn continued to collect plants, many of which were unknown species, for W.J. Hooker after he became director of Kew in 1841 and for his son Joseph Dalton Hooker when he succeeded his father in 1865. Gunn travelled extensively in Tasmania visiting remote areas previously unexplored. A number of locations, perhaps first visited by him, bear his name: Gunn's Plains, Lake Gunn and the Campbell River. Mostly Gunn was sending herbarium specimens to Hooker but in addition there were some live plants which were transported in Wardian cases as well as seed. When the glass cases were returned to Gunn, Hooker had them filled with food and ornamental plants.



Chiloglottis gunnii
Common bird orchid.
Flowers are green to reddish brown or purple, resembling an open bird's mouth.

Whilst he is best known for his botanical work, he was also interested in and collected shells, birds and animals.

He is commemorated by a bandicoot whose specific epithet bears his name and by 4 shellfish. There was a report in a Times newspaper in 1850 of the arrival of a live Tasmanian Tiger for Mr Gray of the British Museum which had come from Mr Gunn.

Gunn became an influential figure in Launceston as a landowner and director of several companies. In 1855 he was elected to the Legislative Assembley and he held many other official posts. In 1876 because of failing health he retired to his home, Newstead House where he died in 1881.

Already it has been seen that some 50 plants were named for him, mostly by the Hookers, father and son but revision

over more than a century has reduced these by a third. Robert Brown had proposed the name *Gunnia* for a genus of orchids but its species have been transferred to *Sarcochilus*. Ferdinand von Mueller had proposed *Gunnia* for a genus within Aizoaceae which Ferdinand Pax and G. Hoffman transferred to *Neogunnia* which in its turn has now become *Gunniopsis*.

The following genera contain species commemorating Gunn:
Acacia, Baeckia, Baumea, Cardamine, Carex, Chiloglottis, Cyperus, Desmodium, Deyeuxia, Epacris, Epilobium, Erigeron, Eucalyptus, Euphrasia, Isoëtes, Lepidosperma, Liparophyllum, Muehlenbeckia, Nothofagus, Oreomyrrhis, Ozothamnus, Persoonia, Phyllanthus, Plantago, Poa, Pseudopanax, Pultenaea, Ranunculus, Richea, Rubus, Solenogyne, Senecio, Spyridium, Tetratheca and *Trochocarpa.*

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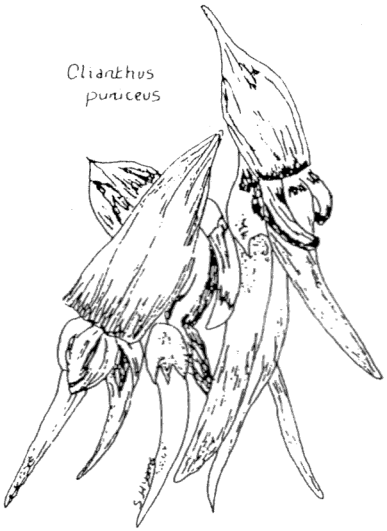
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GARDENING IN THE NOT SO FROZEN NORTH

By Jennifer McGrady

I live on the north facing side of the Tyne Valley, a few miles west of Newcastle. The valley itself is not an excessively cold area, unlike the moorland to the north and south. Adventurous gardeners in Newcastle and eastwards towards the coast grow and flower many plants usually recommended only for milder areas - *Callistemon subulatus, Carpentaria californica, Ribes menziesii, Ribes speciosum, Crinum hookerianum* for example. Indeed, I am told that in Whitley Bay, dahlias stay in the ground all year!

Inland from the city, though, the climate is less kind. The hamlet where I live is called Bank Top, although I feel that Windy Ridge would be a more appropriate name. Our garden lies to the south of the house, part sheltered by a row of very ancient fruit trees, and also by a decrepit privet hedge. This was scheduled to be removed when we moved in seven years ago, but the icy blasts of the first winter made us realise why it was there, so it has stayed. To the east of the garden we also have a small field, surrounded by arable farmland. Here I hope to achieve a longstanding ambition to grow my own wood.



Clianthus puniceus
Also known as Kaka beak, this NZ member of the pea family has pinnate leaves with two rows of leaflets. Flowers can be red or white, sometimes pink. Now rare in the wild.

In the first winter we planted a shelter belt - mainly larch and alder - along both sides of the field. This established well, and the plan was to extend this inwards in successive years, and interplant with something more interesting. Unfortunately, along with the shelter came the livestock - deer, probably rabbits and definitely hares (which we felt ruled out the man with the ferrets) so subsequent planting has not done well. I quite like the occasional multistemmed tree, but I would like some of them to be normal! Luckily, though, it seems that eucalypts are not particularly palatable, and I am very pleased with the row which went in five years ago, and was unaffected by -14C or so in the bad winter soon after. Most are *E. dalrympleana*, with a few *E. gunnii*, one *E. perriniana* and three *E. pauciflora* subsp. *niphophila* which are just developing their patterned bark. There are also two which I think are *E. glaucescens*, but I didn't expect them to survive and didn't label them. There was a third which looked very similar, grown from seed picked up in Canberra, which died the following winter. I see that some of the trees have flower buds now - do these have to overwinter for flowering in the Spring, or have they just formed too late to flower this year?

In the garden itself I haven't yet risked any doubtfully hardy plants, but along the back wall of the house, which gets sun all day, we have a conservatory, and outside this, a narrow border with paving in front. (I would have preferred any other aspect for the conservatory, as it gets far too hot in summer - a red spider paradise, and why do they target my Australian plants first? I lost several before I learned to spot the first signs of an attack. Now I stand them outside for as long as I dare, and get a pack of predators as soon as they come in for the winter.) The border outside, though, seemed a good place to take chances, so two years ago I planted it with anything I thought would probably survive with protection at the root, even though the top would be cut to the ground. So in went *Euphorbia mellifera, Rosa banksiae* 'Lutea', *Solanum jasminoides* 'Album Variegatum', *Passiflora caerulea, Prostanthera cuneata, Sophora tetraptera* 'Gnome', a 'broom' from Cornish seed labelled 'Teline', *Jasminum officinale* 'Argenteovariegatum', *Clianthus puniceus* and *Melianthus major*.

Two mild winters later, the only damage has been from the wind battering loose shoots against the wall, and I have had to do some very severe pruning! The euphorbia has flowered a bit - it's a handsome plant but I'm not sure that it's worth the space. The Banksian rose has grown well,

but no sign of a flower. It flowers outside in Edinburgh, I believe, so maybe there is hope yet. The solanum and jasmine couldn't compete and have been removed, and the Passion Flower competed vigorously but didn't flower. The 'Teline' isn't worth the space, and will go. The prostanthera flowered the first year but was perhaps too shaded to do so again. Dennis Rowlinson has given me a cutting from one which does flower well, so I may replace the original with his. The sophora is still there but has hardly grown. The melianthus flowered the first year but had to be cut right back this spring. It's a wonderful foliage plant, so the lack of flowers doesn't matter. And the clianthus has been absolutely spectacular. It flowered very early the first year, but set no seed. Jeff Irons suggested that it might have been too early for pollinating insects to be about. This year it was in bud for the snow and frost of mid April, but went on to flower profusely in May and into June, and this time there are seed pods, though (mid August) these are still very green. I have two rooted cuttings, but would like some seeds as well - if only to make a minimal contribution to the APS seed list!

I have some good seedlings of *Hardenbergia comptoniana, Hardenbergia violacea, Sollya heterophylla* and *Billardiera longiflora*. If I take out the 'Teline', and perhaps the euphorbia, and cut back the melianthus a bit more, and if we have some more mild winters, I wonder how they might do? I might just try.

SOUTHERN SPRINGS AND NORTHERN SPRINGS

By Dr. Graham Sumner

The piece in May 1999 *Pentachondra* by Tim Longville, *Southern Springs and Northern Autumns*, provided a most interesting perspective on the problems of growing Australian plants in the northern hemisphere. I should like to add further to what he has said in an attempt to clear up a bit more of the mystery about why some Australian plants thrive in the UK, but others do not. These are generally the ones you *really* want to grow and have gracing your garden! I have deliberately entitled this piece at a bit of a tangent to Tim's, since a bit of research I recently carried out suggests that it may be the nature of north-western European autumns, in contrast to their austral counterparts, which may cause particular problems for Australian plants such as the Acacias. The results of the work have not been published, but were presented to a joint meeting of the Royal Horticultural Society and the Association of British Climatologists at a one-day meeting, *Weather and Horticulture*, held at Imperial College, London in April 1998, and at the Stirling conference of the British Australian Studies Association in September 1996. The work developed from my own attempts to grow *Eucalyptus* and *Acacia* in my garden in coastal west Wales. Add in my professional interests in both Australia and climatology, and you have the complete recipe. The full text of the original paper* is far too long for this newsletter, so I shall try to summarise its contents, without reference to its numerous figures.

My hypothesis proceeded thus. Australia is the driest of the populated continents, but there is an image that, in the far south at least, conditions approximate a 'British' climate, only with more reliable sunshine. The early settlers were quick to introduce 'British' plants. They succeeded,

but if *Quercus* will grow in Tasmania, why not *Acacia* in Wales? How similar are the maritime climates of Wales and Tasmania and can any differences be discerned which may explain the paradox? In my own garden, most eucalypts that I tried to grow, survived, some too well (!), though the ones that did have not necessarily been those I expected to. However, I have experienced almost total failure with *Acacia*. If lucky, I have succeeded in coaxing a single paltry specimen through no more than a couple of mild winters.

Welsh and Tasmanian climates are, at face value if we stick to averages, broadly similar beasts. However, differences in latitude enforce important contrasts in sunshine and, less so, temperatures, with winter day length and solar elevation being significantly greater in Tasmania than in Wales. Detailed differences are more subtle. Both locations lie within the temperate westerly belts of their respective hemispheres. The North Atlantic Drift partly compensates for Wales' higher latitude, but differences in the characteristics of the main air masses mean that inland, upland parts of Wales are much cloudier and cooler than the Welsh coasts in the summer. In Tasmania this contrast is less marked, but overall Tasmania is sunnier than Wales, and particularly so in the late summer and autumn. Westerlies affecting Tasmania are more constant during the winter half of the year, whilst their North Atlantic counterparts are notoriously variable. Temperatures in Wales are lower and more variable on a daily basis throughout the year. Sustained periods of low temperatures occur commonly even in lowland, western Britain but only at higher elevations in Tasmania. General precipitation levels, and their seasonal variation, are similar, but Wales has notoriously wet autumns and relatively dry springs (!), whilst for Tasmania the reverse is true: wetter springs and drier autumns. The relatively high spring precipitation plus the absence of a late summer 'dull' period in Tasmania may have important consequences for the growth of Tasmanian plant species in western Britain. I suspect that these two factors may be particularly important for the growth of certain Australian plants, such as Acacias, though my lack of botanical/horticultural knowledge means that I cannot explain why!

Table 1.

Monthly and seasonal proportions (%) of the mean annual precipitation, averaged for representative Tasmanian and Welsh sites.

	Winter			Spring			Summer			Autumn		
Tasmania	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Wales	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Tasmania	9.0	11.2	10.8	9.2	9.1	7.5	7.8	6.4	5.1	6.1	8.5	9.2
	31.0			25.8			19.3			23.9		
Wales	11.7	10.9	7.7	8.1	6.0	6.6	6.1	5.8	7.5	8.7	10.2	10.8
	30.3			20.7			19.4			30.7		

The hobby gardener side of me has also been curious as to why the 'obvious' Tasmanian eucalyptus often *failed* to thrive in soggy west Wales (presumed similar climate, etc.), but the less obvious species from the often rain-starved uplands of New South Wales and Victoria, *succeeded*, in spite of howling, salt-laden gales outside the brief summer months. My most successful species (too successful, they are coming down next year!) have been *Eucalyptus glaucescens* and *E. viminalis*, which are mostly to be found in the semi-arid uplands and tablelands of mainland south-east Australia, where winter night-time frosts (eg. around Canberra or Armidale) are much more severe and frequent than are generally experienced along the Cardigan Bay coast, and salty gales are never experienced! My approach to the horticultural side of the research has been admittedly far less rigorous and scientific than my study of climatic contrasts and similarities. After all I try to use my gardening hobby as a foil against 'work', and enjoy it for that reason! Over the years I have tried to grow different *Eucalyptus* species from seed, and have kept records of those which have succumbed to the western Welsh winters. My main successes and failures are summarised in Table 2. The species are grouped according to the phytogeographic analysis of *Eucalyptus* carried out by Gill et al in 1985 (reference below). Typical Tasmanian taxon groupings do not apparently have as good a survival rate in my part of Wales as the similarities between general climates might initially suggest they should. One half of the species tried in taxon group c, the main Tasmanian group, for example, died over one winter or another. A notable occasion was Boxing Day 1995, when we plumbed the depths to -8.8°C: we are only 200 metres from the sea!

Table 2.

Survival of Eucalyptus species grown in Aberaeron, west Wales, 1985-1996.

Gill group c (Tasmanian/Victoria)
Successful: *E. cordata, E. gunnii, E. pulchella.*
Unsuccessful: *E. globulus, E. nitida, E. urnigera.*

Gill group q (Great Divide, some Tasmanian)
Successful: *E. cinerea, E. viminalis.*
Unsuccessful: *E. urnigera.*

Gill group r (southern NSW and Victoria)
Successful: *E. aggregata, E. consideniana, E. dalrympleana, E. pauciflora* (subsp. *niphophila).*

Gill group t (Victoria plus Southern Tablelands of NSW)
Successful: *E. crenulata, E glaucescens.*

The reasons for the varying degrees of success are obviously complex, and may in any case not be entirely climate-dependent. However, resistance to marked variations in temperature on the part of *Eucalyptus* species from the drier, colder conditions more typically found at high elevations of the southern Great Divide in mainland Australia, appear to afford better chances of

success in a Welsh coastal environment, including resistance to sea-spray damage. Extremely low temperatures may not occur in these areas, and values below -5°C would be rare as they are also in west Wales, but the propensity for many *Eucalyptus* from this area to regenerate readily from the ravages of drought and fire in their native habitat may be useful adaptations enabling recovery from severe frost here or in Australia, or salt damage in western Britain. The tendency to wet autumns followed by cold winter conditions, no matter how brief, may also decrease a plant's chances of over-wintering. The Tasmanian spring tends to be wetter than the autumn, so that the wettest conditions occur at a time of increasing temperatures. *Acacia* will not normally survive a winter in west Wales. They do not possess the same recuperative ability as the eucalypts, and the wet autumns probably also dictate that survival through a cold January and February is also very remote.

Whatever the reasons, we have just come through two mild winters (lowest minima around -3°C), and I can report that at the time of writing (June 1999) I have *Acacia mearnsii* in full bloom, together with *A. retinodes*, and, a month ago, *A. ulicifolia*. I cheated on the latter two, as they over-wintered in pots under a verandah. It's sobering to realise though, that NSW Wattle Day is the 1st. August: further examples of the shift in flowering times to which Tim referred. Let's see what next winter does, as these specimens are now in the garden proper.

Reference

A.M. Gill, L. Belbin and G.M. Chippendale, *Phytogeography of Eucalyptus in Australia*, (Australian Flora and Fauna Series, 3, Australian Government Publishing Service, Canberra, 1985).

*If anyone is interested in the full text and figures for the original paper, "*Quercus* in Queenstown, *Acacia* in Aberystwyth? Climate and plant survival in Tasmania and Wales", they should write to me at 14 Market Street, Aberaeron, Ceredigion, SA46 OAU, or, e-mail me at sumner@lamp.ac.uk.

MEMBERS' NEWS

Thomas Naylor, of Leeds, reports that *Banksia oblongifolia*, planted out in the garden in Spring 1993, survives after several winters, at least one very cold one. He attributes this partly to the closeness of a broom bush which now towers above it.

Thomas has also donated seed from his garden grown *Leptospermum scoparium* plants which are now about 2m tall, facing east. Seed from *Melaleuca squarrosa*, also growing in the garden, may also be included in next year's seedlist as his plant put on a good show of flower spikes this summer.

Seeds of *Hakea lissosperma* and *Swainsona novae-zelandae* have just germinated after one and two years respectively. He also reports that slugs are still a big problem; *Arthropodium cirrhatum* is practically impossible to grow as slugs graze on any foliage.

Harry Fair writes about his experience with *Calomeria amaranthoides* seed from the 1999 seed list.

'My seeds were sown on the surface of a mix of John Innes Seed Compost with added Perlite, then put into a propagator which was controlled thermostatically to 17-21°C. Forty to forty two days later they germinated in a sudden burst - 100% I should think, and all within a 2-3 day interval. These seedlings grew nicely and after a month the 6 largest were moved into a separate tray outside the propagator. Sad to say, these 6 were devoured within 2 days by a slug, which I later found in the spout of a watering can.

'There have been no further casualties, so I now have 13 young plants growing along nicely. On initial germination they looked rather like weed seeds (shepherd's purse, I think) but there is no longer any doubt. At the present time (mid August) my largest plant is about 10cm x 10cm.'

GARDEN REPORT 1998/99

By Sue Hyams

Winter 98/99 was mild here in North Yorkshire. I actually managed to mow the lawn on December 30th. Although we had several snowfalls, the first arriving in mid November, and some cold frosty nights, there were no prolonged spells of freezing weather. Like the previous winter, we had some gale force winds, most notably on the eve of the 26th and early 27th December. In my front garden, a 1.2m x 1.8m (4ft x 6ft) brick wall was blown down, bringing with it a 1.8m fence panel on either side, leaving a gap of 4.9m (16ft). This wall/fence combination provides shelter from the north east winds for some of my 'tender' plants - *Ozothamnus* 'Silver Jubilee', *Cytisus battandieri, Vestia lycioides.* Thank goodness for the mild weather as we were without a wall/fence until Easter.

A trip around the garden on New Years Day revealed that the specimen of *Acmena smithii* planted in the garden in autumn 1994, was still alive. In winter 94/95 it suffered wind scorch but put on new growth during the year. In winter 95/96 the foliage was completely frosted and blackened. I had assumed it had died as a result of this damage and failed to look for regrowth. Planted behind a *Lonicera nitida* 'Baggesen's Gold', it was easily overlooked; it is still only about 30cm tall.

The snowdrops bloomed earlier than ever this year; the first nodding white bells opened on January 7th. In London, the temperature soared to 15.7C, but this was warm spell was short-lived. On the night of 9th January there was a hard frost (-4C). As greenhouse space was limited, I decided to overwinter tubs of *Melaleuca nesophila* and *Sollya heterophylla* by standing

them against a southfacing wall. January 12th brought a blanket of snow. Like the warm spell, this cold snap was short-lived, and by 20th January mild weather had returned and *Iris danfordiae* was blooming.

By early March, in the greenhouse, lots of red buds had formed on *Templetonia retusa*. The first of these buds opened a few weeks later, closely followed by *Kennedya rubicunda*, providing its customary coat of pea flowers, also red. Also under glass, *Grevillea* 'Canberra Gem' was covered in buds and *Indigofera australis* was still blooming - it seems to always be in flower or covered in buds. The white berries on the greenhouse specimen of *Acmena smithii*, which formed after the previous season's flowers faded, were still very decorative - still plump. *Eucalyptus eximia nana* suffered cold damage. Most of the foliage of this greenhouse plant was brown - just a small cluster of green leaves at the end of one branch. *Myosotidium hortensia*, overwintered in the greenhouse and repotted the previous summer in peat-based compost into which Rooster (pelleted chicken) fertiliser had been incorporated, started to put on new growth in early March. During April the first flower of this Chatham Island forget-me-not opened. This was to be followed by several more large blue flowers sitting amongst the shiny green foliage as summer passed. *Calocephalus citreus* was potted up into similar compost as the forget-me-not and, as time passed, produced a flush of grey-green leaves to look very much like a large specimen of thrift (*Armeria* sp).

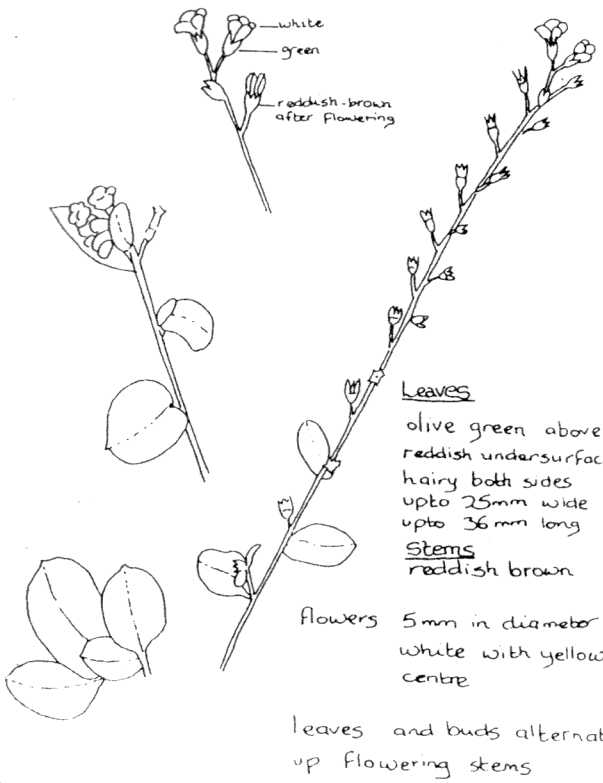
March and early April had been extremely mild, so much so that plants were not prepared for the frost that arrived on the night of April 13th. In the greenhouse, the cold affected *Grevillea robusta* and one of the two specimens of the South American *Acnistus australis* (the larger of the two plants was near the glass and suffered cold damage, whereas the smaller one was at least 0.5m from the glass and was unscathed). In the garden, *Griselinia littoralis* had frosted tips.

Late April : flowering under glass : *Fuchsia procumbens, Kunzea baxteri, Grevillea* 'Canberra Gem', *Indigofera australis, Kennedya rubicunda, Templetonia retusa, Myosotidium hortensia.* All Callistemons were forming flower spikes. In the garden, in bloom : *Hebe* 'Hagley Park', *Hebe* 'Pagei', *Pittosporum tenuifolium, (P.* 'Silver Queen' had just finished blooming), one flower on *Celmisia ramulosa*, and *Leptinella pyrethrifolia*. At least 10 flowers were forming on *Celmisia spectabilis*.

From early spring I have battled with glasshouse whitefly and sooty mould on most of my greenhouse plants. *Acradenia frankliniae* also had scale insect. Throughout the year I have sprayed with three different insecticides and spent many an hour washing off the sooty mould. I tried biological control last year but with the cool weather of 1998, I don't think it was very effective. Writing this report in autumn, I am still witnessing clouds of whitefly. Does anyone know of an effective control, or an easy way to clean away the sooty mould?

In late April, at the Harrogate Spring Flower Show, I bought a tree fern, *Dicksonia antarctica*. At the time it looked more like a dead piece of trunk wrapped in a black dustbin liner. I intend to keep it in the greenhouse, at least until its too big to fit in. The 60cm length of trunk that I stabilised in a wide terracotta pot with composted bark, started unfurling its first fronds within weeks. Within five weeks four fronds were fully unfurled and three were unfurling. By early

June there were 8 fronds upto 1m long x 30cm wide. In July I underplanted the tree fern with *Viola hederacea* after seeing a similar scene at Ness Gardens.



The original seed of this Australasian forget-me-not was obtained from the Alpine Garden Society Seedlist under the name *Myosotis australis* 'Brown' and sown in January 1996. Germination occurred in April 1996 and the first flowers opened in July 1996. By the end of summer the plants are past their best and setting seed which germinates readily; seedlings popping up between paving, amongst gravel, as well as around the parent plant. Since 1996 I've never been without this Australasian forget-me-not. Also in 1996 I sowed seed of a yellow flowered *Myosotis australis*. Again the plants behaved like annuals, flowering the same year, but unfortunately failed to set seed. This forget-me-not had narrow-elliptic leaves more bottle green in colour.

In early May, *Olearia* x *scilloniensis* was blooming, and the very first flower buds were forming on *O.* x *macrodonta*. This latter daisy bush is a cutting (about 8 years old) taken from a plant growing in my previous garden, which bloomed every spring.

Mid May; under glass, the first flowers opened on *Acradenia frankliniae*. In the scree *Celmisia spectabilis*, *Parahebe* 'Porlock Purple' and *P. catarractae alba* added white and purple to the late Spring alpine display. About the same time I noticed that my pots of *Ranunculus lappaceus* which had overwintered in my outdoor plunge bed, had been grazed by snails. As the weeks went by new growth appeared, whether it was the original plant or new seedlings (I sowed fresh seed on top of each pot), I don't know. *Wahlenbergia gloriosa*, which in

previous years has added a splash of blue to the scree, was a shadow of its former self. Has it succumbed to the wet winter/spring? Only a few blue upturned bellflowers opened this summer; they were on a new smaller plant which has sprung up in another part of the scree. I also have the Royal Bluebell growing in a half barrel container positioned against the west wall of the house, sheltered by the overhanging eaves; it bloomed well this summer. Another plant no longer thriving in another scree is *Celmisia spectabilis*. From early September it appears to be rotting off at the base. Another victim of the excessive wet? It did put on a reasonably good show of white daisies. There also appear to be dead patches on *C. ramulosa*; this daisy hasn't flowered well for several years, just a handful of flowers. I never give these silver-leaved alpines winter protection - maybe I should have. *Libertia grandiflora*, which I purchased in March and subsequently split into three pieces did not flower this year but have made much growth.

Kunzea baxteri, in the greenhouse, put on its best show ever this year. The first of many scarlet flower spikes opened in late May. The Albany bottlebrush, *Callistemon speciosus*, started blooming in June; its 3 flower spikes a similar colour, with prominent golden tips to the stamens. Another two bottlebrushes, names unknown, also began opening their flower spikes in June. Yet more flower spikes, this time orange-red in colour, formed on *Melaleuca hypericifolia* from mid-July and continued through to late September.

1999 has been a good year for my eucalypts. The first to begin blooming was *Eucalyptus pauciflora* ssp *niphophila* in mid May, closely followed in early June by *E. pauciflora* and *E. debeuzevillei*. In mid July, the spinning gum, *E. perriniana* was also in bloom. In early October I pruned my gum trees, removing a metre or so of top growth. Unfortunately some side growth on *E. debeuzevillei* needed removing as it was hanging over the path making passage to the front door difficult. This lower growth was covered in developing buds of next year's flowers. In the glasshouse, by late May, *E. eximia nana* showed signs of resprouting from the trunk.

At the beginning of June *Prostanthera cuneata* in the front garden was in full bloom. By the middle of the month *Prostanthera walkeri* in the greenhouse had a small number of blue-grey flowers. This specimen is not a strongly growing plant. A lot of the foliage is yellow despite using a seaweed-based fertiliser which seems to suit many of my other Australasians. From mid-July onwards *Sollya heterophylla* and *Melaleuca nesophila*, growing in plastic tubs and overwintered outside against a southfacing wall (winter 98/99), started to bloom.

Most of my greenhouse plants have put on so much growth this year that I have had do so some serious pruning to prevent them pushing off the roof. In late August I hard pruned *Kennedya rubicunda* to just 2 older stems and 2 younger lengths of green growth with leaf. It had reached the top of its 2m support and the twining stems were reaching out to anything they could wrap themselves round. There was also the added problem of whitefly. At the same time *Indigofera australis* was dealt with, cutting back at least half of all longer growths to 60cm. Unfortunately all growths had developing flower racemes, but growth was reaching the roof. There never seems a good time to prune this pea flower; it is either flowering or producing flower buds all through the year. All non-flowering growths of the greenhouse specimen of *Melaleuca nesophila* were pruned to 60cm. Other plants regularly trimmed include *Grevillea robusta*, *Eucalyptus globulus*, and *Melaleuca hypericifolia*. After several years of growing slowly,

Templetonia retusa put on a lot of growth during the summer, easily reaching 1.5m in height. I may need to consider reducing its size too.

Review : RHS Plant Finder 1999-2000 CD-ROM Standard Version

If you are familiar with the book version of The Plant Finder, then you'll love the CD-ROM version. As well as listing over 70,000 plants and over 800 suppliers, there are many extras, such as the RHS Good Plant Guide which provides photographs and descriptions of many plants most of which have the RHS's Award of Garden Merit. Each AGM listed plant is accompanied by a hardiness rating.

To search for a plant you need only to type all or part (at least two characters) of the genus and/or species and/or cultivar and let the computer search for you. Plants can also be located by flower colour, position and soil. Having located the plant you are interested in, a simple click of the mouse reveals suppliers. A number by the side of each species reveals the number of suppliers.

OTHER FEATURES

- A personal selection list can be compiled.
- Type in the vernacular name and A Dictionary of Common Names will locate the botanical name for you, and vice versa.
- There is a lexicon of 2428 botanical Latin names, helping you to understand why plants are so named.
- Over 335 Garden Societies world-wide are listed; 232 UK gardens listed.
- There are 57 Planting Guides, eg. Lists of plants for various soils, seasons etc.
- There are plant descriptions and cultivation notes for many plants listed, some are accompanied by a colour picture, others are not which seems a pity.

The Professional Version, largely intended for trade and scientific users contains amongst other information, a list of valid grants of UK plant breeders rights, including expiry date for PBR. This will help people avoid making inadvertent infringements of PBR, now doubly important as the new 'Plant Varieties Act' came into force in 1998, greatly extending the scope of PBR.

In the limited time that I have consulted the disc, I have discovered a few mistakes, some of them purely spelling/grammar errors, others out-of-date plant names. One thing that I do miss though, is the section of maps to be found in the book version; this does not appear to be included in the disc version (unless I have not located it). If I am visiting a particular area I like to consult these maps to see if I will be near or passing by any interesting nurseries, but despite this, the CD is extremely easy to navigate around and a must for any plantaholic.

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Don't forget your subscription is due on January Ist. Write your cheque now!

GROWING PROTEAS IN THE U.K.

By Graham Jeffery

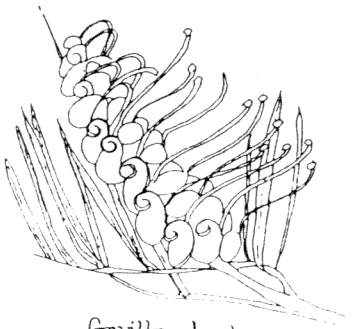
(Ed: Although the author of this article refers mainly to South African proteas, the cultivation methods can also be used for Australian members of Proteaceae.)

Proteas have been grown in this country from as early as the 1780s, when only the well-to-do collected them. Growing them in large flue heated conservatories which created a dry environment, well suited the growing of proteas. It wasn't until the end of the 19th century when the advent of the Industrial Revolution saw the introduction of steam heating, which created a much more humid atmosphere, that the popularity for collecting proteas began to wane.

At present with so many people taking holidays in South Africa, the enthusiasm to 'grow something from South Africa' has resulted in many vistors bringing home a packet of protea seeds, then seeking advice on how to grow them successfully. The following is a narrative of the way in which we, as Trevena Cross Nurseries, have found by trial and error, the most successful way in which to propagate these 'difficult' seeds of the protea species.

First sow the seeds thinly in trays or pots in Spring or early Autumn, in a mixture of 50% moss peat and 50% horticultural perlite, then cover them with a fine layer of perlite. Place the trays on an unheated bench in a cold greenhouse. Place pieces of glass over the trays or pots to retain moisture, then shade the glass with pieces of newspaper This method will incur a temperature rise in the seed tray to between 24°C - 27°C by day. At night TAKE OFF the covers so that the temperature of the compost reduces to below 10°C. This temperature difference is essential for good germination.

When the seedlings are large enough, prick them out carefully into 5cm deep tapered plug trays or 7cm pots may be used using a similar open mix as used for seed sowing. Although growth will be slow depending on the time of year, on no account should they be fed with any fertilisers until well established.



Grevillea hookerana



Banksia canei



Telopea truncata

Proteas make excellent tub and patio plants when sited in an open sunny position. Terracotta pots with good drainage holes and the use of pot feet are ideal.

Add at least 7cm of crocks or small pieces of polystyrene to the bottom of the pot for extra drainage. Make up an extremely well drained acidic compost mixture using some of the following: peat, composted bark, perlite, small and large grit, composted pine needles, polystyrene beads and vermiculite. Here we also use 10% sterilised soil in the mixes. As long as the mix is extremely free draining and acidic with no fertiliser added it will be fine for Australian and South African Proteaceae.

Proteas dislike stagnant, humid conditions. Always grow them on a site with good air circulation even if overwintering them in greenhouses. Give them plenty of ventilation and keep them on the drier side during the winter. When grown in containers let the top 5cm of compost dry out before re-watering. Water the compost only, not the plant, this keeps the foliage dry. In hot weather water in the mornings and evenings only.

The very fine protea roots have the unique ability to absorb any nutrients from very poor soils. They are very delicate and are generally found close to the surface, therefore avoid surface cultivations. It would be better to mulch with bark or pine needles.

In mild areas of this country many varieties may be grown outside as long as the soil is extremely free draining, acidic and very low in nutrients. A good example would be a south facing steep slope in full sun in an open position. Planting on a raised mound and adding bark and grit for drainage would make a useful substitute for a steep slope. Proteas will not put up with wet feet for long periods.

All proteas should be protected from frost when young for at least the first two years. Once established, many proteas, leucadendrons, hakeas and banksias will stand a fair degree of frost. Some can survive -5°C to -10°C. Protect with horticultural fleece or overwinter pot grown plants in a greenhouse when hard frosts are forecast.

In general it is better not to apply fertiliser to Proteaceae as their roots are twice as efficient at seeking out nutrients than normal plants. Adding any form of phosphate would definitely kill them. When growing in pots let them completely fill the container with roots before trying any form of feeding. We don't feed at all from the seedling to liner stage, and then we only use a very small amount of slow release straight nitrogen fertiliser. Feeding is very much in the experimental stage, with feeds such as sulphate of ammonia, epsom salts, sulphate of potash and sequestrene being used but only in extremely low doses.

Hopefully these growing tips will enable you to grow what must be among the most exotic flowering shrubs available and offer you an exciting challenge.

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Can you write an article for the next issue?

SEAWEED SALVATION?

By Tim Longville

An internet gardening group to which I belong, the California-based Medit-Plants, has had an interesting discussion over the past months about the possible beneficial effects of spraying plants with seaweed solution. The suggested benefit which is most relevant to APS members is that of increasing plants' resistance both to cold and (less relevant in our climate: so far, at least) heat. Most contributors suggested an improved cold-resistance of up to an additional 5 degrees Fahrenheit.

Several also said that 'many' books recommended seaweed spraying both for this reason and also as in effect a vitamin pill for plants, boosting their health and so increasing their resistance to disease. Maybe I'm not reading the right books. Does anyone know of books making such specific claims for seaweed sprays?

There were various 'scientific' explanations proposed for this supposed increased resistance to heat and cold. (I put the 'scientific' in inverted commas because I'm simply not competent to judge whether this is real science or just sort-of-science. One of the reasons for writing this piece is the hope of stirring up some clarification as to how far the explanations - and, hence, the procedure - can be trusted.)

The most common and the most generally accepted seemed to be that cytokinins present in the seaweed may help to toughen the plant cell walls. An alternative theory was that the seaweed solution simply provided a temporary mucoidal covering to the plant (of agar and/or carageen), which might indeed provide some protection - at least until it was washed off by the next strong rain. If that's true, a procedure of more use in drier climates than that of the UK, perhaps...

I should perhaps add that some people thought that any increased resistance to disease produced by spraying with seaweed-solution was also caused by the same simple (but temporary) layer of sliminess, rather than by any absorption by the plant of good things in the seaweed. (And so not, that is, by any significant increase in health and consequent disease-resistance.) One particularly cynical contributor suggested that, for both purposes, spraying with diluted soybean oil would be just as effective (or, he clearly thought, *in*-effective) - 'and a heck of a sight cheaper.'

The final general conclusion was that no one was really in any position to be definite about either of these supposed properties of seaweed sprays, for the very good reason that no one knew of any extended, controlled, properly scientific study of the procedure and its effects. All the 'evidence' both for and against, seemed to be anecdotal, amateur gardeners' equivalents of fishing stories.

Clearly this is a matter of some interest and if regular seaweed-spraying really does make plants several degrees more resistant to cold, then even I, the ultimate anti-sprayer and anti-regular-anything, might be prepared to contemplate the notion. The question is : does it? Opinions - and, even more, a few facts - would be welcomed.

Report from Cultivation Survey Enquiries

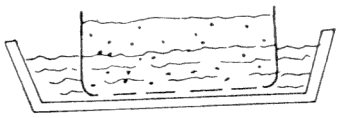
By Dennis Rowlinson

Of the 120 members who were sent letters of request, 34 replied with information. I was very pleased with such a good reply percentage. I have presumed that most members, who did not reply, do not propagate their own plants. If the numbers in the lists below don't add up, it will be because some members may not have given that part of the information in their response. Most members indicated that they use the most easily obtained, suitable materials that are available locally.

Seed Sowing

Composts

The range of compost mixes used was extensive. The range includes various mixtures of John Innes, peat based, peat, coir, perlite, vermiculite, composted wood/bark and soil improvers. Most of these mixtures had various amounts of grit/coarse sand or silver sand added to it for purpose of drainage. These amounts were altered for different species. Everyone obviously tries to use a material and a method that will give good drainage and has enough water retention to keep the seedlings alive.



BOG METHOD OF SEED GERMINATION

This method is used very successfully with plants in the Myrtaceae family eg *Callistemon, Melaleuca, Leptospermum, Eucalyptus.* After sowing seed onto your chosen compost, place the seedling container in another container without drainage holes. Add water to this outer container until it is halfway up the level of the compost in the inner container. Maintain this level of water as necessary. Following germination, remove the inner container from the water bath, and water the seedlings in the normal way.

Sowing seed.

Nearly all members mentioned sowing on the surface of the compost. 11 members covered 50% of the seed to allow for the need of some species having a light requirement for germination. Coarse sand, fine grit, composts and vermiculite were used. 6 members covered the pans/pots in some way. A few members sowed fine seed onto dried sphagnum moss and used the bog method. Only 3 members mentioned that they had used bottom heat to assist germination. They used a temperature range of 18 – 21° C.

Special techniques

Smoke, hot water, chitting and stratification are mentioned by some of the members. Most of these treatments are suggested for particular seeds in Pentachondra and other literature. 7 members have tried smoke of various types as treatment. Some used the smoke from Australian plant debris; some bought materials in the form of smoke sheets or smoke water, and 1 member uses incense sticks. All with results ranging from fair to poor. No member reported a continuous advantage – in that at different times, the species seed would not always germinate given the same treatment. 10 members use soaking, hot water or scalding, mostly on Acacias. 4 members use chitting on bigger seed, especially harder coated ones. 7 have tried or use stratifying or

chilling of seed when suggested by literature. 4 members place some seed pans/pots in added light when it had been suggested or they felt it could be useful as an aid to germination. After care included careful watering and extra airflow for certain seed.

Damping off

Most members had a problem and used fungicide, increased airflow or reduced the amount of water.

Potting on

2 members preferred to pot on when very small to save root damage later; 4 pot on when seedlings large enough to handle easily. 4 members pot on between 6 months and 2 years, depending on plant size; 4 members pot on when true leaves appear or the roots are out of the pot. The few members who chitted seed, potted on as soon as the radicals appeared.

Successes and Failures

Some members had success and failure with the same species.

* Means considered by members to be easy to germinate.

Successes

*Acacia, *Anigozanthos, *Banksia, Beaufortia, *Billardiera, Blandfordia, Brachyscome, *Callistemon, Celmisia, *Clianthus, Cordyline, Craspedia, *Eucalyptus, Guichenotia, *Hebe, Helichrysum, Helipterum, Indigofera, Isomata, Kennedya, *Kunzea, Lambertia, *Leptospermum, Leucadendron, Leucochrysum, *Melaleuca, Olearia, Prostanthera, Protea, *Rhodanthe, Scleranthus, *Sollya, Sutherlandia, Trachymene, *Wahlenbergia, Xanthorrhoea.

Failures

Banksia, Billardiera, Blandfordia, Boronia, Bracteantha, Cassinia, Clematis, Craspedia, Crotalaria, Dracophyllum, Eremophila, Eucalyptus, Grevilleas, Hemiandra, Lechenaultia, Leptospermum, Olearia, Orthrosanthus, Pomaderris, Prostanthera, Pultenaea, Telopea, Thysanotus, Verticordia.

As you can see the results of the survey are rather mixed and sometimes a little confused. Members are propagating an extremely wide range of plants with success using a wide range of methods. It does show that if members wish to propagate plants from seed and take a little care, they can have lots of enjoyment growing some of the more unusual plants that are only available by seed. Members have reported back on the ease with which some species seed germinates and, perhaps that could be a spur to other members to try these species first and grow them on.

Losses and Suggestions

Losses of seedlings in the first year seem to be mostly drying of the root system over the summer or damping off during the winter. A regular water supply and a good airflow would seem to be useful. Plunging the pots/pans in various materials mitigates the loss of water in most cases though use of the bog method is widely used. Quite a few members use a fan to improve the airflow over the pots/pans. The attrition rate on newly germinated seedlings is higher in the shorter day length of winter; a time when extra light would be beneficial to the most vulnerable seedlings, something advocated by four members. One member keeps susceptible seedlings under a light source most of the year to build up the plants.

Many members were at a loss on how to cope with the problem of soil borne diseases which were blamed for many losses of plants after potting on. It has been suggested that, using an

acidic compost with an amount of soil as a buffer, will help. However it is a complicated problem.

Early deaths have also been attributed to the inability of the plants to take up nutrients. One way out would seem to be to use low nutrient level compost if you feel that the plant would have a problem and take great care in your feeding regime. A soil/compost additive is currently under trial in Australia; this contains various types of mycorrhizal fungus, which should allow the plants to have a better nutrient uptake. I don't know if it's available in this country yet. It is however reputed to be very expensive.

In the meantime only two ideas come to mind that are easy to try. These may well be not proved but perhaps they may help with some plants. The inclusion of soil from garden with Clover roots into the potting compost could perhaps help in the case of certain plants. See Pat Anderson's 'Fringe Lilies' article in Pentachondra. This should provide a natural mycorrhizal fungus to the compost.

There is also the suggestion that the inclusion of small amounts of chopped dried banana skin to the top part of the compost when potting on would assist by inserting small amounts of fungus. Thank you very much Ted Richardson for the latter suggestion. He has done this for many years and had excellent results. As a test some of my plants now get this treatment when they are potted on. The rest are having the Clover root treatment as a comparison.

Anomalies.

There are a few anomalies within the seed sowing results; sometimes the results are very puzzling. Most members have had success with germination of most species. Though not all members have good results with the same species. Even when, sometimes, this seems to be with seed from the same source. This would suggest materials and methods are playing a substantial role in the plot. However in some cases the materials and method are very similar and whole host of variables come into play. This problem needs more time spent on it – maybe in the winter is the cry! Giving good drainage to the compost/material that the seed is sown on seems to be the one thing lots of members insist on. However some members grow onto general-purpose peat based compost with no added drainage and seem to have just as much success! Even so, everyone seemed to have a measure of success with whichever compost mix they were using. In general, the methods used seemed very similar – all aiming to give adequate water, air, heat and light to enable for the seed to germinate.

The reported numbers of successes in growing different species are, of course, greater with members who receive seed from a multitude of sources. This is perhaps to be expected as in general more species are being grown, but there are other factors that need more examination. The same could apply for the numbers of failures and the reasons for these needs a lot more thought. These are very complicated points and, at present, I am trying to sort out which system of sowing seed suits which species, if that is possible. Another complication is that some members could be trying to germinate a very narrow range of easier seed and I don't know how to allow for that.

Cuttings

Compost.

The range of compost mixes for cuttings was as great as those used for seed sowing. No two members use exactly the same mix. The mixtures all had various amounts of grit/coarse/silver sand added to it for purpose of drainage. These amounts were altered for different species.

Once placed in the cutting material, the cuttings are then sheltered in various ways to protect them from desiccation. This can include tray covers, sheet glass, plastic bags, home made shading, moving the pots/pans into a shaded area. One or two members use a misting system. Most members mention cleanliness of materials and sharpness of tools. 6 members use rooting hormones.

Type of cutting.

The range of cuttings taken was again great and varied : current year's wood - 15cm shoots - soft growing point with lower leaves removed - small and sharply trimmed with 4 to 5 nodules and heels - short shoots from outside of plant - basal growth - tip shoots - ripening growth - young or new, growth - hard, semi-hard or softwood. No one used exactly the same technique or material. All methods seemed to give good results.

Time of year that cuttings are taken.

Members take them at various times : anytime - spring/summer autumn – summer only – early summer only – June and July only – autumn.

Growing on

A mixture of methods for keeping the cuttings alive prevails. These include – standing the pans/pots in shade - a plastic bag over the pot - a cover over the pans/pots in hot weather – the pans/pots stood in water under a light till growth is noted – misting in special cases. Most members water carefully and improve the air circulation around the pots/pans. 2 members use a fungicide on cuttings. 2 members use light in winter months. 1 member uses bottom heat on an open bench in the cold months.

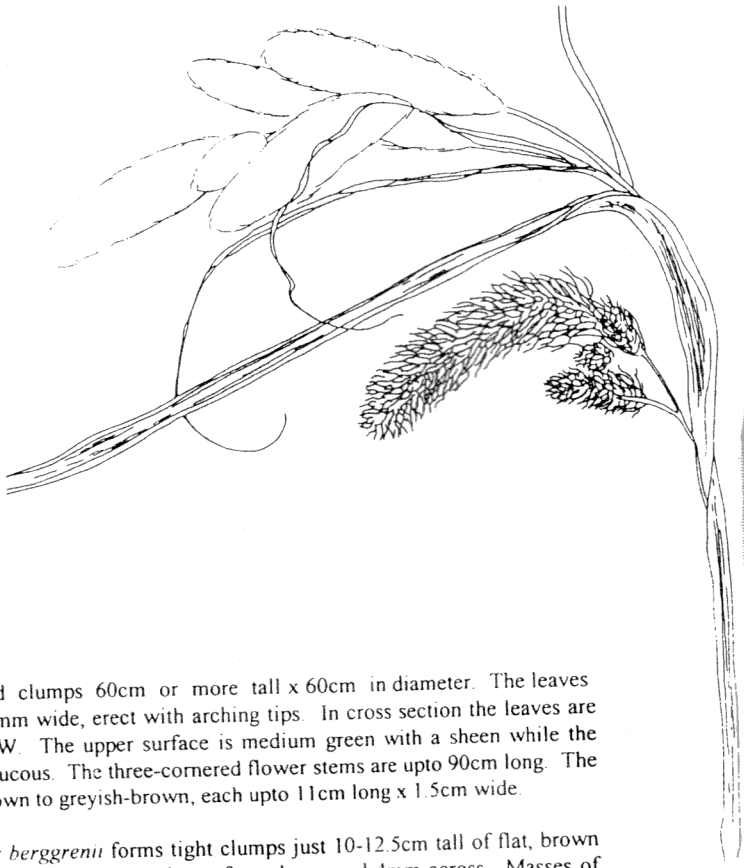
Potting on.

When roots come out of the pot or when there were signs of new growth.
A well drained, acidic compost was always used.

Successes and Failures with Cuttings

Only two people gave a success or failure rates for cuttings. I would presume that the members taking cuttings are satisfied on the strike rate of the ones they take as they all say how they are grown on. Both members remarked on cuttings of *Olearia semidentata* in one case, and *Prostanthera cuneata* in the other, striking roots when the cutting was just pushed into the ground.

LITTLE AND LARGE



There are approximately 70 endemic species of Carex in New Zealand. These sedges are characteristically plants of damp soils but will grow in drier soils once established. *Carex trifida* and *Carex breggrenii* are two such sedges, the former one of the largest, the latter one of the smallest.

Carex trifida forms bold clumps 60cm or more tall x 60cm in diameter. The leaves are upto 1m long x 6-15mm wide, erect with arching tips. In cross section the leaves are shaped like an inverted W. The upper surface is medium green with a sheen while the under surface is quite glaucous. The three-cornered flower stems are upto 90cm long. The spikes themselves are brown to greyish-brown, each upto 11cm long x 1.5cm wide.

As a real contrast, *Carex berggrenii* forms tight clumps just 10-12.5cm tall of flat, brown curving leaves. Individual leaves are about 9cm long and 4mm across. Masses of brown flowers and seeds nestle amongst the foliage. This sedge is ideal for the rock garden

Both plants are easily raised from seed.

NAME CHANGE

ERIOSTEMON is now confined to 2 spp. *E. australasicus* and *E. banksii*. The remaining 30 spp are now placed in the genus *Philotheca*. *Philotheca* are distinguished by having one-veined petals, small leaves with sclerieds and stipule-like glands on either side of the leaf-bases.

ARCHANGEL PLANTS

This is a newly established nursery in France, specialising in perennials, mostly hardy and many rare Seed is collected in the wild from all around the world to raise many interesting plants See notice at back of newsletter



"DOUBLE" DUNCAN FLOWERS!

By Jeff Layman

In Pentachondra Issue 20, Jeff Irons wrote an article entitled "Some pea-flowered plants I've grown". The first plant he mentioned was *Chordospartium stevensonii*, which he'd obtained from County Park Nursery in 1988. A couple of years earlier I too had visited County Park, and had been intrigued with *Chordospartium stevensonii*. I asked Graham Hutchins about it, and he said that it was very slow to flower, but was unique and extremely rare in the wild. I like a challenge, even though not the most patient gardener. Still, it seemed "different", so I bought a small plant. Just one branched stem and overall no more than 30-35cm high. Which strain it was I do not know (although you can guess from the title of this article).

It sat in a pot for a couple of years in my conservatory. During that time, it put on about 15cm and an extra branch, but nothing else happened. I needed the conservatory space and put it in the garden in my Horsham clay soil, now and again giving it a little protection in winter. In 1989 I went back to County Park, and was amazed to see a plant in spectacular full flower, even though it was only just over a metre high. I mentioned to Graham that my plant was now bigger than his, but still showed no sign of flowering. He said that there were some very slow forms around, mentioning "Duncan" in particular.

After 10 years it had numerous green branches, still no sign of flowers, and from the base of the trunk to the tip of the longest branch was over 2 metres. It now had no protection in winter, and I rarely watered it in the hot summers.

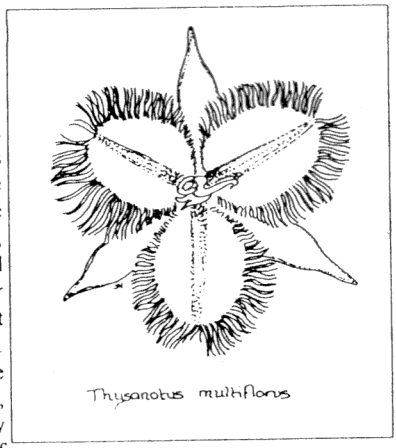
In October 1998, we moved house. I wondered what to do with my plant, as the new owners had little interest in unusual plants. I decided to dig it up and take it with me, even though I'd read that *C. stevensonii* disliked being moved. So in September it went into some decent soilless compost in the only spare largish pot (28cm), but not before a lot of the clay had fallen off the roots, and a number of roots had broken. I wondered if the plant would survive.

It seemed to survive the mild winter here in West Sussex (placed against a south-east facing fence), with only a third of the branches showing signs of stress and dying back a little. However, the plant was really too big for the pot it was in, and repotting was necessary! So in late February out it came, with most of the soil again falling off (so much for "limited root disturbance"!). But I noticed 3 or 4 new roots had formed over winter, with a couple of them about 10cm long. The plant went into a 40cm pot in the same soilless compost, was watered well and often, and left. A few more branches died back, but by May it was obvious it had survived, and even seemed to be growing as the ends of some branches appeared to be a lighter shade of green. By the middle of June I noticed small light-coloured growths appearing at the nodes. As the buds elongated, it became clear that they were flower spikes. The first spike opened last week (second week of July), with the typical 5-6mm pale lilac flowers, with deep purple striations and a deep purple mark at the base of the petal. Now there are about 30 spikes out with around a 100 or so more to come. It was worth waiting for! I wonder if it will set seed.

THYSANOTUS MULTIFLORUS

By Pat Anderson

In September last year I summarised the development of my seedlings of *Thysanotus multiflorus*, which had grown well but failed to flower.



Things are looking up for the North Yorks fringe lily development project.

After spending the winter in the unheated greenhouse, the larger pot with three good plants was put outside in April. Yes, that was just before the cold snap. When we came back from holiday, some leaves had browned, but otherwise all appeared well; and sure enough, by late May some flower buds had appeared, between four and sixteen on each of four stems. These progressed until the stems were about 25cm and I was eagerly awaiting the famous fringes. But it wasn't till one morning in mid July that the first flower, tightly restricted by the rest of the bunch, appeared. By one o'clock it was shrinking and by three was fully closed, never to reappear. The rest of that bunch performed similarly, opening around eight or nine o'clock (they were in shade until then) when the sun shone, and lasting four hours or so.

The flower, even when cramped by its fellows, is nonetheless a small stunner. The three petals, strongly ribbed with deep purple and made up of fine pink/lilac side ribs with a bright sheen like feathers, bursting free into down at the edges, and framing black anthers like a bee's proboscis. The very centre of the flower is white. Around the flower the unopened buds retain their damson colour for weeks after their day of glory. Although they are only about 2.5cm across, the effect is striking. Not for bees, however, which were never seen on the lilies; only flies and hover flies.

The successful potful was moved after a month to a spot in dappled light; the flowers appeared as before - only in sunshine. And no seeds have developed. A second pot with three plants was kept in the conservatory until May. The leaves on these were almost undamaged, but although they threw two flower heads, none matured. The plants are still healthy as I write and will be nurtured over winter in the greenhouse and repotted in the spring. I'm still hopeful of seed development if I can persuade more than one plant to flower simultaneously.

If anyone would like to try a plant I'm happy to provide up to three in the interests of Pentachondra. (Tel 01325 374524 or email m&p@pemmacan.demon.co.uk)

WOLLEMI PINE

In August 1994, while out bush walking in Wollemi National Park, NSW, David Noble, a field officer with the National Parks and Wildlife Service, noticed a grove of about 40 trees which he did not recognise.

This northern-most part of the Greater Blue Mountains area is a relatively fire-free area about 200km from Sydney. The small grove ranged from seedlings to mature trees growing on west ledges in a deep sheltered rainforest. The tree was given the everyday name 'Wollemi Pine.'

The 'Wollemi Pine' is a conifer growing to a height of 35-40m with a trunk diameter of over one metre. The bark is very distinctive, brown, knobbly and cork-like, leading to the name "Coco Pops". The foliage has 3 phases ranging from bright lime green in the juvenile form to an attractive apple green at maturity. The bisexual trees carry both bright green female cones and brown cylindrical male ones on the upper branches. The seeds are winged.

Investigations at the RBG Sydney using DNA testing and scanning electron microscopy show the Pine to belong to the family Araucariaceae. Other Australasian members of this family include the Hoop Pine and Norfolk Island Pine as well as the Kauri Pine of NZ. The Wollemi Pine has been named *Wollemia nobilis* (pronounced Wo-lem-i-a). Its closest relatives are fossils from the Cretaceous and early Tertiary periods about 100 million years ago. Indeed, fossils with somewhat similar features occurred in the Jurassic as long as 150 million years ago.

A research programme, coordinated by the NSW National Parks and Wildlife Service and the Royal Botanic Gardens, Sydney, is studying the ecosystem and preparing a conservation strategy for the protection of the grove of Wollemi Pine. One of the primary policies of the NPWS is to limit access to the site, since the survival of the trees depends on their isolation. Because all 40 trees in the National Park have no detectable genetic variability, if one tree was infected it could be possible that all trees would die. Experiments have been carried out on a number of juvenile trees, under strict guarantine, exposing them to *Botryosphaeria*, a common fungus which strikes plant foliage, and *Phytophthora cinnamomi*. All infected trees died; although it is assumed that the adult Wollemi Pines would have greater resistance against disease than juvenile ones. The trees could be affected by fungal diseases, weeds or fire, but by limiting access, the NPWS hopes to reduce the threats. As an added precaution, chemical footbaths have been introduced.

"Dargan Hill Monarch"

I know we mentioned the following in the December 1998 issue, but its worth repeating, just incase someone from Thompson & Morgan Seeds is reading! "Dargan Hill Monarch" is a wild selection of the Australian *Bracteantha bracteata*, not of the South African *Helichrysum petiolare*. Incidentally the latter is now called *Edmondia pinifolia*, a name it has had for several years.

AUSTRALASIAN PLANTS IN SCOTTISH ISLANDS

By Murray MacDonald, Isle of Skye

I was first introduced to the flora of Australasia by a friend who encouraged me and gave me a plant of *Libertia grandiflora* - this was some 25 years ago and since then my interest has spread to shrubs and trees from that part of the world. The *Libertia* is still with me having survived three moves of garden and some late frosts which are the main drawback from gardening in this area. Winters on the whole are not too cold but we do get an abundance of rain. This is not too dissimilar to parts of New Zealand especially the west coast of South Island and parts of the eastern and southern seaboard of Australia where the majority of the plants I grow come from and are accustomed to a maritime climate.

My main interest is in the *Olearia* family which are found throughout New Zealand and parts of Australia. A number of these plants originate from the Chatham Islands which are New Zealand's equivalent of St. Kilda - an isolated group of islands uninfluenced by the mainland and which has developed its own species. I have not experienced wind damage to *Olearia* which is more than can be said for natural scrub. The fresh growth on birch suffered considerably earlier this year from a very cold North wind in June.

Another plant which thrives in our conditions is *Griselinia littoralis* - I also grow the varieties Bantry Bay, Dixon's Cream, Green Jewel and Variegata. Some damage to young growth occurs in Spring but they are all building up into healthy shrubs.

A recent acquisition is *Drimys lanceolata* now placed in genus *Tasmannia*. Despite its acquired name the genus originates from South and Central America and when you look more fully into the matter there are a number of plants which have such common roots. *Drimys* appears to be hardy and is a handsome shrub and well worth growing.

A plant widely associated with New Zealand is *Phormium*. *Phormium tenax* was used in a number of ways by native Maori people for clothing and utensils but in recent times varieties and cultivars have been developed of *tenax* and *cookianum* which have produced some exciting colours - whether these will have the hardiness of their parents has yet to be proved. I have seen *Phormium tenax* being used as a screen for a tree shelter belt until it became established. I have grown *P. tenax* 'Purpureum' from seed and in 8 years it is now 2m high but yet to flower - a useful plant but not one for the small city garden.

You cannot think of Australian plants without mentioning the eucalypts. This is a very diverse family consisting of 600 plus species but there are a number which are relatively hardy and which thrive in this area. Thriving is possibly their downfall as they can put on 1-2 metres of growth in a year and as they are mainly forest plants they quite often do not put down sufficient roots to keep them upright in severe conditions - alternatively they are readily coppiced to give an abundance of fresh growth which is so attractive. I have grown *Eucalyptus gunnii* for

approximately 12 years and it has responded well to this treatment and *E. perriniana, E. nitida and E. stellulata* are seedlings awaiting planting out.

Hebes are widely grown in the UK and I have some 14 varieties which need regular pruning but *Hebe albicans* and 'Red Edge' have proved to be particularly adaptable to our climate and have developed well.

Other plants which have survived by being grown in a pot or large container are *Callistemon viminalis, Cassinia leptophylla fulvida, Grevillea* 'Canberra Gem', *Leptospermum scoparium* and *Prostanthera cuneata*. All these are moved into a polytunnel for winter months.

I have recently joined the Australasian Plant Society which has proved to be beneficial as a source of information and particularly seeds. I now look forward to having Acacias, Banksias and other exotics in my garden. With soil which is mainly peat and low in nutrients, if sufficient drainage is provided I hope to have a mainly Australasian garden some day.

TATTON FLOWER SHOW 1999

Report by Dennis Rowlinson

The show was considered to be a great success by the RHS. There were nearly 110,000 visitors over the 4 days of the show.

The APS stall was situated within the Small Societies Marquee, and though small, was just right for the amount of material that Jeff and Tony had raised. A lot of the back wall space was filled by a selection of cut flowers, imported from Australia, and at the front, tables held the half pallet of plants sent over by Paul Allanson. The rest was a selection of interesting plants supplied by Jeff and Tony from their gardens. This meant that there was an abundance of different plants for the public to look at. There seemed to be a good amount of interest shown by the public and the amount of queries made over the days of the Show was quite substantial, including the number of people showing interest in joining the Society. Overall I thought that considering that this was the first time we had set up a stall in such a big show, that it was a resounding success and brought the Society to the notice of the larger public. Some members helped at the stall and quite a few were visiting the Show so called in for a chat. To me it was very useful as a means of meeting other members and discussing things.

I would like to join in with other members who visited, or worked, over the four days of the Show to thank Jeff and Tony for all the work they put in setting up the stall and manning it a lot of the time. I considered the work they had put in well spent and that they had thought of nearly everything that would crop up. The decision by the Show organisers to extend the times by 1 hour in the evening on Thursday and Friday was a bit of a set back, however Tony and Jeff coped extremely well.

If the Society decides to have a stall at the next Show, I feel that a small group should be set up to help with the manning to take the burden off just a handful of people.

ACACIAS

By Jeff Irons

Over the years I've tried to grow many acacias, and have decided that the conclusion reached from reading about their habitats is correct - only two can be considered reasonably hardy outdoors in Britain.

The first acacia I grew has the common name of Prickly Moses. In spite of that I tried it in my garden, giving it the most sheltered site possible. The first 1970's winter saw the plant off. Arnold-Forster recommends this species for coastal planting and his book includes a photograph of a large plant in bloom. If you want to try this very prickly lemon yellow shrub look for the name *Acacia verticillata*.



The last three winters have been warm, and that will have helped my *A. melanoxylon*. The tallest is now nearly 3m high. Eventually it could reach 30m! This early spring flowering tree is found in wet forests. In order to give it some shelter I've had to put my plants in sites which are rather dry. The large globular flower heads, about 1cm across will be pale cream to yellow in colour. This is a highly prized cabinet tree, and I have to confess that the thought of eventually getting some wood is one of the reasons I planted it.

In an earlier issue of Pentachondra Ken Beckett wrote an article about *A. dealbata* and its desire to reach 30m as quickly as possible. In 1996, when in Victoria, I saw some 1.8m high bushes of *A. nano-dealbata* on a property I was visiting. Seed from them went into the APS list. A plant in the garden is now about 1.5m high, and I hope that it will bloom in 2000. A pot specimen is less than 0.3m high. To all intents and purposes this species is just like a small *A. dealbata*. It has similar attractive small pinnate leaves, and bright yellow ball flowers in spring. The APS seed came from Woodend - the place mentioned in the book and film "Picnic at Hanging Rock".

There has been very little demand from APS members for seed of *A. costiniana*. Yet it was added to the seed list with expectation of a flood of requests! Growing to only 2m or so in height, this species is found in two fairly high (1000m) cold areas. I would expect it to be more

cold tolerant than the popular *A. pravissima* and *A. kybeanensis*. The phyllodes are very attractive, no more than 20mm long, with wavy edges, and the branches can be pendulous. The bright yellow ball flowers appear in spring. This species is similar to *A. lucasii*, which died in my garden after its first flowering.

Death after flowering is a regular occurrence in my garden. It happened with *A. pataczekii*, which has been perfectly happy outdoors at Kew for many years. Seed of this species is rarely available.

One species which did live for several years was *A. mucronata* var. *longifolia*. Recently I saw it in Nick Andrews' Powys garden. This species can vary between 2m and 10m in height, and has long narrow phyllodes. As a tree or shrub it is quite attractive with pale yellow ball flowers. Having withstood much colder winters, my plant died in December 1995, a time which killed many plants.

Currently I am trying *A. hamiltoniana*. It is an erect shrub from the Central Tablelands of NSW and should reach 3m. The phyllodes are long and narrow, and yellow ball flowers appear in spring. So far it has been winter hardy. However the natural occurrence is in areas which have dry winters and wet summers, so a return to cold winters may see its demise. This should be a good species for pot culture. In the wild it sets seed only occasionally.

Arnold-Forster states that *A. terminalis* was formerly *A. elata;* but the plant he describes as *A. terminalis* is *A. elata*. The two are different, and *A. elata* is unmistakeable. The so-called "Katoomba form" of *A. terminalis* should be winter hardy in the warmest parts of Britain. I had it against a wall, for dryness, but even that was too wet in winter and eventually it died. Under glass it made a good pot plant which produced masses of nice yellow ball flowers in the depths of winter. The pinnate foliage is attractive in its own right.

No-one had ever requested *A. cardiophylla* from our seed list, but in 1999 there was a rush of 8 requests for it. I had sufficient seed to meet only the first one. Has the species been mentioned in an article somewhere? Next year's seed list should have a greater availability of this wattle, which has heart-shaped pinnules. Its yellow ball flowers appear in spring. Occurring on sandy and gravelly soils of the Western Slopes of NSW, this will not be a plant for outdoor cultivation in any except the warmest parts of Britain. Under glass it should be a good pot plant, though I suspect that some other species are more floriferous.

Acacia sophorae is a good shrub for pot culture in the cold glasshouse, or for sandy soil right on the coast. In the latter situation it can get quite large. Under glass its yellow rod flowers brighten winter days.

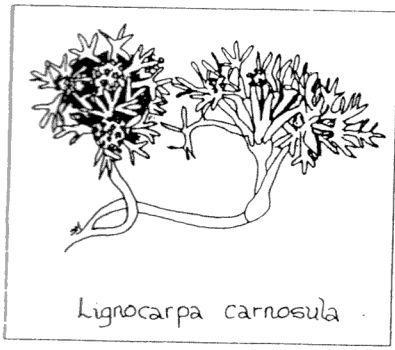
There are many small acacias, mostly in dryish parts of Western Australia. Three that I've selected for pot culture under glass are *A. buxifolia, A. myrtifolia* and *A. acinacea*. Native to the eastern states of Australia, *A. buxifolia* has profuse golden yellow ball flowers in late winter and spring. The Gold Dust Wattle, *A. acinacea* flowers a little later than *A. buxifolia*, and as its

name (dagger) suggests has phyllodes which end in a point. The Myrtle Wattle tolerates alkaline soil, and has racemes (up to 10cm long) of cream to yellow globular flowers in late winter.

The two hardiest acacias seem to be *A. pataczekii* and *A. obliquinervia*. There is a third, *A. alpina*. Unfortunately it rarely puts on a good show of flowers, so cannot be recommended. If the present spell of warm winters continues we ought to be able to grow several other species which were unsuccessful in the past. In the meantime those given here are sufficient for a start on this attractive genus.

●●●●●●

TWO NEW ZEALAND ALPINES



Lignocarpa carnulosa is a New Zealand alpine which appeared in the 1999 seedlist. Did anyone grow it?

This scree plant has a deep taproot anchoring it to the mountains of South Island. The much divided foliage is fleshy and hairless, of a blue-green colour. The flowers are usually white, occasionally pink, an are arranged in compound heads. Plants have either all female flowers, or both male and bisexual ones. Like many scree plants, *Lignocarpa carnulosa* has a weak connection where the flower stalks and leaf petioles taper downwards so that where they meet the rootstock the actual connection is almost threadlike. The importance of this is most notable when the layer of stones above the soil moves substantially. If the connection of the stem to the rootstock was thick and tough, the whole plant might be uprooted and subsequently die, whereas with a weakened connection, the leaves and flowers will be buried or sheared away leaving the rootstock unharmed. The dry seed heads of this alpine break off at the weak connection and scatter themselves across the scree.



Another New Zealand alpine on the seedlist was *Kelleria croizatii*. This cushion-forming plant is found on South Island on snow tussock grassland and rocky sites. The leaves are grey green - blue green; the flowers are white with prominent yellow stamens.

If you wish to grow these scree plants in pots, deep ones are needed as the roots are used to travelling well down amongst the stone. For that reason use a 20cm pot into which a good layer of crocks are placed, then 4-5cm of an alpine mix to which extra sand is added. As you move towards the rim of the pot, add more and more stone chips, carefully working the mixture around the plant roots.

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PEPINIERE

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PLANTES VIVACES (perennials)
differentes et rares

ouvert: MERCREDI ET JEUDI
avril-sept
9h-12h 14h-18h
et sur rendez-vous

Props: John Worrall & Carol Strafford
English spoken well. Francais parle moins bien.
there are no restrictions for taking plants
to the U.K.