Australasian Plant Society

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This Newsletter comes to you with apologies for its lateness. It has been held back because of a hiccup in the arrangements for this year's meeting. Since the hiccup has not been resolved the Newsletter is being sent out now, and details of the meeting will be sent separately, at a later date. It will be in London and the probable dates are the 14th or 28th July.

As I write, Clematis x cartmanii 'Joe' and C. petriei are in full bloom, and my seed raised Hakea microcarpa is flowering for the first time. As usual the male Tasmannia lanceolata bloomed after the female, but since there was a slight overlap in their flowering periods, I am hoping that in due course there will be a few berries to harvest.

It is often suggested that the 'interest' period of heathers can be extended by letting summer flowering clematis trail over them. I have extended this idea and have planted Chorizema diversifolium, one of the 'Flame Peas' underneath Hebe pinguifolia and H. ~~Carl Teschner~~ 'Youngii'. Already the first buds of the Chorizema are showing vermilion but my real hope is that the Hebes will give sufficient protection to render it hardy. Perhaps the best known Chorizema is C. ilicifolium, which has a long history of successful cultivation as a glass house plant. It is much easier to grow than is Sturt's Desert Pea, and is well worth a try if you are looking for a bright red plant for greenhouse or conservatory.

Jeff Layman reports that some of his greenhouse pests are showing resistance to methiocarb. He wonders whether anyone else has experienced this problem, and if so whether they can offer any advice to him. Are there any takers?

Dewi Price has written to say that it is only stored seed of Billardiera longiflora which needs elution of growth inhibitors, as was detailed in the last Newsletter. Fresh seed germinates easily, and without a preliminary treatment.

Recently the Forestry Commission has published details of its work on the use of peat when planting trees. There were no benefits at all when using peat on flat sand, flat clay, and moulded clay sites. In contrast work at Liverpool University showed that addition of peat when planting trees enabled the interval between waterings to be doubled. The Forestry Commission found that some growth reduction occurred when peat was used, and ascribed it to the peat using up nitrogen as it decomposed. The last conclusion fits in with work carried out in Australia, as a result of which the recommendation was not to mix peat into the soil around a newly planted tree or shrub. The Australians discovery was that the decomposing peat used up nitrogen which should have been available for the plant.

Four Australasian bluebells

BY Brian Halliwell

The genus Wahlenbergia contains about 150 species which are spread throughout the temperate regions of the southern hemisphere. Two species occur in Europe. Because many are untidy growers and are rather weedy in their native countries, only a few are in cultivation. With most there is variation within a species: in vigour, habit and flower size and colour. If introducing species into your garden be selective. Rogue seedlings of inferior forms, and subsequent propagation should be from the best types. As all are small and rewarding, they are plants for a rock garden.

There are 16 species in New Zealand and it is my opinion that the best is Wahlenbergia matthewsii. From a tap root, a number of upright stems rise to about 75mm. with alternately arranged short narrow leaves. At their apex branched flower stems develop which extend the height by another 75mm. on which there are drooping terminal flower buds; as buds open stems straighten so that the pale blue flowers point upwards when they are open. Their shape is an inverted bell about 18mm. in diameter and depth. In a rock garden it needs a moist soil, and tolerates lime.

W. trichogyna occurs only in Whites Bay, in Marlborough Province of the South Island of New Zealand, but it is quite common in most States of southern Australia. In grassland where it occurs in theWild, there is a well developed tap root which ensures that it is perennial, although in cultivation it can be short lived. From a loose rosette of shallowly toothed leaves, sparsely branched, often sprawling, stems develop up to 400mm. Buds, at first pendent, produce upright bell shaped flowers which are blue with purple shadings. On a rock garden in a well drained soil, it needs a drier position than the previous species.

There are 6 species in Tasmania, of which I think the endemic W. saxicola (sometimes incorrectly called W. tasmanica) is the best. Found on mountain tops in screes or amongst thin grass, it has slender underground rhizomes. These produce upright stems often no more than 75mm. high with single upright flowers 13mm. in diameter and pale blue in colour. There is need for a moist soil, with added peat in drier parts. Flowering is best with some warmth, so in the north it demands a sunny spot. Given this it will flower well into the autumn. The strain in commerce is not reliably hardy, so there is scope for experimentation with your own seed. It is produced plentifully and germinates well.

The last and the most impressive (in my opinion) of all species is the Royal bluebell of the Australian Alps, the aptly named W. gloriosa. There are branched underground rhizomes from which arise lax stems, although eventually they become upright to 150mm. or more in a rich soil. As in other species the drooping buds straighten as they open. Although in Australian floras the colour is described as a deep purplish violet, those I have seen in cultivation are a pure blue,and at 25mm. in diameter are the largest of all species.

It requires a well drained soil, benefiting from peat in dry areas, and benefits from protection from winter wet. In cultivation it is not long lived, and is best raised annually from seed or cuttings.

Sophora tetraptera 'Gnome' by Brian Halliwell

One of New Zealand's best known trees is the Kowhai, Sophora tetraptera. The natural occurrence is in Hawkes Bay in the North Island, and the Banks Peninsula of the South Island. One theory is that seed drifted down to the South Island, and became established there. Although a tree up to 12m. high in its native country it is not more than half that in even favoured British gardens. In Britain it is better in the gardens of the south-west and west coast, and throughout most of Ireland. As long as it can have a year or two to establish before it is subject to cold weather, it will make satisfactory growth in a sheltered garden elsewhere. Much branched, there are on young stems alternate leaves to 150mm. with 12 to 25 pairs of alternate oval leaflets. In frost free areas it is evergreen, but where winters are cold it can be partially or totally deciduous. There is variation among seedlings in the amount of cold required to cause leaf loss, and if raising your own seedlings, the hardiest should be selected. Flowering usually takes place in April. Blooms, which are borne in 4-10 flowered racemes are some 50mm. long, and a gold yellow colour. Flowers are not of the typical pea form, being more tubular, without the prominent upright standard or spreading wings. After pollination a winged seed pod develops to 200mm. in which there are constrictions between the seeds.

A small form of this species has come into Britain in recent years under the names of 'Gnome' or 'Otari Gnome'; the former is the valid name. The origin of this plant is unknown. Mr. Ray Mole of the Botanic Gardens at Otari in the North Island informs me that two plants were bought from a South Island nursery by his predecessor, Mr. Walter Brockie, and planted in the Christchurch Botanic garden. Some 40 years later they are about 2.4m. high.

Seed under the name of 'Otari Gnome' was received at Kew from New Zealand in 1980. A plant raised from this seed was planted out in a sunny border when 2 years old. It made a few strong almost upright stems, which were sparsely branched. These carried alternate leaves about 100mm. in length; the Kew plant is completely deciduous in winter. After 9 years it is about 4m. high. The first flowers appeared four years after planting and although flowering was sparse in successive years, in 1989 it was covered in bloom. Flowers, which are more substantial than in the species are longer (62mm.) and a paler yellow. Jeff Irons sowed New Zealand seed of 'Gnome' in 1986, after nicking each seed with a file. Following advice given, the pot was placed outside, and germination occurred during mild spells in the autumn and winter. The potted on seedlings spent their first winter outside in close packed pots - not packed with sand in between,

and though frozen solid, all of the twelve seedlings survived, though half were defoliated. One of the evergreen ones was planted out the following summer, and is now 70cm. high with 4 branches coming from low down on the main stem. There are 8 leaflets to each stem. It is unflowered.

Easily raised from seed and flowering when quite young Sophora tetraptera 'Gnome' seems hardier than the type. Its small size makes it a useful addition to a small garden, and when in full flower it is quite spectacular. At the time of writing plants were available from Burncoose and Southdown and County Park nurseries.

Why so few Western Australian plant growers? by Jeff Layman

Although ours is only a small group, at our meetings I have been surprized to find that very few members appear to grow endemic W.A. plants. Only Noel Kingsbury grows an appreciable number, many of which he supplies commercially. I have often wondered why this should be. Two main reasons come to mind. Firstly, in general W.A. plants are unfamiliar, and often take second place to eastern states' plants in common books on Australian flora. And secondly, apart from Noel, there is no UK supplier of WA plants. Seeds are available from several sources, but WA plants are often unaccommodating when it comes to germinaticn or growing on. However, we wouldn't be growing many Australian plants at all if it was easy, and who doesn't enjoy a challenge?

My interest in WA plants has been fuelled by two visits to WA in the autumn (that is our autumn) of 1982 and again in 1986. If you haven't been, I cannot explain what an amazing sight the WA bush is at that time. To give you some idea, there are around 8000s species of plants in WA with perhaps 4-5000 or so endemic. The majority of these is to be found in the SW of the state, and the bush at that time is an amazing mixture of form, height, and colour. At the very least, if you can get only to Perth, go to the Botanic Garden in King's Park. It has an excellent selection of WA (and eastern states, South African, Californian, and some Mediterranean) flora. It also has some wild bush areas set aside. Sadly, there has been a lot of fire damage in the last few years due to the dry summers.

I grow most of my plants in a very poor soil. The seeds start in a 1:5 peat and sand mix with John Innes base to make about one quarter strength of a normal JI No. 1 compost. I use no

chalk, as I grow Proteaceae in this mixture, and in general they like a fairly acid soil. When large enough, the plants are moved to a 1:3 mixture with JI base to make barely a JI No. 1 compost. As this base contains phosphate, which Proteaceae are supposed to dislike, I may change to a phosphate free base. I must say though, that I have had little trouble growing several of the Proteaceae (Banksia, Dryandra and Hakea) in phosphate containing compost. When too large for pots, the plants are bedded out in the conservatory in a similar mix. The conservatory is south facing. and has undersoil heating (set to come on when the winter temperature is 7°C). There is no other heating, but in recent severe winters I have put a fan heater in to keep the air temperature above 2°C. The fan heater is used also to keep the air moving throughout the year, even if it is not heating. The two self opening vents are set to open at the highest setting of their thermostats. I do not use any shading, and leaf scorch is extremely rare except for plants actually touching the glass, even though the temperature reaches 45°C at ground level on a hot sunny day.

I try to grow as many different genera as I can in the limit of the 12' x 8' I have to work with. One problem in bedding out is that the plants appear to exceed the sizes given in books. As an example Eucalyptus has a maximumheight of 1.5 to 2m. (I have not seen one exceeding this in the wild). In the conservatory, I have twice had to cut it back from 2.5m., when it started running along the roof and forcing the glass up!

The following is a list of the plants I have at present:

Anigozanthos humilis
" menziesii
Banksia occidentalis
Beaufortia squarrosa
Callistemon speciosus
Dryandra premorsa
" quercifolia
Eucalyptus ficifolia
" preissiana
Hakea laurina
Kennedya coccinea
Kunzea baxteri
Lechenaultia biloba
Macrozamia moorei *
" riedlei *
Melaleuca citrinus
Regelia velutina
Templetonia retusa
Verticorda monadelpha
" plumósa
Xanthorroea preissii

* = kept indoors summer and winter.

I have grown a few other plants, which died during the winter or did not make it past the seedling stage. The "difficult" Hakea victoriae was thrown outwhen it took over the conservatory!

Seeds vary much in their germination. Despite using several different sources, I have never got any species of Lechenaultia to germinate. I also find the 'multiflowered' Myrtaceae never germinate, examles are Chamelaucium, Verticordia, Scholtzia. It appears that this is because of the vast amount of sterile seed produced. Some plants germinate fairly readily, then never get past the seedling stage. This is the case (for me at any rate), with Thysanotus. This is because of the lack of a commensal fungus (see Australian Plants, March 1989). If this is true of

many Australian plants - i.e. that they need a fungus to thrive, then it may be that it will never be possible to grow these plants satisfactorily here. Unless, of course, the rules on importing soil (or soil organisms) are relaxed so that established plants complete with their fungus can be imported. In case you are wondering, both the Lechenaultia and the Verticordia species were imported under licence. About 7 or 8 species of Verticordia were purchased, but only the two above survive, and the monadelpha barely hangs on. It is no more than 30cm. from the plumosa, both bedded out, but whereas the plumosa has grown to nearly a metre high (from a 3cm. rooted cutting) and flowers well, the monadelpha is only about 7-8 cm.

As regards propagation, so far, with the exception of Callistemon, I have never succeeded in rooting any WA cuttings. However I've yet to try mist, and I understand from their WA supplier that the Verticordias are rooted under mist with high temperature. The Lechenaultias are rooted similarly under mist.

I would be interested to hear from anyone else who grows WA plants or who has succeeded in germinating Lechenaultia seeds.

Cassia artemesioides by G.G. Yearsley

Alongside the main highway between Paphos and Limassol in Cyprus and also in parks in Nicosia, Cassia artemesioides makes a bold splash of colour in February and March. On investigation it will be found that the 'feathery senna' or 'Wormwood Cassia' is in fact a native of Australia.

About 40 species of this large genus are native to Australia, and this one is native to NSW, South Australia and the Northern Territory. It is described as a shrub about 1-2m x 1m., but in Cyprus it flowers well when about 1-1.5m., and none were seen much taller than this. It is a very striking shrub with stiff linear needle like leaflets each 6-25mm long and arranged in 4-8 pairs. They are covered with a silky silvery grey pubescence which glistens in sunlight. This has given rise to the Australian common name of 'Silver Cassia'. It hybridises readily, and hybids have 3-6 pairs of leaflets that are less silky and flatter than those of the true plant. The flowers, 2cm in diameter, have showy bright yellow petals and contrasting black anthers, in dense axillary racemes about 1.5 cm. across.

Seed germinates easily in about two weeks using bottom heat and in about 6 months grows to approximately 25cm. Flowering sized plants can be potted into a well drained compost using 20-30cm. pots, or preferably planted into the greenhouse border. They can be given full sunlight, and watered freely when in growth but kept barely moist in winter. Minimum temperatures recommended for this desirable shrub are 55°F (13°C) in summer and 45°F (7°C) in winter.

Australian Plants and Medicine by Sue Hyams

An aboriginal drug known as Pituri is chewed to kill pain and dull hunger. Pituri is the dried leaves and stems of an outback shrub, Duboisia hopwoodii, named after Mr. Hopwood of Echuca, a patron of the fateful Burke and Wills expedition in Central Australia in the 1860's. It is a member of the Solanaceae family being related closely to the tobaccos (genus Nicotiana), Deadly Nightshade (Atropa belladona) and the hallucinatory thorn apples (genus Datura). Early pharmacists discovered that the active ingredient of the plant was nicotine, the alkaloid in cigarettes. Chewed pieces of pituri were passed from mouth to mouth to promote mirth during feasts. The drug raised stamina on long desert treks. One aboriginal boy is supposed to have trekked 260km. in two days with no other sustenance. The nicotine content is two to three times the amount found in cigarettes. It was further enhanced by adding highly alkaline ash from certain acacias, which enhanced the nicotine uptake by the body. Nicotine in such doses has a depressant effect, and the user attains a trance-like state, immune to pain.

Australia's first colonists were not slow to try wild medicines. Epidemics of scurvy and dysentery raged among the first convicts, and English remedies were in short supply. Native currants (Leptomeria acida) growing in the woods around Port Jackson gave some relief from scurvy. Ruby-red resin oozing from Eucalypts helped clear up the dysentery. Oil distilled from Eucalyptus piperita helped to aid digestion, while the leaves of the wild sarsaparilla plant (Smilax glyciphylla) made a good tonic.

As settlement continued bush medicines continued to play a part. Pioneers in investigating the chemical properties of the plants included a Brisbane father and son, Drs. Joseph and Thomas Bancroft. One plant investigated by Joseph Bancroft was the Native Pepper (Piper novae-hollandiae), a common rainforest climber with heart shaped leaves, closely related to the Asian vine that supplies commercial pepper (P. nigrum). Aborigines chewed native pepper leaves for sore gums, and Bancroft used extracts to treat gonorrhoea and stimulate gums.

Dr. Bancroft's most enduring discovery centred on Duboisia myoporoides, a corkwood, a small tree of the rainforest. Bancroft had heard that Aboriginals gouged holes in trees and poured in water to drink later as a narcotic brew. They also hurled ~~bman~~ branches into pools to stupefy eels, which they cooked and ate. Bancroft, experimenting on his pet cat and dog in the 1870's, noticed that small doses of the drug dilated the pupils. As a result, he used the drug quite successfully during ophthalmic surgery. Other doctors discoverd that the drug relieved inflammations.

As Australia moved into the twentieth century, corkwood and other local medicines gave way to synthetic preparations from

America and Europe. Native medicines became significant again only during World war II, when drugs were in short supply. Hyoscine, an alkaloid extracted from corkwood, proved ideal for treating shell-shock and air-sickness. After the war the Phytochemical survey of Australian Plants was formed. During the late 1940's and the 1950's the Survey tested 4 000 species for alkaloids, and discovered over 500, of which nearly half were new to science. It was noticed that alkaloids proliferated in rainforests. It was suggested that those plants produced poisons to repel insects and other plant eaters. None of the new alkaloids was developed into commercial medicines.

To date, Australia's rich rainforests have yielded only two pharmaceutical crops, the Kangaroo apples and corkwoods. The kangaroo apples (Solanum aviculare and S. laciniatum) are common shrubs of the rainforest edges and shady banks in Australia and New Zealand. Their leaves are dark green and often lobed,and the purplish flowers are followed by orange or scarlet egg shaped berries, which are edible, but not very tasty. The plant chemicals, the steroidal saponins, closely resemble human hormones, so that they can be converted into synthetic equivalents such as the contraceptive pill.

Corkwood is the big success story of Australian pharmacology. The plant Bancroft tested on his pets in the 1870's is now a commercial cropin southern Queensland. Australia represents half the world market in hyoscine. Hyoscine is used to treat motion sickness, stomach disorders and the side effects of cancer therapy.

Several rainforest trees have shown anti-cancer activity. The Native Pepper (Piper nova-hollandiae) has shown activity against lung cancer in mice. Coast Tylophora (Tylophora crebrifolia), a vine from Queensland and NSW rainforests retards leukaemia in mice, and trials have reached the clinical stage in America. Scrub Yellowwood (Bauera simplicifolia) has an alkaloid which shows anti-tumour activity against a wide range of cancers. The Moreton Bay Chestnut (Castanospermum australe) is the latest Australian hope. One of the alkaloids contained in the seeds, castanospermine, was found to interrupt metabolism in rat cancer cells, forcing them to revert to normal. The seeds also contain chemicals known as 'sugar mimics' which appear to offer a new method of attack against the HIV (Aids) virus. A similar substance in Swainsonia has been called swainsonine, and also appears to be HIV active.

Antipodean plants in my garden by Graham Sumner

I have learnt by blundering about and making many mistakes, as a keen but not very expert gardener. I delight also in taking risks and experiment in planting not-so-hardy plants outdoors, only to be absolutely grief stricken when they finally succumb!

I grow some New Zealand plants (essentially Cordyline australis, Senecio, Hebe, and some Fuchsia) mainly because they are on the whole hardier than most Australian species i.e. as a sort of insurance policy.

However for the past four or so years I have been trying to grow Australian plants, and although I have only a small garden it is amazing how much you can cram in - upwardly in the case of Eucalyptus! In the first instance I took the policy of planting Eucalypts because a number of species are both frost hardy and salt tolerant (Iam only 200m. from Cardigan Bay) and to provide some shelter for later, smaller plants. I have now reached this stage and have been amazed at how hardy Acacia and Melaleuca can be, especially after the early cold spell which started in November 1989 and lasted to mid December. We are generally safe from air frosts until the New Year, but in 1989 very cold air ponded up in the valley above the town and there were more air frosts in that November - December spell than there were in the whole of the previous winter. Twice the air temperature was below -4°C

A three year old Acacia longifolia, which flowered in my conservatory the previous winter, and was planted out is in bud and survived the cold with only a flimsy polythene bag over it. I am optimistic that I may have my own 'Wattle Day' in early February, to correspond with the NSW equivalent on August 1st., but guess that it will all depend on what January throws at us. A. dealbata and A. retinodes have just survived, without flowering, but these are from colder environments in their own country. I have also several Melaleuca squarrosa and ericifolia, which seem almost to thrive on the occasional sharp frost. Spare Acacia fimbriata, Allocasuarina torulosa, and a Prostanthera lasianthos have been planted out to see how they fare. The last should have survived, but gave up over the mild Christmas period.

As for Eucalypts - I confess I overdid it! I had a beautiful specimen of E. globulus, which again had been planted out as an experiment, when it was just one year old and a meter high, ignoring what the books say. It had to be cut down and the roots decimated to discourage re-generation. That was in September last, at 3½years old, and approaching 8m tall. It was about to flower as well, but I did not want to risk damage to drains and foundations. I even have an impoverished E. citriodora which has overwintered the past two winters, though defoliated each time.

I am fortunate in having a large conservatory, which is protected from frost and in which I fight my wife for space (she runs a

small pottery). At present it is full of various Australian plants in their winter quarters. I have had great success with Ficus macrophylla, Lophostemon confertus (formerly Tristania conferta), many Syzgyium paniculatum (formerly Eugenia australis), Leptospermum citratum, Allocasuarina, and the wattles mentioned above. With the Eucalypts though, I have been disappointed. I have E. citriodora ficifolia, macrocarpa, torquata and erythronema. In spite of giving them much light and only careful watering I have had a h high mortality. I find that with the slightest hint of root damage, over-watering and lack of light, then E. ficifolia in particular, drops its leaves and gives up. E. citriodora is highly susceptible to red spider mite, and does not like being sprayed subsequently. This too is followed by prompt defoliation and only slow recovery. Does any member have a suitable insecticide that they have tried??

In 1990 I am going to try really hard with Banksia. I grow everything from seed (mostly Chiltern seeds) and have succeeded in germinating Banksia only once. Even then they damped off after a few weeks. I know now that I should have been sowing in sand and gravel. I have also been trying Grevillea robusta. In spite of its reputation for easy germination and survival, have never succeeded in germinating any of my own seeds. A bought specimen died within a few months. It was initially in the conservatory, then outside in spring and early summer. Any hints from anyone?

Celmisia asteliifolia by Brian Halliwell & Jeff Irons

Celmisia is a genus of plants much coveted by British alpine gardeners. Except in the north of England and in Scotland they are difficult to grow. It is the New Zealand members of the group which so many gardeners try to grow, usually unsuccessfully. Mostly they do not know that there are Australian members of the genus, and this is a pity for they would find that they are easier to grow and hardier than the New Zealand species. In particular the Tasmanian Celmisia asteliifolia is an attractive and relatively easy plant to grow. It is easier of cultivation, flowers over a longer period, and has proved to be hardy. True it is not as spectacular as, say, C. coriacea, but the flowers are as large as those of some of the other N.Z. species.

It is quite common on Tasmanian mountains above the tree line amongst rocks, often on exposed summits. From a stout rootstock thick almost fleshy, roots develop. Tufts of leaves, produced in loose rosettes, have shaggy bases. The leaves, which may be as much as 30cm. long, vary considerably in length and width, both in cultivation and in the wild. they are covered with a mat of silvery hairs through which can be seen a slightly bluish green surface, although in old leaves the upper surface particularly can be hairless. Again there is variation both in the degree of hairiness and in the length of time these hairs are retained. In some forms the leaves can be extremely ornamental. Stiff upright flower stems are white and shaggy, and may reach to 35cm. They produce a single daisy like flower which can be up to 5cm. in diameter. In the bud stage the ray florets are sometimes tinged with pink, and this continues on the lower surface in the early stages of opening. The disc florets form a large golden eye, which is purplish when the petals first open. There seems to be no definite season for flowering, which can begin in spring and continue till late autumn. In cultivation, though is most common in May and June. Under glass flowers will open in mid winter.

In the garden it needs a peaty soil which retains some moisture during summer. Although when established it is more tolerant of drought than the New Zealand species, a dry soil will impair flowering, and prolonged drought can result in death. Aphids can be a problem for they hide in the crown and, amongst the hairs they are difficult to see and control. If unnoticed they affect young growth, causing distortion, loss of vigour, and eventual death. They should be planted out when quite small in a sunny garden and in light shade. As usual they will stand full sun in coastal areas and in the north.

Propagation is from seed sown as soon as possible after collection. As with so many mountain representatives of the Asteraceae good seed is not set every year, and the percentage of good seed obtained may be small. Plump achenes are the ones to select and sow. Delay in sowing and adverse storage conditions of excessive dryness and high temperatures can greatly reduce the rate of germination, or result in no germination at all. Seed which is not to be sown immediately should be stored in the ice compartment of a refrigerator, but not in a deep freezer.

sow in an open compost. Two parts of peat of leaf mould and one each of lime free sand and soil, or equal parts by volume of peat and perlite have both been found suitable. If the seed is covered it should be with the minimum amount of material. Surface sowing in a mist unit has been found to give excellent germination, so giving some credence to the theory that lght is required for germination. The compost should never be allowed to dry out, and the pot should either be covered with a piece of polythene or stood in water. Unlike many Celmisias this one does not need to be left until the following year before being transplanted, and the seedlings may be transplanted as soon as big enough to handle singly. The 1:1:1 compost given above is suitable. There are two aspects of sowing where we have different opinions. B.H. believes that though not essential for germination, cold does stimulate it, J.I. has found that germination occurs only when the temperature is above 15°C, and prefers to sow in a temperature of 15 to 20°C in spring, rather than in summer immediately after collection. Division of established plants can be carried out either in autumn or in early spring before growth begins.

In the past this species has been called C. longifolia, and even now the names asteliifolia and longifolia are used interchangeably by nurserymen. The name Celmisia longifolia belongs to a species which is endemic to the Blue Mountains of N.S.W. and it does not have foliage which is especially long. One of us (JI) has noted that in the seedling stage C. longifolia does appear to have longer leaves than C. asteliifolia, but that this difference disappears in the second year. The easiest way for the amateur to differentiate between the two species is from the achenes. If they are 4mm. or less long, then it is probably C. longifolia. If they are more than 4mm. long it is not C. longifolia.
A Victorian population with wide leaves was formerly known as var. latifolia but it has now been recognized as a separate species.

Lomatia by Jeff Irons

Lomatia is a genus in the Proteaceae with 9 members in eastern Australia, and at least 3 in western South America. The seeds are surrounded by a characteristic wing, and it was this which led Robert Brown to use the Greek word loma - a fringe, as the base of the genus name.

Six of the Australian species are cultivated in Britain, five of them are described here. All species have a characteristic powdery covering on their seed, and fresh seed germinates well Germination takes place within 10 to 20 days of sowing at 15 to 20°C. Spring sowing is recommended, for it is difficult to overwinter very small seedlings, such as those which result from summer sowings. If seed is received in July or later it should be stored in a refrigerator until the following spring. As with most other Australian Proteaceae, seedlings should be transplanted as soon as germination is noticed. Two other options which I have used, and in fact prefer, are to delay transplanting till the spring after germination, or two sow two seeds to a pot and pinch out one of them. Another option which I have found to work with Telopea, but not with Lomatia, is to trans plant at 2.5 to 5cm. high. There does not seem to be any information about whether Lomatia are sensitive to phosphorus, but their cultivation record in this country suggests that they are not especially sensitive. Nevertheless since at least some of them are found naturally on low phosphorus soils, it would be prudent to feed only with low phosphorus fertilisers. I have used 140 day Ficote 14:10:10 successfully, and the recommended formulation for Proteaceae is 10:4:7. It should be applied as a weak application. Brian Halliwell believes that one should never use inorganic fertilizers on Australian Proteaceae. Seedlings can be planted out after their second year, and as usual it should be delayed until April or May.

Lomatia silaifolia

In parts of N.S.W. this species has the common name of native parsley, and the specific name comes from silum, a member of the parsley family, and from leaf, in reference to the semblance of its leaves to those of parsley. It is also one of several plants known as Christmas Bush, because of its use for Christmas wreaths.

This shrub is found on well drained soils from central N.S.W. to southern Queensland, from the coast to the tablelands. Some authorities recognize two varieties, one found near the coast, and another found further inland. The leaves are very variable in length and in the number of lobes. They may be finely to coarsely dissected and pinnate or bi-pinnate, or even tri-pinnate. In the Blue mountains it is found on the sandstone areas, never on the rich soils of the basalt. Though the ultimate height can be 1.5 m. it is usually much smaller. Flowering is in midsummer

and is sporadic. It is stimulated by the ethylene oxide in bush fire smoke. A more socially acceptable method of encouraging flowering is to expose the lignotuber to the heat of the sun's rays by cutting off all top growth. The terminal inflorescence can be up to 30cm. long, and is in the form of terminal racemes of creamy white flowers arranged in pairs. Each pair of flowers can have a perianth up to 15mm. long

In British cultivation this attractive shrub has often been confused with L. tinctoria. Fortunately the two current sources both offer the plant, in the form listed as being from inland rocky areas. It may be seen in the Hillier Arboretum and at Wakefield Place.

Lomatia tinctoria

The common name of Guitar Plant refers to the shape of the open flattened fruit of this Tasmanian endemic, while the specific epithet is a reference to the powder covering the fruits, which is reputed to be a dye.

The occurrence is on poor stony soils, from sea level to 1000m. This fact is important to British cultivators, as I know well because my first attempts with L. tinctoria failed when the plants died in their first winter outdoors. Later plantings in 30cm. of stone chippings over rubble with the 'soil' surface some 0.8m. above the winter water table have grown well.

Forming an erect multi-stemmed shrub up to 1m. high, this attractive plant is usually much less in cultivation. The variable leaves can be pinnately or bi-pinnately lobed, and sometimes simple. All three kinds may be produced from one batch of seed. Like L. silaifolia it is reluctant to flower, and the same techniques of flower induction can be used. The creamy white flowers appear in summer, on terminal racemes up to 20cm. long.

This hardy species can be grown easily from seed, and this method of propagation is the preferred one, for it enables the grower to select seedlings for fineness of leaf. It makes an excellent pot plant for the cool greenhouse, and outdoors is a fine foliage plant. It is interesting to note that the illustration in the 'Endemic Flora of Tasmania' was drawn from an English plant.



Lomatia tinctoria

Lomatia tinctoria

Lomatia silaifolia commercial form

Lomatia polymorpha

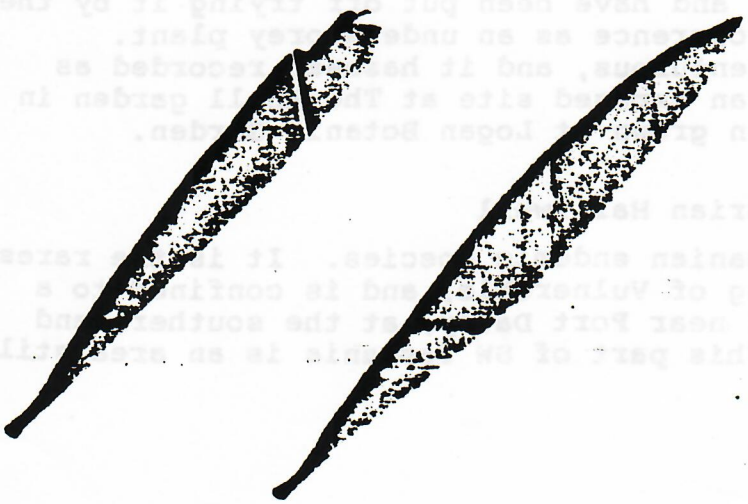
The specific name tells us that this is another plant with variable leaves.

This shrub is endemic to Tasmania, where it is found as an understorey plant of the wet Eucalypt forests. Though it can make a large shrub up to 4m. high, or even a tree up to 7m., it is most seen as smaller and spreading. The leaves are often simple, and narrow lanceolate to elliptical, 20-80mm long and up to 10mm. wide, but they can also be pinnately lobed. They are always leathery, with a clearly visible mid rib. Sometimes there may be up to three teeth near the apex. All these different leaves may be found on one plant. The two leaf silhouettes which accompany these notes were in fact taken from the same plant, and were adjacent. The young growth and underside of the leaves are covered with short brown hairs. Though not immediately apparent to the naked eye they stand out clearly when viewed through a hand lens. The fragrant creamy white flowers are about 15mm. long and are paired in axillary and terminal racemes. The stalks are about 12mm. long. Under glass at Kew flowering takes place in June.

Collected as living plant from the wild, whose root system had been damaged, the Kew specimen was expected to die. Most members of the Proteaceae will not transplant unless pot grown. Potted at Kew in a very sandy, acid compost the plant grew and eventually flowered. While in a pot blooming was sparse, but when transplanted into the Alpine House it was profuse. Seed was not set.

Fresh seed germinates readily, but unless well established young seedlings are very prone to fungal attack in autumn. From September onwards they should be given plenty of ventilation and kept cool. Transplanting is best delayed until after growth restarts in the spring. I have twice lost seedlings of this sp species, once from rotting in too close an atmosphere,and once from early transplanting. A 6 year old specimen has survived the past four winters outdoors, and though 78cm. high has not flowered. The 1989 seedlings were transplanted in March 1990. they are in an acid, moisture retentive but free draining mix.

The wild occurrence of this plant suggests that it will be happier in areas of fairly high humidity, particularly if the rainfall is not high. I ascribe my success in the low rainfall area of Wirral to its coastal situation, with humidity nearly always high.



Lomatia myricoides

The leaves of this shrub were thought to resemble those of the British native Myrica gale, hence the name.

The natural occurrence is from the Eastern Highlands of Victoria to the Blue Mountains. In the latter, which receive summer rain, it is found on the 870m. high sandstone ridges, whereas in the Victorian winter rain area it occurs in moist gullies. In western Britain it grows well in a well drained, but moisture retentive, soil with full sun. Ultimately it becomes an open textured shrub with fresh green leaves 8-15cm. long. The form available from British nurseries has leaves about 8-9cm. x 0.8-1.0cm. with 7 or 8 small teeth on each side. The creamy white flowers with a perianth about 8mm. long form pairs along axillary and terminal racemes. They appear in early summer.

Introduced in 1816, this attractive shrub offers something 'different' in the way of flowers and flourishes in the milder parts of the British Isles. It should certainly be tried in other parts, especially in sheltered corners.

Lomatia fraseri

The specific name is for Charles Fraser, who was Colonial Botanist at what is now the R.B.G. Sydney.

Found in sheltered situations in Victoria and NSW as far north as Northern New England, and at altitudes up to 1500m. this shrub is noted for its very variable leaves. Variable even by the standards of this family! Frequently one plant will have several different leaf shapes on it. The height is anywhere between 0.5 and 7m. depending on seed provenance and situation. Creamy white flowers appear in summer on racemes which can be up to 12 12cm. long. It appears to be unknown in British cultivation.

Lomatia ilicifolia

This species is recorded from Victoria and NSW, where it is an understorey plant of both wet and dry sclerophyll forests. There it is a shrub up to 2m. x 1m. with leaves 5-15cm. long. It is described as being rather a dull shrub with leaves which are broadly oblong and from 5 to 15cm. long. There is less leaf variation than in other Lomatia species The creamy white flowers appear in August in the U.K. and are in long loose racemes.

I do not know this plant, and have been put off trying it by the description and by the occurrence as an understorey plant. Others have been more adventurous, and it hasbeen recorded as having survived -11°C on an exposed site at The Knoll garden in Dorset, and as having been grown at Logan Botanic Garden.

Lomatia tasmanica by Brian Halliwell

This is one of three Tasmanian endemic species. It is the rarest, with a conservation rating of Vulnerable, and is confined to a small area at Cox's Bight near Port Davey, at the southern end of the Bathurst Range. This part of SW Tasmania is an area still

little explored. A high rainfall results in much of the area being covered with dense Eucalyptus rain forest, there are deep valleys with precipitous sides; no roads penetrate the area and it is uninhabited. To reach Cox's Bight means several days walk through some of the most inhospitable terrain in the world.

The plant was discovered by Mr. Dennison King in the summer of 1965, and was described by Dr. Winifred Curtis in Part 3 of the Students Flora of Tasmania (1967). Flowering material was brought out in 1975 to be sent to Kew for painting by Margaret Stones for The Endemic Flora of Tasmania. From material retained in Tasmania cuttings proved easy to root, and in 1977 on a visit to that Island I was given a rooted cutting. It was brought back to Kew to be kept in a frost free glasshouse after being potted into a soil well enriched with peat. The potted plant was stood permanently in a dish of water; potting on took place as the container filled with roots. There was no new growth for a long time, it can take up to two years for a plant to re-adjust to the change in seasons when transferred from one hemisphere to the other. During a subsequent period of 3 years there was an annual apical increase of 100mm.. Since this species is described as a small tree, it was allowed to develop without stopping. There was no development of side-shoots, although there were a few spur like projections. When these were removed they proved easy to root. In 1982 a terminal inflorescence was produced but no fruit; after the flowers faded there was apical development of side shoots.

As the plant was becoming over-large for a glasshouse it was sent to Wakehurst, where it was planted outside in a woodland garden. It was killed off though in one of the severe winters which were experienced in the 1980's decade. Propagules remain at Kew and one was planted out in the alpine house.

Commercial sources known:

L. myricoides	Fortescue Garden trust, Drysdale Nurseries, Bodnant Garden Nursery
L. silaifolia	Drysdale Nurseries
L. tinctoria	Fortescue Garden Trust.

Note: Drysdale Nurseries has moved. The new address is
Bowerwood Road
Fordingbridge
Hants
SP6 1BN

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Hon Sec: J H Irons
74 Brimstage Road
Heswall
Wirral
L60 1XQ

Botanical name changes

There will always be botanical name changes, but Australia and New Zealand seem to get more than their fair share. In part this is a consequence of the work in progress for the up-dating of the Flora of New Zealand and the issuing of the Flora of Australia. Other causes are regularization to bring names into line with the International Code of Botanical Nomenclature, and the use by taxonomists of modern techniques such as SEM, gel electrophoresis, TLC, DNA sequencing and electron microscopy. The last was used for some of the work which has led to Australia having not four but ten species of Celmisia. The six new species have all come from the obviously unsatisfactory group which was Celmisia asteliifolia.

Celmisia in Australia is now:

C. saxifraga	Tasmania and high altitudes. Has a strong relationship with the NZ members of sect. Pulvinate of subgenus Celmisia
C. 'latifolia'	No longer C. asteliifolia var. latifolia, this shows a strong affinity with the NZ C. hookeri. It is restricted to the Vic. alps around the Bluff, Mnt.Howitt, and Mnt. Buller
C. sericophylla	restricted to the Bogong High Plains
C. asteliifolia	restricted to Tasmania
C. longifolia) C. species) C. species)	restricted to Blue Mntns. Loddon Ck. N.W. of Bulli, Tuross Falls and Werri Berri Mntns S.W. of Canberra, and the Brindabella Ranges of the ACT.
C."costiniana" C."pugioniformis") C."tomentella")	the main type of the Kosciusko herbfields associated with heaths, bogs and grass lands in the alpine and sub-alpine herbfields of the main ranges.

From New Zealand we have:

Coprosma pumila	No longer in New Zealand. In the absence of additional information it seems most likely that plants offered for sale are C. niphophila
Gentiana saxosa	should be Gentianella saxosa or Oreophylax laxifolius
Gnaphalium keriense	should be Anaphalis keriensis
" subrigidum	" " " subrigida
" trinerve	" " " trinervis
Helichrysum glomeratum	" " H. aggregatum
" microphyllum	" " H. parvifolium
Hymenanthera	" " Melicytus angustifolius. Note that this does not apply to the Tasmanian species of Hymenanthera
" angustifolia"	" Melicytus angustifolius
" crassifolia	" " " crassifolius
" obovata	" " " obovatus

Pachystegia insignis var. minor is now P. minor