

Australian Plants

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Colour Photography by J. Glass

PILEANTHUS FILIFOLIUS

This is a most outstanding plant. A shrubby little thing 18" high. In the heat and heart of summer it bravely throws out a lovely little Geranium-like head of flowers. This plant is growing in white sand plain country. What a glorious colour. In some areas they grow to 5 feet tall but is a lovely small shrub for that hot position—J. Glass.

I could have reproduced from many other beautiful slides some close-ups of the flower being very spectacular but this shows the bush to advantage—Editor.

WILDFLOWERS FOR THE ROCK GARDEN

PILEANTHUS

THE "COPPER CUPS" GENUS by F. Lullfitz

There are listed three species of *Pileanthus* viz. *P. filifolius* Meissn., *P. linearis* Labill. and *P. peduncularis* Endl. They are shrubs 2'-7' and are remarkably showy in flower. They belong to the family Myrtaceae and are akin to the *Chamaelaucium*, *Thryptomene*, *Baeckea*, etc., the petals forming the outstanding display when the plant is in flower. However, after the petals have withered the calyx still carries a pleasing display until the seed ripens and falls—one seed per flower.

The best known of the species is *P. peduncularis*—"Copper-Cups". This plant inhabits the true sandplain (a fine sand with very fine particles overlying usually a gravel bed at depth from a few inches to several feet) and its range would be roughly from Great Eastern Highway to north of Carnarvon. In the more southern occurrence it is usually a fairly dense shrub to 2', of rounded appearance, which becomes a coppery-gold mass in August-October. The leaves are short and stubby and close to the stem. It will propagate fairly well from cuttings and even the tiny side shoots up to ½-inch root quite well. It is a brilliant flowering plant and when the main show of flower is over the calyx and the ripening fruits are quite showy until they fall.

North of the Murchison River there is an occurrence of this plant with rich red flowers, most dazzling. North of Carnarvon on the red sand dunes appears a form which is up to 6' high and about 8' across with coppery-gold masses of flower in August.

The next in order is *P. linearis*. I have only recently come across this one and the plants I found were windswept, a half-mile from the coast and of necessity only about 18" high and 5' across. The petals were almost white bearing a faint tinge of pink and the leaves were slightly larger than the previous species. It was equally attractive. It was growing on yellow sand dunes.

P. filifolius occurs further south, from Gingin north to the vicinity of the Murchison River. It grows on deep white sand, usually with *Banksia* and other coastal types. The plant is bushy at the base with the corymbose flower heads borne on woody bare stalks up to 2' and the whole plant not exceeding 4'. It regenerates from a woody stock after fire. Flowering time is October-January. Leaves resemble Geraldton Wax. The flower is much larger than the two first species, being up to 1-inch across and held face to the sun. The large petals, sometimes frilled, are a rich pink to geranium-red and are of the delicacy of fine silk. It is incredible that they should put on such a display in the heart of summer.

There is another form of *Pileanthus* which only grows on the top of red sand dunes above the Murchison River. It is reported to be a form of *P. filifolius*. I would say the resemblance ends with the flowers as the plant is like a very loose Geraldton Wax, slender and branching, with flowers in terminal groups. Flowering time is August-September when it is most attractive but rather colourless and lank at other times. A notable exception in the occurrence of this one was an apparent hybrid. The tall form was confined to a definite area of the rise and top of the dune, and below on the flat immediately adjacent was *P. peduncularis*—the normal form of "Copper-

ROCK GARDENS — 2

by J. R. ENGLISH

I have found over the last three years that many West Australian plants which were hard to grow in Sydney with our summer rainfall, were comparatively easy to handle when placed in a rockery filled with our local sandy soil. My conclusion has been that they are given two conditions with this type of situation, which help to offset the effect of a climate opposite to their natural one. Firstly, they have a virtually unlimited (non-competitive) rootrun, and secondly they have a dry collar of soil fairly soon after watering. Again, here their roots are encouraged to go deep, because of rock obstruction for the first few inches. A most important point would appear to be sure to always water the West Australians at night or on dull days only. For myself, I give my rockeries one good soaking weekly with the sprinkler, during the hottest part of the Summer.

I intermingle Hawkesbury sandstone plants with various West Australians (in their own pockets, though sometimes two to a pocket). Generally they are growing well in full sunlight, but I have replaced the rare losses (e.g. *Verticordias*) in broken sunlight, really treating them more as undershrubs. Mulching with a small amount of leaf mould; then small stones, helps to conserve moisture and also relieves the bare appearance of your soil pockets until the plants have covered.

The *Leschenaultias* (red, blue and orange) really thrive, especially if they are propagated "in situ" (tips planted with a jar over them), and grown with a hot reflecting rock behind them.

Kangaroo Paws (*Anigosanthos* spp.) and our local Christmas Bells (*Blandfordia nobilis*) can be planted in multiples of say three for better effect, and these plants will be thankful of a little bit of irrigation from time to time. Make sure however, that there is no *Leschenaultia* below them as they certainly do not like extra water.

The dwarf *Prostanthera denticulata* will give a very lovely and long lasting flowering if planted in scattered pockets in full sun—incidentally most of the other mints prefer some shelter.

Our Hawkesbury Sandstone *Boronias* will all thrive in the rockery and can be kept in shape by tip pruning, however, they are most vigorous with a modicum of protection from a larger shrub, especially *Boronia serrulata* (the Native Rose). *Boronia viminea*, *B. megastigma lutea*, *B. elatior* will relish full sun, and *B. denticulata* is happiest with shade at the base.

If you have a lawn at the top of your rockery, as I have, it is wise to grow vigorous shrubs in the highest rock pockets. Here, the blooming *Thryptomene dielsiana* (Paynei), *Pimelea ferruginia* and some of the lower-growing *Grevilleas* are valuable, as they are unharmed by dogs and romping children. This is qualified by giving the *Pimelea* the support of two parallel rocks—I understand that in their natural environment (in southern W.A.) they grow in clefts in the coastal cliffs.

Foliage and floral relief is given by prostrate *Hibbertias* with their constant golden yellow flowers, and the perpetual flowering *Correa prostrata*. They are also very easy to propagate. Incidentally, I find that alternating the red and green forms of *Correa reflexa* make an interesting contrast,

very poor in this sand. Many of the sands sold by contractors come from coastal deposits and are usually alkaline, containing salt, and should not be considered for the purpose.

In fact, however, one can expect best results with a made up soil of good, well drained loam, containing humus, and of slightly acid reaction. The extra work in preparing such a soil is usually well repaid.

Most of us with limited garden space and a keen desire to grow all the bush plants we admire, tend to crowd these beds with one of nearly every plant we can fit in (the writer admits to being just as guilty in this regard.) Aesthetically, however, the use of a much simpler planting using only a few species is better than a botanical collection of plants.

An excellent example of this is a bed near the glasshouses at the rear of the Adelaide Botanic Garden office block, where only 3 different plants are combined very efficiently. Creeping Boobialla (*Myoporum parvifolium*) clothes the ground and spills out over the roadway, the grey blue Cushion Bush (*Calocephalus brownii*) appears in natural clumps contrasting vividly with the *Myoporum*, whilst a solitary background bush of *Callistemon* "Harkness Hybrid" adds height and a splash of colour in spring. All of these plants thrive in limestone soils, and in this case there was no need to improvise with imported soil.

PLANTS OF SPECIAL MERIT

Adenanthos obovata 2'-3' oval light green foliage, tightly clasping the stem, with orange flame gland flowers, winter and spring.

Astralaria conostephioides (Grampians Flame Heath) 1'-3' with grey green slightly prickly foliage and spectacular bright red tubular flowers, winter and spring, grows in light sandy soil.

Astralaria pinifolius (Pine Heath) 1'-2' with light green, fine, pine like foliage; is slightly erect with yellow and green tubular flowers, grows in light sandy soils in the Grampians and adjacent flats, and on the North East coast of Tasmania.

Calytrix brevifolia 2'-3' has minute foliage and masses of blue flowers late winter and spring.

Dryandra calophylla 2'-3' of very uniform habitant spreads out like a cart wheel. The young bronze foliage resembles that of young tree fern growth, developing deep serrations.

Dryandra polycephala 3'-4' with finely serrated foliage and small creamy yellow flowers, has great potential winter and spring, but requires light very well drained soil.

Hemiandra pungens (Snake Plant) is a prostrate and trailing plant with mauve *Prostanthera* like flowers, very bright in the summer months and delights in full sun and well drained soil, ground coverage 1-2 sq. yards.

Xanthosia rotundifolia 1'-2' (Southern Cross) as a rambling plant has an interesting white flower in the shape of a cross. The new foliage is colourful and ornamental.

A light climber from W.A., as yet not identified, now in flower, with narrow pointed leaves and deep blue bells, resembles *Sollya*, but the blue is more intense than that of the *Hoveas*.

Thomasia grandiflora var. *augustissima* makes an interesting plant to 2' with rough bronze green foliage and soft thick lilac flowers, is exceeded in brilliancy by *Thomasia grandiflora* which is of much the same habit, both plants delighting in partial shade, flowering winter into early summer.

BELLENDENA MONTANA

The only Species of the Genus *Bellendena* by A. M. GRAY

PART 2 OF A SERIES ON "TASMANIAN PLANTS"

Bellendena montana belongs to the family Proteaceae (Banksias, Waratahs, etc.) and occurs only in Tasmania. It is a small shrub, seldom attaining much more than 18" in height. It grows mainly at fairly high altitudes, 2,000'-4,000' being about its limit, and is a very common shrub on most of the Tasmanian mountains, preferring damp soils; but will grow quite readily in fairly dry situations, or on the other hand badly drained sites.

The vernacular name applied to this shrub, is "Mountain-rocket", the bright scarlet-crimson heads of seed follicles appearing as small flames, when viewed at a distance. In an extensive patch of *Bellendena*, about March-April, it indeed seems as though the ground is aflame with the nodding scarlet spikes.

Bellendena montana R.Br.—Proteaceae. A small, erect shrub seldom exceeding 18". Leaves are obovate or obcuneate with obtuse terminal lobes, occasionally they may be entire. They range from $\frac{3}{4}$ "-1 $\frac{1}{4}$ " in length and occur alternately on the small branches. The flowers are quite small but very numerous, borne in a dense terminal raceme, about 1 $\frac{1}{2}$ " long and supported by a long stalk 2"-6" long. The perianth is $\frac{1}{8}$ "- $\frac{1}{4}$ " long, white or creamy pink, on a pedicel as long as itself. The fruit is a follicle, thin-walled, pear-shaped in outline. Crimson to bright scarlet in colour and containing one wingless seed.

PROPAGATION

Although *Bellendena* may be grown from cuttings, quicker results are obtained from seeds, which are collected from the plant when they ripen in March or early April. After drying for about a week, the seeds should be sown in a light porous mixture of one-third well decomposed humus, one-third vermiculite and one-third coarse sand (all by volume), for the humus, rotted she-oak needles or banksia leaves are ideal. The seeds should be scattered on top of this mixture and about $\frac{1}{8}$ "- $\frac{1}{4}$ " of mixture sprinkled on top. The soil should be kept damp but not saturated, and left in a cool but sunny position. As soon as the seedlings appear (about two months later) the watering should be increased a little and the seed tray placed in a warmer sunny position. The seedlings should be pricked out into trays or pots as soon as they have gained their secondary leaves. It may be advisable to treat the soil with a fungicide, to guard against "damping-off". The most suitable soils for this plant are those fairly heavy in texture, but porous enough to allow reasonable drainage. The soil should be neutral or just slightly acid in nature. Once established, it may be planted in a damp but sunny position, however if desired it may be left in a reasonably large tub or pot, in which it makes an attractive specimen. *Bellendena* does admirably as a backing shrub in a rockery garden.

A rainfall between 40"-100" p.a. is most suitable. Lime is to be avoided, but a light application of aquasol or similar fertilizer may be of benefit if applied during the spring or early summer.

Editor's Note: A colour plate of this plant will appear in our next issue in association with this series.

HOT BOX PROPAGATION

WARMED PROPAGATING BEDS

The normal recommended loading of propagating beds is $7\frac{1}{2}$ to 9 watts per sq. ft. and this will provide a soil temperature of $60-65^{\circ}\text{F}$. Loads of 15-18 watts per square foot are required for a rooting temperature of 75°F . necessary under mist propagation. For normal propagating beds a fine clay sand which will retain moisture should be used and this must be kept damp. For mist propagation a much coarser sand is essential to provide the required drainage.

WARMED PROPAGATING BED

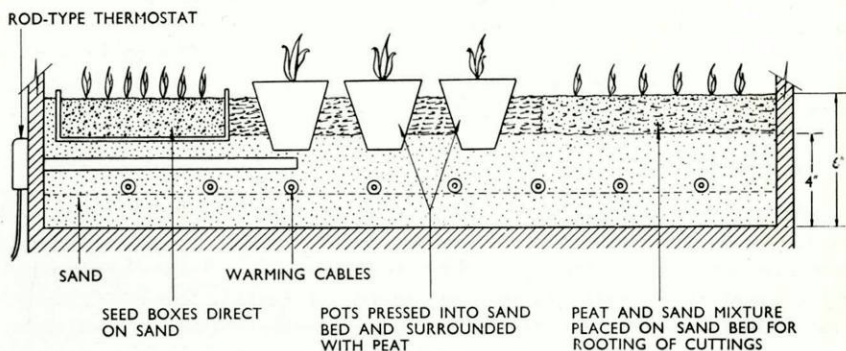


FIGURE 1

AIR WARMING IN A CLOSED PROPAGATING CASE OR FRAME

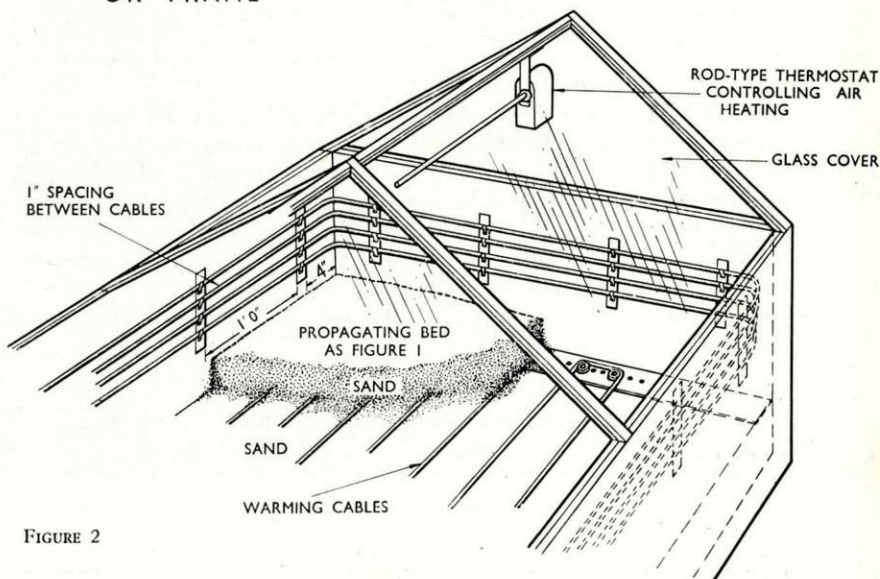


FIGURE 2

PLATYTHECA VERTICILLATA

A promising Rockery Plant by Patrick Stanley

The *Tetradhecas* are among the most colourful of Spring wildflowers to be found in the sandstone areas around Sydney. Perhaps the commonest species is *T. ericifolia*, which varies in form between an erect and rather sparse type and a squat, compact little shrub only a few inches high, reminding one of a Rugby scrum. The flowers, like well trained forwards, have their heads down, and it is necessary to lift them in order to see the black eyes. From their blackish anthers they derive their common name—Black Eyed Susans. The petals are magenta or deep mauve in colour; and in spite of the shy, pendulous habit of flowers the effect, when the plant is found growing amongst broken sandstone in the sunshine, is often dazzling. According to Florence Sulman (*Wildflowers of New South Wales*) the plant flowers all the year.



PLATYTROCHEA VERTICILLATA

The colour plate does not do this delightful plant full justice. An excellent plant for the rockery for that sheltered moist position. *Tetradheca* is very closely related to this plant and are also beautiful dainty plants. We are preparing an issue on *Tetradheca* and I need reports from those who have grown them and a colour slide of every species. They are commonly known as Black-Eyed Susan.

SUCCULENT NATIVE PLANTS

FOR THE ROCK GARDEN by Ron Hill, Botanic Gardens, Adelaide

Little is known amongst gardeners of our native succulents and even less is generally known about their culture. All that can be defined is that they must have warmth, sunlight and good drainage, but from there on we must try them out for ourselves.

The following species have been grown in Adelaide with a certain amount of success, some proving easy and some proving somewhat difficult.

Aizoon quadrifidum is a shrubby plant found in the dry areas of Australia. It grows 1-2 feet high and spreads 2-3 feet across being very compact in growth. The succulent leaves are silvery green and attractive, about ½ inch long and the four petalled starshaped flowers are white with a red centre. These are about 1 inch across and usually appear during spring and summer. This should prove an interesting species for the larger rock garden or bank.

Aizoon zygophylloides is an annual species, only found in dry areas usually after good rains. Growing from 2-6 inches high and spreading slightly these plants often cover acres of the interior making a very colourful display. The contrast of bright green leaves and showy four-petalled yellow flowers makes this a desirable plant for dry rock pockets.

There is a beautiful pink flowered form which is not as common as the yellow, but this is even more desirable. This is considered to be a different species by some authorities and is then known as *Aizoon kochii*.

Calandrinia remota "Parakeelya" or "Munyeroo" is usually an annual plant appearing in dry areas after good rains on well drained sandy soils. The long, round leaves are very fleshy and form a cushion from which arise the slender stems to about 6 inches in height which carry the large showy cerise flowers. These are an inch or more across and have a satin texture which make them one of our most attractive succulents. Two other species *C. polyandra* and *C. balonensis* are similar but differ only in leaf shape. All are equally attractive as those who have seen them on the red sand dunes of Centralia will surely agree. A colour plate of *C. balonensis* appears in our last issue.

Carpobrotus equilaterale is a "Pigface" with large pink flowers which are very showy but only open in bright sunshine. The plant has a spreading habit and grows easily from cuttings. It comes from a wide area of dry and temperate Australia.

Disphyma australe is another "Pigface" which is rather rampant, but makes an excellent ground cover, and when its thousands of cerise pink flowers are seen open together it is a never to be forgotten sight. In very poor dry situations it becomes a tidy trailing plant useful for rock walls and banks. It withstands saline conditions very well.

Anacampseros australiana. This rare native is found only in the very dry stoney and rocky areas of inland Australia, sometimes amongst gibbers and sometimes on rocky hill slopes. It makes a small rosette of reddish brown leaves which come from underground tubers and bears insignificant flowers on short stems.

Not a showy plant but sought after by collectors. All other species of *Anacampseros* are found only in South Africa.

SUCCULENT PLANTS

NATIVE IN THE ALICE SPRINGS AREA

Part 2 of a series on "Wildflowers of Central Australia" by D. J. Nelson

The most notable of Central Australian succulents are the *Calandrinias*, known as "Parakeelyas," these have been dealt with previously so I will mention here some other succulents which have been used or are worthwhile trying in the garden. Attempts have been made to propagate some of these plants from cuttings but no success has occurred to date.

CHENOPODIACEAE

Arthrocnemum halocnemoides and *A. leiostachyum*. "Samphires". Perennials up to 3 feet tall with pencil thick, many jointed, very succulent, bright green leaves. They inhabit saline areas in the red sandy deserts being found on the edges of salt lakes and claypans.

Pachycornia tenuis is a "Samphire" with leaves similar to the former. It grows 18" tall, has a small white trunk and grows on slopes of stony sandstone hills.

Kochia triptera. A most attractive shrub attaining a height of 2 feet. It has thin linear blue-green succulent leaves. The fruit usually has 3 vertical wings, sometimes reddish, mainly green turning black on maturity. It is found in clayey loam low lying areas which are swampy in wet weather. Perennial.

Kochia aff. *spongiocarpa*. Somewhat resembles *K. triptera* but foliage not as dense, fruit larger, bell shaped, winged, green to dark with age. A very drought hardy perennial shrub, 15" tall growing on the slopes of red sandstone hills.

Babbagia dipterocarpa. A tiny perennial succulent 4" high with fine pale green leaves and small green winged fruit. Occurs on stony hillsides.

AIZOACEAE

Trianthema crystallina var. *clavata*. This might be useful in a rockery. It is a prostrate annual, red stemmed, with small green leaves. It is the hardiest of our annual succulents, plants of this are still to be found on sun-baked flats, still quite healthy in spite of our present devastating record drought. Occurs on sandy open flats throughout the year but probably at its best in Summer.

PORTULACACEAE

Portulaca oleracea. This quite common prostrate succulent is known in the centre as "Munyeroo." In spite of its familiarity in cooler weather, with extra watering "Munyeroo" will spread to 2 ft. in diameter and bear masses of pleasing bright yellow flowers over ¼" diameter. An annual, it will grow anywhere but is at its best in sandier soil. It has short, broad, very succulent leaves.

Portulaca filifolia. An erect annual with linear succulent leaves, grows about 9" tall and has yellow flowers over ½" in diameter, the stem is lightly golden hairy. Usually occurs in cooler weather after rain, in sandy areas. Readily raised from seed and grows rapidly.

CENTRALIAN BOTANICAL SERVICES, P.O. Box 371, Alice Springs for seed supplies and all botanical services, etc. Send stamped addressed envelope.

CASSIAS

PLANTS FOR GARDENS IN WARMER DISTRICTS

PART 1 OF A SERIES by F. Lullfitz

In recent trips to areas north of Perth, quite a few plants have been observed which should do well in gardens with a hot, dry summer.

Among some of the most notable are the Cassias. The ones we know and cultivate are introduced species and it is not to our credit that we have neglected our own Cassias which in various ways are equal or better for different treatments.

Cassia sophora growing in the wild at Wyndham is doing even better in cultivation at the Botanic Gardens in King's Park and is seeding well. It thrives on the improved conditions. *C. eremophila*, *C. artemisioides*, *C. pleurocarpa*, *C. chatelaineana* have been in cultivation successfully for quite some time. They have been clipped, pruned, fertilised and treated as hardy domestic plants. Why should this not apply to the others from similar conditions in the wild?

In the main Cassias are shrubs producing showy foliage soon after germination—suitable for pot plants too—and then in the first season they will be 12 inches or more and showing first flowers. They all have golden yellow flowers sometimes borne in terminal spikes and sometimes in clusters or axillary branches. Leaves are pinnate as in some *Grevilleas*, with the leaflets showing all variations in width from flat to slender.

C. artemisioides—Slender shrub 4'-6'.

C. chatelaineana—Slender shrub 3'-8'.

C. desolata—Leaflets broad and slightly crinkled, usually attractive grey-green, and perhaps this is where the name originates—desolate. However, quite desirable.

C. eremophila—Shrub 3'-5'. Fresh green leaves with lots of flowers in bunches all along the upper stems.

C. leursenii—Graceful shrub 2'-5'.

C. notabilis—Usually called "Cockroach Bush" owing to the enormous crop of golden yellow to dull brown, shiny seed pods it develops after flowering. Broad leaflets with contrasting green and yellow colours of foliage and stems. Fast growing.

C. oligophylla—Shrub about 4' thick and dense, producing a heavy crop of flat pods about 4" long which turn from green to brown as they ripen, giving a long season.

C. pleurocarpa—Shrub to 6', fairly dense, vigorous, fresh green foliage, black-hooded terminal bud spikes and large bunches of black, crisp pods.

C. pruinosa—A very delicate, slender shrub to 5' with flat leaflets almost silvery white and gold flower heads. A most striking plant.

C. sturtii—Shrub about 5', dense foliage.

C. venusta—Vigorous shrub 3'-8' with large divided leaves similar to the Cockroach Bush, very attractive foliage, and to make it way out in front of others, it has long, golden-hooded bud spikes which open into bunches of butter-yellow blossoms.

A Garden Near the Sea

by H. BELL

In September 1963, whilst living at Queenscliff, Victoria, I decided to plant a native garden. As the soil was alkaline, I built up a garden to a depth of two feet, using acid soil from the Otway Ranges. The location of this garden was 70 yards from the open sea, in what must surely be one of the stormiest climates on the Australian coast. During our stay, the wind blew almost constantly, and three 90 miles per hour gales were experienced. In spite of some shelter afforded by low dunes and a growth of *Leptospermum laevigatum*, our garden was subject to considerable salt spray and our windows were frequently caked with salt.

In these adverse conditions, some 40 plants of 32 species were put in. Some were my own seedlings, others were transplanted from the path of a Road's Board bulldozer, but the majority were obtained from Boddy's Nursery at Geelong. The subsequent performance of these plants proved a great surprise.

More than half of the species were completely successful, not so much as losing a leaf. These were *Oxylobium lanceolata*, *O. tricuspidatum*, *Calocephalus brownii*, *Thryptomene paynei*, *Pimelea ferruginea*, *Melaleuca micromera*, *Pelaregentum rodneyanum*, *Thomasia petalocalyx*, *Banksia ericifolia*, *B. marginata*, *B. baxteri*, *Acacia suaveolens*, *A. longifolia*, *Epacris impressa*, *E. longiflora*, *Correa reflexa*, *Hardenbergia monophylla*, *Kennedya prostrata*, *Hibbertia stricta*, *H. volubilis*, *Anigosanthos humilis*. Some examples of their progress in the 15 months are:-

- (a) *Oxylobium lanceolata*, 9 inches high when planted, 6 feet high and in full flower.
- (b) *Banksia ericifolia*, 6 inches high with one main stem and the start of four others, when planted—3 feet high with dense foliage.
- (c) *Hardenbergia monophylla*, 8 inches high when planted—3½ feet high and in dense flower six months after planting.

Several other species were badly salt-burnt after a heavy gale which came up soon after planting. However the consequent effect was that the shrubs grew very dense and in some cases semi-prostrate, which probably made them more resistant to salt-spray later on. These were *Acacia merrallii*, *Grevillea glabrata*, *Agonis flexuosa*, *Callistemon citrinus*.

Some smaller species, while suffering from the heavy weather, grew reasonably well later on. However, I would not consider them worth the trouble of growing in extreme conditions. These were *Hypocalymma angustifolia*, *Chorizema diversifolium*, *Dillwynia glaberrima* and *Platylobium obtusangulum*.

Finally, three species were absolute failures, shrivelling up at the touch of salt spray. These were *Baeckia diversifolium*, *Acacia discolor*, *Jasminum lineare*, *Banksia latifolia* and *Angophora cordifolia*.

Nothing was added to the soil and mulching consisted of 3 inches of ordinary ¾ inch blue metal. Although rainfall at Queenscliff is light (about 25 inches yearly), it is frequent. Accordingly the garden was not watered except at the few heat-wave occurrences.

Each issue has comprehensive articles on our native orchids, alternate issues dealing with terrestrial and epiphytal orchids. In this issue A. W. Dockrill reviews the genus *Eria* and describes for the first time, a new species. The cultivation of *Eria* in the Southern States is described by R. Deane at the end of this article. Unfortunately a suitable colour slide was not available for a colour plate.

The Genus *Eria* Lindl. in Australia

by A. W. DOCKRILL

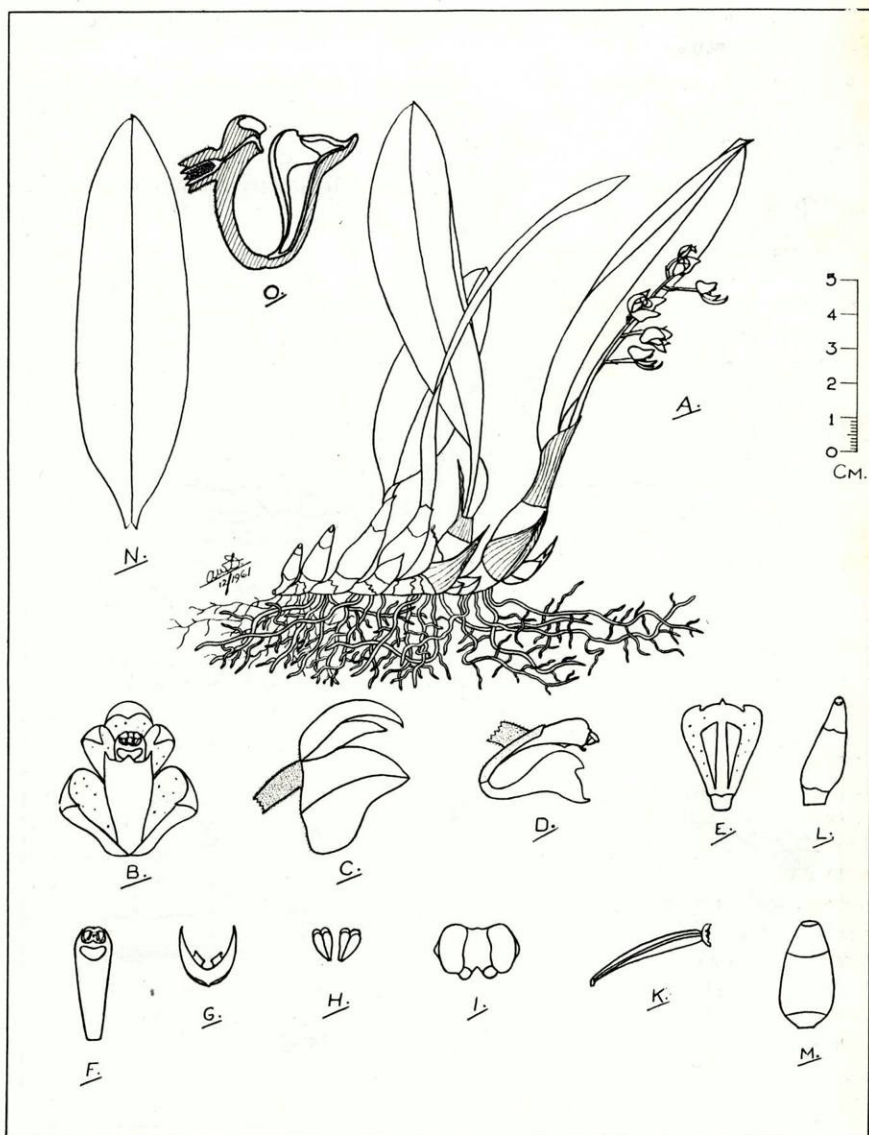
In this review, a new species, *E. intermedia*, will be described, and *E. linariiflora* Rupp. and *E. liparoides* T. E. Hunt reduced to synonyms of *E. inornata* T. E. Hunt.

The genus *Eria* is not very well represented in Australia and the 6 known species are confined to Eastern Tropical Queensland. The species are quite distinct and little difficulty is encountered in the identification of them once some of the peculiarities of the genus are understood. *Eria* is usually placed in the same subtribe (*Dendrobiinae*) as *Dendrobium*, but differs from that genus by having 8 pollinia rather than 4, the base of the labellum never forms, together with the column foot, a mentum, and (in Australia at least), the pseudobulbs are more fleshy and the leaves, for the size of the pseudobulb, comparatively longer. It should be stressed, however, that the labellum of each of the various species is remarkably variable in every feature and due consideration should be given to all other features of the flower and plant when attempting identifications.

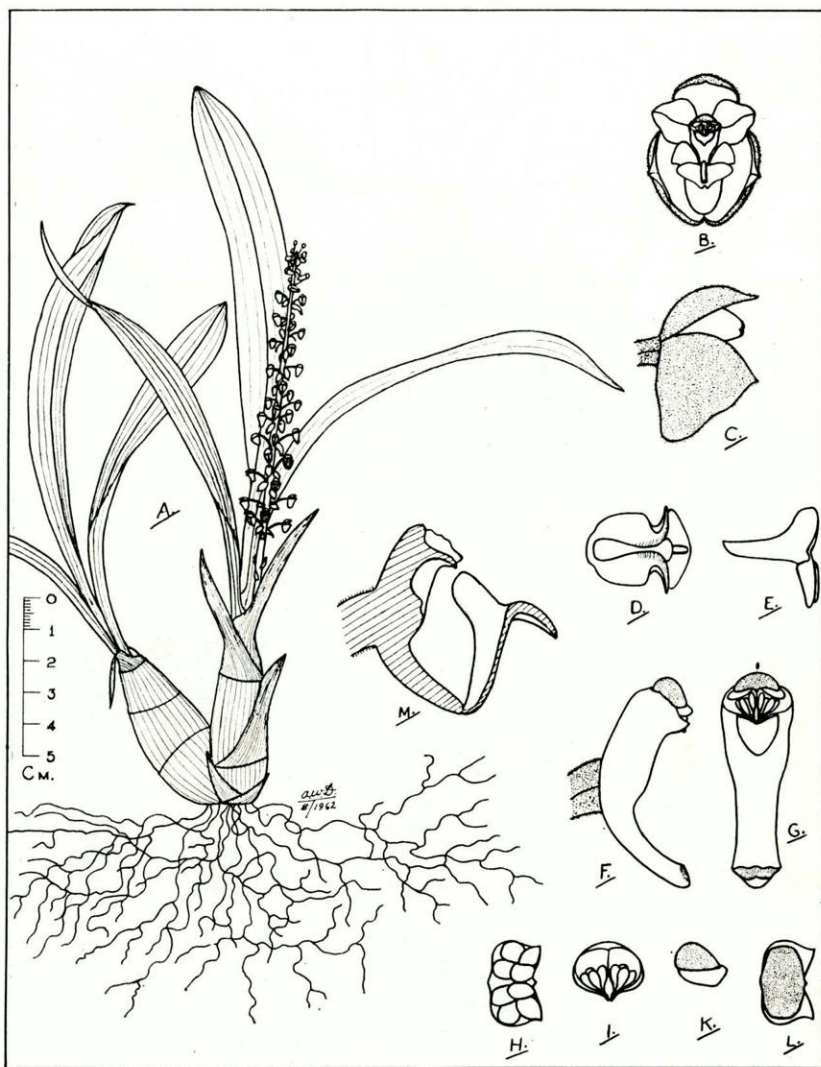
Comparatively little controversy has occurred over the various Australian species. *Podochilus australiensis* (F. M. Bail.) Schltr. was originally wrongfully placed in *Eria* and *E. eriaeoides* (F. M. Bail.) Rolfe was originally placed in *Dendrobium*. The descriptions of *E. irukandjiana* St. Cloud and its synonym *E. Johnsonii* T. E. Hunt were, unknown to the authors, with different publishers at the same time and the former happened to be the first published.

During the past 6 years, the present author has seen, over an area extending from the Tully River to the Bloomfield River, hundreds of flowering plants of but one species of large *Eria* which is not *E. Fitzalanii* F. von Muell. Considerable variation occurs within this species, but no more than what occurs within any of the other 5 species. In an endeavour to arrive at its correct diagnosis, a careful examination of type material of *E. linariifolia* Rupp. and of descriptions and illustrations of *E. inornata* T. E. Hunt and *E. liparoides* T. E. Hunt was carried out. It conformed quite well with Hunt's description and illustration of *E. liparoides*, but Rupp's species proved to be conspecific and Rupp must have mistaken the edges of the concave section of the labellum for keels. When consideration was given to the fact that Hunt's description and illustration of *E. inornata* were prepared, for the most part, from herbarium material, it immediately became apparent that this species was synonymous with the other 2. Since *E. inornata* T. E. Hunt was the first of the 3 to be published, this name should stand and *E. linariiflora* Rupp. and *E. liparoides* T. E. Hunt reduced to synonyms thereof.

Most of the species are readily cultivated when suitable conditions are provided, but none of them could be classed as showy and all of them occur almost entirely within the North Queensland Flora and Fauna Reserve from which the removal of plants is forbidden by law.

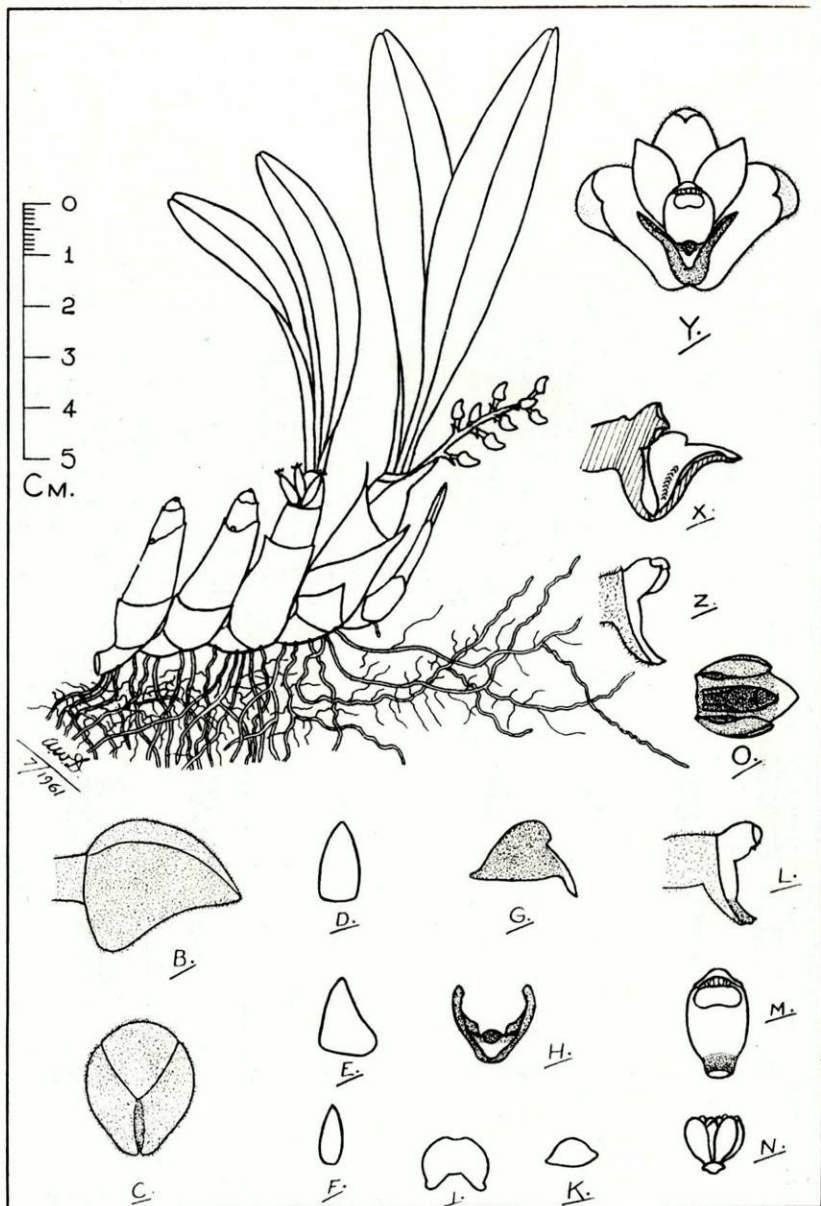
**ERIA INTERMEDIA DOCKR.**

- A. Plant . . . to indicate scale.
 B. Flower from the front . . . to scale x 5.
 C. Flower from the side . . . to scale x 5.
 D. Column and labellum from the side . . . to scale x 5.
 E. Labellum, lateral lobes flattened out . . . to scale x 5.
 F. Column from the front . . . to scale x 5.
 G. Labellum from the front . . . to scale x 5.
 H. Pollinia . . . to scale x 20.
 I. Anther from above . . . to scale x 20.
 K. Capsule . . . to indicated scale.
 L. Pseudobulb from the side . . . indicated scale.
 M. Pseudobulb from the front . . . indicated scale.
 N. Leaf flattened out . . . to indicated scale.
 O. Median longitudinal section of column and labellum . . . to scale x 7½.

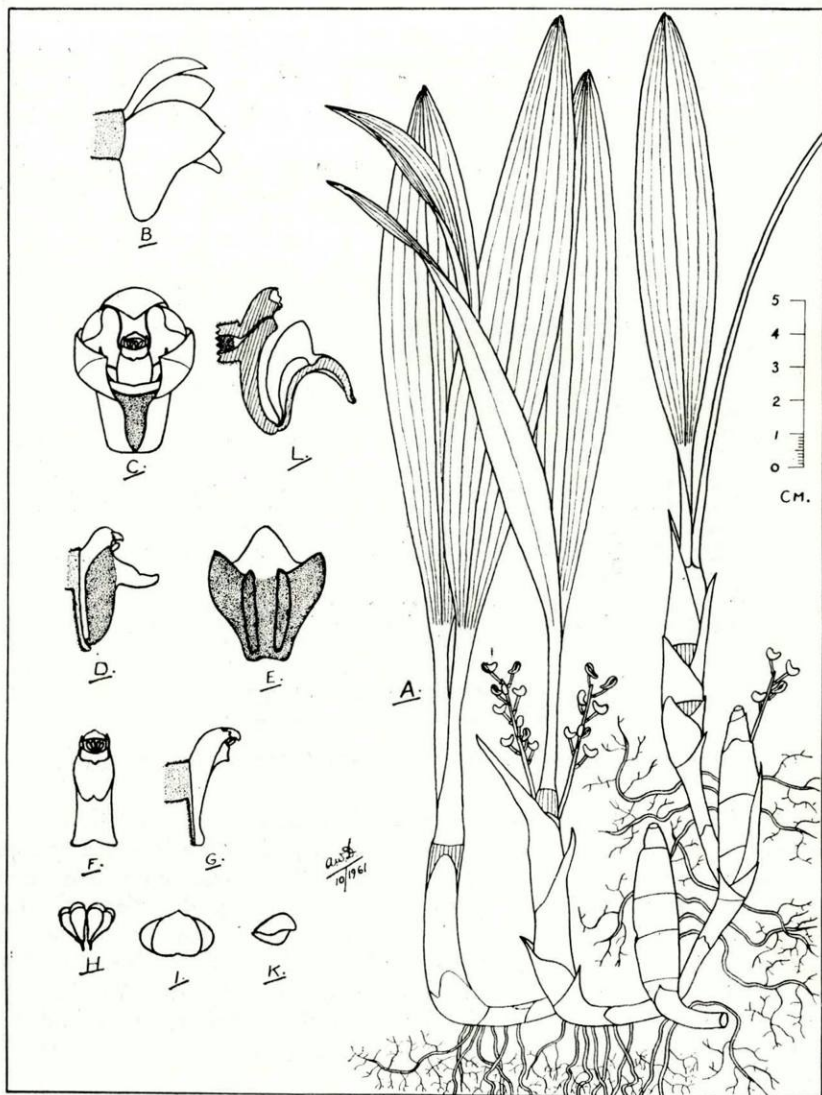


ERIA INORNATA T. E. Hunt

- A. Portion of plant . . . to $\frac{1}{2}$ scale.
 B. Flower from front . . . to scale x 5.
 C. Flower from side . . . to scale x 5.
 D. Labellum from above . . . to scale x 7.
 E. Labellum from side . . . to scale x 7.
 F. Column from side . . . to scale x 10.
 G. Column from front . . . to scale x 10.
 H. Anther from below . . . to scale x 20.
 I. Pollinia in situ in clinandrium . . . to scale x 20.
 K. Anther from the side . . . to scale x 20.
 L. Anther from above . . . to scale x 20.
 M. Longitudinal section of column and labellum . . . to scale x 10.

**ERIA QUEENSLANDICA T. E. Hunt**

- A. Portion of plant . . . to scale.
 B. Flower from the side . . . to scale x 10.
 C. Flower from the front . . . to scale x 10.
 D. Dorsal sepal . . . to scale x 5.
 E. Lateral sepal . . . to scale x 5.
 F. Petal . . . to scale x 5.
 G. Labellum from side . . . to scale x 10.
 H. Labellum from front . . . to scale x 10.
 I. Anther from above . . . to scale x 20.
 J. Anther from side . . . to scale x 20.
 K. Column from side . . . to scale x 10.
 L. Column from side . . . to scale x 10.
 M. Column from front . . . to scale x 10.
 N. Pollinia, greatly enlarged.
 O. Labellum from above . . . to scale x 10.
 X. Long. sect. of column and labellum . . . to scale x 10.
 Y. Widely opened (naturally) flower from the front . . . to scale x 10.
 Z. Column from the side . . . to scale x 10, after pollinia have contacted stigma.



ERIA ERIAEOIDES (F. M. Bail.) Rolfe

- A. Portion of plant . . . to scale.
 B. Flower from side . . . to scale x 10.
 C. Flower from front . . . to scale x 10.
 D. Column and labellum from side . . . to scale x 10.
 E. Labellum flattened out . . . to scale x 10.
 F. Column from front . . . to scale x 10.
 G. Column from side . . . to scale x 10.
 H. Pollinia . . . to scale x 20.
 I. Anther from above . . . to scale x 20.
 J. Anther from side . . . to scale x 20.
 K. Median longitudinal section of column and labellum . . . to scale x 10.

DWARF ACACIA (continued from page 104)

Acacia tayloriana is another dwarf shrub from W.A. It, too, has feathery, leathery leaves but it has ball flowers. It is covered with small hairs which give the shrub an unusual appearance.

Acacia pulchella is a small 3-4 ft. shrub. It has feathery leaves but these cover prickly spines along the branches. In W.A., it is sometimes referred to as "prickly moses." The only plants I have seen of this have been dense ground hugging plants that have done well in a variety of soils. It has a long flowering period in the springtime, when the large yellow balls cover the bush. In some cases it is short-lived, but it is also a rewarding garden specimen.

Acacia mitchellii is a small shrub from Victoria. It has bipinnate leaves and pubescent branches. The flower is on slender peduncles and in groups. In its natural state it is widespread though not common. The areas in which it is found are usually dry rocky or dry sandy soil. It forms a small open bush about 4 ft. high. It will grow in gardens where it has good drainage. In December last year I found plants with seed pods hanging and still blooming. The flowering period is usually in the spring.

Acacia spinescens, as mentioned earlier has dispensed with any forms of leaves at all. It is a small shrub to about 3 ft. and when not in flower we could well doubt that it was an acacia. It flowers in the spring when large yellow ball flowers appear along the stem and make it an attractive shrub. The only success in Melbourne seems to be in well-drained soil, but it is at home in the Mallee.

Acacia continua is another dwarf dry area shrub. It is unusual in that the phyllodes are curved and rather stiff. It will grow 2-3 ft. and has some of the largest ball flowers of any species. They are a golden yellow, and in the early spring transform the shrub from something that we may overlook to a shrub that is a focal point. Unless the plant has good drainage it is short lived in gardens.

Acacia lanigera is a species that has lasted well as a cut flower. Last year pieces were picked for indoor decoration. At the end of a fortnight it was still satisfactory and some fresh flower balls had come out too. It makes a shrub about 4 ft. and is at home in the dry well drained soils and puts on its show in the early spring.

A ground hugging, spreading, dense shrub is *Acacia glandulicarpa*. This plant looks very like *A. armata* but it lacks spine at the leaf axils.



Acacia pulchella

Turpentine as Street Trees

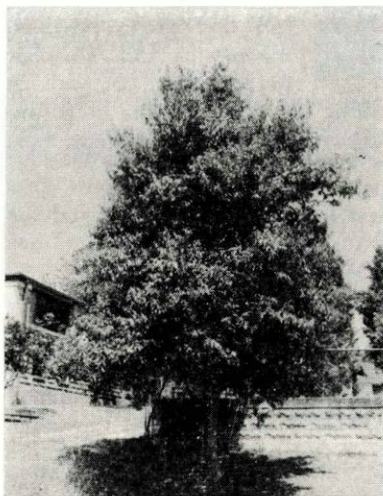
by G. H. HEWITT, Bellingen, N.S.W.

The turpentine trees would appear to be good street tree subjects at least for areas with similar climates to Bellingen, N.S.W.

Syncarpia hillii

This tree comes from Frazer Is., Queensland and is a large timber tree there. In Bellingen, N.S.W., it has grown freely and appears to be suitable for street planting. Cutting back will be necessary where overhead wires create a height limitation.

The leaves are a dark green above and silvery below, about 5" long and entire. An attractive feature is that aged leaves turn red and are held on the trees for some time before falling.



Syncarpia leptopetala



Syncarpia hillii

Syncarpia laurifolia

Similar in stature to *Syncarpia hillii*, the aged leaves of *S. laurifolia* turn an orange brown before falling. Flowers are white, in globular heads, freely produced and relished by bees. The trees are upright, conical and very pleasant to behold.

Syncarpia leptopetala

This is usually a small tree under natural conditions in coastal rain forests. The leaves are four inches long and entire but have a wavy margin. They are yellow green above and light brown below, giving the tree a yellowish green appearance which is quite pleasant. Flowers are creamy in globular heads and the stamens persist on the mature fruits. The tree flowers when quite young and often in containers.

This is a pleasant small tree, somewhat slow growing but quite trouble free. As it has a globular well branched head and does not aspire to great heights it should never require any cutting back.

MINIATURE GARDENS

Notes by the Editor

What is a miniature garden. My impression is that it is a rock garden on a small scale. The wildflowers that are ideal for such a garden are very numerous and to commence this subject a few such plants are presented in the certainty that there are some gardeners interested in miniature, often artistic creations.

One really tiny shrub from W.A. is *Thryptomene hymenomena*, scarcely more than four inches high, but rather spreading. New shoots in early summer radiate from the centre of the plant, each bearing a spike of pale shell-pink flowers, quite large for a *Thryptomene*, and of firm texture. Grown with two other beautiful little "dot" plants, the white form of *Baeckea ramosissima* and the beautiful deep velvety red of *Leschenaultia formosa* "Sundowner", with perhaps a small ground cover plant such as *Pultenaea pedunculata*, a most pleasing effect is produced over a long period, free of all maintenance.

This quotation from a leading nurseryman, describes a miniature garden. He goes on to warn that *Pultenaea pedunculata* will thrive only in soils with a goodly clay content, although permanent moisture in sandy soil will sometimes suffice for it to exist. *Thryptomene hymenomena* has proved remarkably hardy when not too hot. He mentions one of a number of smaller *Leschenaultias* that have been overshadowed but not outshone, by the well known, larger, blue *Leschenaultia biloba*. All are colour magic, red, orange and yellow.

A small *Boronia* of great potential for small gardens is *Boronia tenuis* of W.A. Less than a foot high, it is hardly a showy plant, but its pale lavender-blue flowers and sparse foliage produce a charming effect grown in close proximity to *Boronia nana* (Vic.), *B. filifolia* (Vic.) or *Boronia polygalifolia* of N.S.W. These and many other tiny *Boronia* such as *B. spathulata* which is prostrate, seldom if ever need cutting back, and make up for their tiny size and small flowers by a very long flowering period. My *Boronia filifolia* is rarely without a number of starry pink flowers at any time of the year. Without a doubt, the hardiest *Boronia* I have ever grown. It can be pruned to form a small bush to 9 inches or to become almost prostrate, the fine foliage blending into the background thrusting its flowers from behind other small plants.

Trigger Plants—The ideal plants for the miniature garden. Most are prostrate or small foliated up to only a few inches high. Flowers are dainty and numerous, red, pink, mauve, yellow or white, often on long stems nodding their superiority in the breeze as a challenge to the friendly insects to come and receive a pat on the back as reward.

Near many a mossy slope of the Victorian Grampians, dainty bright pink flowers seem to float in air on almost invisible stalks—*Stylidium calcaratum*, the fairy of the Grampians. It will be October. Come back on a sizzling day in January, follow a forest access road along the top of the sheer Mt. Difficult range above Halls Gap and there beside and between the wheels are cushions of hundreds of green rosettes. Over these, pink flowers, blushed to dark red, are crowded—*Stylidium soboliferum*, endemic to these ranges. Such reports are common from those who have stopped and looked at the massed beauty of these tiny plants. *Stylidium despectum*, a giant of two inches high also hugs the Grampians but many other species from the south and west of Australia are also tiny gems.

ISOPOGON AND PETROPHILA

PART 2 by D. Lewis, c/- P.O. Bindoon, W.A.

Both of the *Petrophila* described in this part are well worth growing. Both have been known to be quite large, 5-6ft., but in the areas I am now familiar with they are only small bushes and could be kept quite small in the garden.

Petrophila linearis

Petrophila linearis prefers the sandy soils. In Western Australia, the plants are scattered throughout the coastal plain from Jurien Bay south. There are a few in the lighter soils of the Darling Range and a few still survive on vacant land around Perth.

The plants are not large as a rule, 2 feet high and 2 feet wide, many being smaller, and a few growing to 3 ft. As with many other *Petrophila*, this plant also suckers from the top of the root. The sturdy branches are upright with thick undivided sickle or boggan shaped leaves.

Flowers are terminal and although the flowers are fluffy, the flower head looks rather like a pink chrysanthemum. The style is red with a yellow brush. In spring it is a pleasure to see the bushes flowering along the side of the Northern Highway.

Petrophila media

The natural habitat of *Petrophila media* is sand plain around Badgingaria and extending through to the coast. I have grown healthy plants in gravel. It is a small compact little bush. Those I have measured being no more than 2 feet high and wide.

The plants not only sucker from the top of the root but also from the ends of surface roots several feet away from the original plants. The stiff little leaves are like short pieces of fencing wire, not very attractive most of the year.

Flowering in November and early December with terminal flower heads, many bushes look like large daisies. Although there are not many flowers in each head, they spread out flat around the receptacle. The furry cream flowers are about an inch long and half as thick as a pencil. When the petals open they are brown on the inside. The orange style has quite a large brush.

Propagation

My methods are the same as for "Trigger Plants", see page 106. Seedlings from seed sown in a bowl of gravelly loam and others in a bucket of gravel with a surface of sand, have both remained healthy throughout the hot summer in spite of the fact that I had to use salty water sometimes. Where I had mixed the sand and gravel together the seedlings died. The soil tended to dry out quickly during the hot weather and this might have been the cause.

Editor's Note: Mrs. Lewis is leading a study group in *Isopogon* and *Petrophila*. Who else would like to grow them and receive free seed. Our next issue will feature *Isopogon latifolius* and *Isopogon cuneatus*. Who has had experience in growing these.

The following varieties are common all down our coast—*Pterostylis nutans*, *Pterostylis longifolia*, *Acianthus exsertus*, *Caladenia carnea*, *Glossodia major*, *Microtis parviflora*, *Thelymitra pauciflora*, *Thelymitra grandiflora*.

The following list covers all varieties that I have located on the coast since 1958, and are listed against their representative localities.

1. DETENTION—*Acianthus exsertus*, *Acianthus caudatus*, *Pterostylis nutans*, *Caladenia carnea*, *Thelymitra pauciflora*, *Thelymitra rupestris*, *Acianthus reniformis*, *Dipodanthus punctatum*.
2. ROCKY CAPE—*Acianthus reniformis*, *Acianthus exsertus*, *Acianthus caudatus*, *Corybus uugiculatus*, *Corybus acutatus*, *Eriochilus cucullatus*, *Thelymitra flexuosa*, *Thelymitra pauciflora*, *Thelymitra izioides*, *Thelymitra grandiflora*, *Thelymitra rubra*, *Thelymitra venosa*, *Pterostylis nutans*, *Pterostylis barbata*, *Pterostylis pedunculata*, *Pterostylis pedoglossa*, *Pterostylis longifolia*, *Diuris maculata*, *Diuris sulphurea*, *Calochilus campestris*, *Calochilus Robertsonii*, *Calochilus paludosus*, *Cryptostylis suvulata*, *Prasophyllum fuscum*, *Prasophyllum elatum*, *Microtis parviflora*, *Lyperanthus nigricans*, *Caladenia Patersonii*, *Caladenia diatata*, *Caladenia carnea*, *Caladenia menziesii*, *Glossodia major*, *Caladenia latifolia*, *Caladenia carneyi* var. *pygmaea*.
3. SISTERS CREEK—*Caladenia major*, *Thelymitra venosa*, *Gastrodia sesamoides*, *Pterostylis pedunculata*, *Calochilus paludosus*, *Pterostylis nutans*.
4. SOMERSET—*Acianthus exsertus*, *Acianthus reniformis*, *Acianthus caudatus*, *Corybus aconitiflorus*, *Pterostylis parviflora*, *Pterostylis vittata*, *Pterostylis nutans*, *Pterostylis longifolia*, *Chiloglottis gunnii*, *Chiloglottis reflexa*, *Thelymitra grandiflora*, *Thelymitra pauciflora*, *Microtis parviflora*, *Pterostylis pedunculata*, *Eriochilus cucullatus*, *Pterostylis aphylla*.
5. FERN GLADE, BURNIE—*Corybus aconitiflorus*, *Pterostylis pedunculata*, *Pterostylis nutans*, *Pterostylis longifolia*, *Caladenia carnea*, *Caladenia angustata*, *Microtis parviflora*, *Eriochilus cucullatus*, *Thelymitra pauciflora*, *Thelymitra izioides*, *Thelymitra grandiflora*, *aristata*, *Calochilus campestris*, *Gastrodia sesamoides*, *Acianthus exsertus*, *Acianthus caudatus*, *Chiloglottis reflexa*, *Caladenia cucullata*.
6. ROUND HILL, BURNIE—*Dipodanthus punctatum*, *Eriochilus cucullatus*, *Cryptostylis subulata*, *Pterostylis parviflora*, *Pterostylis longifolia*, *Acianthus reniformis*, *Caladenia major*, *Microtis parviflora*, *Acianthus exsertus*, *Acianthus caudatus*, *Caladenia carnea*, *Caladenia Patersonii*, *Glossodia major*, *Thelymitra grandiflora*, *Thelymitra izioides*, *Diuris maculata*, *Pterostylis nana*, *Corybus aconitiflorus*.
7. BLYTHE RIVER AREA—*Pterostylis longifolia*, *Pterostylis nutans*, *Corybus aconitiflorus*, *Pterostylis barbata*, *Pterostylis pedunculata*, *Caladenia carnea*, *Caladenia angustata*, *Glossodia major*, *Thelymitra grandiflora*, *Thelymitra pauciflora*, *Acianthus exsertus*.
8. MT. MONTGOMERY, PENGUIN—*Pterostylis nutans*, *Pterostylis longifolia*, *Pterostylis pedunculata*, *Calochilus campestris*, *Calochilus paludosus*, *Calochilus Robertsonii*, *Caladenia carnea*, *Caladenia angustata*, *Caladenia cucullata*, *Thelymitra pauciflora*, *Thelymitra izioides*, *Chiloglottis gunnii*.
9. BLACK BUFF—*Calochilus campestris*, *Caladenia alata*, *Thelymitra pauciflora*, *Thelymitra izioides*, *Thelymitra aristata*, *Pterostylis nutans*, *Caladenia carnea*.
10. LATROBE—*Microtis parviflora*.
11. DEEP CREEK—47½ mile peg from Launceston—*Pterostylis nutans*, *Microtis pauciflora*, *Prasophyllum australe*, *Diuris maculata*, *Caladenia carnea*, *Thelymitra izioides*, *Thelymitra pauciflora*.
12. STRAHAN—*Thelymitra izioides*, *Microtis parviflora*.
13. HELLS GATE, CAPE SORELL—*Spiranthes sinensis*, *Microtis parviflora*.
14. LAUNCESTON—*Diuris maculata*, *Calochilus campestris*.
15. CENTRAL HIGHLANDS—Lyell Highway Ht. 110 mile peg—*Prasophyllum fuscum*, *Thelymitra venosa*.
16. CRADLE MT.—*Eriochilus cucullatus*, *Townsonia viridis*.
17. HAMPSHIRE—*Pterostylis cucullata*.
18. TEWKESBURY—*Pterostylis pedunculata*, *Pterostylis alata*.
19. MT. ROLAND, SHEFFIELD—*Pterostylis alata*.
20. HELLYER GORGE—*Corybus dilatatus*.
21. ULVERSTONE—*Pterostylis longifolia*, *Pterostylis nutans*, *Corybus aconitiflorus*.
22. FORTH FALLS, WILMOT—*Pterostylis longifolia*, *Caladenia carnea*, *Glossodia major*, *Thelymitra izioides*, *Thelymitra aristata*, *Chiloglottis gunnii*, *Acianthus exsertus*.

NATIVE PLANTS — DISEASES — INSECTICIDES

USE OF INSECTICIDES & EFFECT ON BIRDS etc.

GARDENING TO ATTRACT BIRDS TO YOUR HOME

All the above are related. When I first started with natives I thought insects and plant maladies were a problem and sprayed often. Now I do not spray at all, except to treat my Kangaroo Paws.

Mr. R. Nash writes, "Do you ever get complaints from people about the damage caused to plants by some of the modern insecticides? Could you please ask any person who has this trouble to contact me (R. C. Nash, 77 Coromandel Parade, Blackwood, South Australia) as a group here is very interested in damage caused to plants and animals by insecticides."

Who will help this important study?

It is intended to have an issue dealing properly with each of the above subjects and any correspondence on them would assist considerably.—Editor.

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PROPAGATION OF LESCHENAULTIA

by Les Scott

The beautiful *Leschenaultia* is among the very easiest of natives to propagate.

Cuttings strike so well, that 2-3" pieces may be stuck in odd places around the garden, say against a rock. In any reasonable weather they will strike without any attention. Pieces may also be struck in substantial quantity in the glass house, or under a shady tree. Pieces from ½" to 4" long may be used.

Plants should be grown in light soil, built up fairly high. Do not water. A sunny spot is best but not essential. Plant red and blue species together for contrast.

THE BLUE LESCHENAULTIA

*The Perfect Rockery
Plant*

(See also the third paragraph on page 101)

Our last issue described a number of species and many forms that have been developed for spectacular garden cultivation.

They all make excellent rockery subjects. It is impossible to capture the true bright blue of *Leschenaultia biloba*.



FLANNEL FLOWERS

A NOTE ON *ACTINOTUS FORSYTHII* MAIDEN ET BETCHE by Colin Burgess

On page 64, Vol. 3 of *Australian Plants*, Mr. Blombery states that "this particular species is restricted to the Blue Mountains of N.S.W." For many years I had shared this view with Mr. Blombery; however, I find that in our Herbarium we have specimens collected in flower in February, 1950 and February, 1956 from the southern mountains between Nerriga and Sassafras on the Pigeon House Range. On the Blue Mountains this species is a summer flowerer, beginning in mid-December and continuing to February. The seed is ripe in April-May when the plants are nearly dead. When the cold winter westerlies blow, the now dead plants are snapped off at the roots and blown away, sometimes collecting in small mounds against rocks or shrubs. It is often a difficult species to raise from seed. The seed, however, seems to remain viable for a long time as the plant appears only sporadically in its natural environment, e.g. on Narrow Neck, Katoomba. Here it may be common in some years, rare in others and altogether absent in yet others. There appears to be some factor or factors unknown to us which govern germination, but, as Mr. Blombery says of the genus as a whole, one important factor is fire, followed, of course, by rain.

Editor's Note: Flannel Flowers were described fully in our last issue. They are also excellent as rockery plants but should be pinched back to form a more dense head and prevented from growing too high and leggy. The factor in seed germination could be their water imperious woolly coat that is damaged by fire. Scatter on sandy soil, light a fire over them and water and they will germinate freely.

GREVILLEA AT ONGERUP

by Ken Newby

The colour plate of *Grevillea macrostylis* in your No. 21 issue prompted me to report on a similar species from this area.

GREVILLEA TRIPARTITA MEISSN.

This species grows to 9ft. on sandplain country from the Pallinup River plains to the Fitzgerald River plains but rarely more than 30 miles from the coast (rainfall 14"-20"). Has an upright, open, untidy habit which is not fully appreciated until it comes into full flower. Flowers at its best from mid-August till the end of October but usually carries some flowers throughout the year. The leaves are rigid and prickly, which is the main drawback of so many *Grevilleas*. Although it flowers all the year round it only matures fertile seed early in November. An easy species to germinate from seed, it makes quick growth and should flower in about 18 months. Specimens grown locally from seed in granitic soil (rainfall 15") have reached 6ft. in 3 years without any care. Specimens grown in shallow subsoil in exposed positions may require staking.

Grevillea macrostylis F.v.M. has similar habit and flowers, and grows in the same type of soil but differs in the leaves and locality. It grows in an area between Ravensthorpe and Hopetoun. Leaf differences illustrated below.

Editor's Note: Refer to the note at the foot of page 134.

GREVILLEA FROM SEED

by G. H. MATTINGLEY

I use 4" x 3" squat plastic pots with four ¼" holes in the bottom filled with vermiculite "crumbs"—not in fine flakes. This is thoroughly wetted and firmed down. A little coarse sand is sprinkled on top and levelled off. The peeled seeds are sown on this and covered with a thin layer of coarse sand. Pots are placed out in the open, no glass, and watered once a day in normal weather.

When the young shoot is about ¼" long between the cotyledons, the roots will be down to the bottom of the pot. At this stage, I separate the young plants out in a bucket of water and pot them up in normal 4" pots, using Formula 20 to water them in.

Grevillea for Rockeries—

There are a number of low-growing species (and forms) that come to mind as being very suitable for this purpose, such as the following which range from prostrate to 2' 6" high.

Grevillea alpina: a prostrate and several low-growing forms to 2' 6" high. Bright red and yellow flowers. There is also an amber-coloured form that makes a nice rounded bush about 18" high.

G. aquifolium: prostrate form.

G. australis: semi-prostrate, slow-growing, clambers over rocks on top of Mt. Buller. Sweet scented white flowers.

G. brevicuspis: spreading plant, can be kept to 2' 6". Lacey bronzy foliage, white flowers.

G. Brownii: bright red and gold flowers.

G. confertifolia: low-growing, dense bush, wine-coloured flowers. Maranoa Gardens, Balwyn, have an excellent form.

G. ericifolia: 2', pink flowers.

G. fascicularis.

G. juniperina: prostrate form with lemon-yellow flowers.

G. juniperina trinervis: slow-growing, stiff prostrate foliage, many red flowers.

G. lavandulacea: a very good form with pendulous branches, grey foliage and clear red flowers is at the Maranoa Gardens. One of the best.

G. repens: prostrate.

G. rosmarinifolia: dwarf 2'. Masses of pink flowers, grey needle-like leaves.

G. stictolittina: 2'. shiny holly leaves, bronzy new growth, red flowers.

G. thelemanniana: very good, but I have been unable to establish it in my heavy clay soil.

There are several garden hybrids that should not be overlooked, such as Poorinda Ruby and Poorinda Joyce. Both these produce a wealth of flowers.

ROCK GARDENS — 1

by LES SCOTT, Castle Hill, N.S.W.

Plenty of good weathered rocks are essential, and a great deal of thought, imagination, arranging and rearranging is necessary to get a pleasing effect. No straight lines and of course, no cement showing. Beauty lies in the curve.

Do not dig the natural soil underneath, before starting the rockery as this can cause a bog in wet weather. The beds should be built up to perhaps 18 ins. to 2 feet deep in tiers. They should slope towards the middle to catch rain water. The rocks should also tend to slope inwards.

The filling soil would be friable yellow Hawkesbury loam. A few inches of coarse Nepean or Grose River sand spread over the rockery will do a lot of good. It holds water well during the occasional shower and helps to cut down evaporation. Hawkesbury material can be greasy, causing water to run off. With a few pockets of sand there should be very little that cannot be cultivated. Paths should be built up with the same material. Rain water will gravitate to the paths and roots of the plants will therefore go under the paths.

Natives suitable for a rockery are too numerous to mention, but should certainly include the best *Boronia*, *Leschenaultia*, Kangaroo Paws, Flannel Flowers, Christmas Bells, etc. It is a mistake to include the large *Grevillea*, mint bushes, etc., as these will grow quite well in any average soil and take up a lot of room in the rockery.

Most native rockery plants like some protection from direct sun, especially such plants as *Boronia* that like a cool root system. Specimen plants such as *Waratah* or *Banksia* with their rugged character are ideal for this purpose. Young plants should be kept moist, but once established, should be rarely watered—if at all if in an area of reasonable rainfall.

Small round gardens in the middle of the lawn should be avoided as they look artificial. A good rockery should look as though it has been there all the time—designed by nature.

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This book lists all the wildflowers indigenous to Western Australia, giving for each species, kind of plant, general size, flower colour, flowering months, localities of occurrence and type of soil and/or vegetative type. Illustrated with many full colour photographs and supplemented by articles such as "Planning, Making and Growing A Native Garden", "Notes on Growing W.A. Plants", "Recommended Subjects for the Beginner", "Propagation", etc. It is fantastic value. Available in late June, 1965.

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Cups". About 30' inside the stand of the tall plants was one plant bearing the flowers of the tall species—a rich pink—but having the stocky appearance of growth and the leaves of *P. peduncularis*.

The genus *Pileanthus* rates high among the ornamental shrubs of Western Australia. It germinates fairly readily from seed (which may not have a high fertility). It can be propagated vegetatively. All species come from fine, sandy, well-drained soils so it would be as well to treat them accordingly.

PILEANTHUS IN MELBOURNE by A. L. Hargrave

Pileanthus can be grown here but our experience is limited. A plant of *P. filifolius* flourishes in a Melbourne garden for some years. It is a beauty, much superior to *P. peduncularis*. It requires a full sun position with very good drainage and does best in a light soil. The factor that has limited our use of this plant is the difficulty in germinating the seed. My many attempts have failed.



Photography by A. Morrison.

PIMELEA ROSEA

A beautiful small plant for the rockery if not allowed to dry out. Our next issue will deal with the beautiful *Pimelea* plants that are so perfect for garden cultivation. Will readers please advise the editor of their experiences with these plants and send any colour slides that you have.—Editor.

but, while this plant will thrive in full sun, the flowers have much better colour when planted in the shade.

Stypantra and *Stylidium* species may be scattered around various sections of the rockery, both together and separated. They do prefer more moisture than other plants, but will exist satisfactorily without. *Actinotis helianthi* and *Actinotis minor* both seed themselves in to form delightful massed sections as well as scattered plants to support others. As they are virtually only two year plants they can be encouraged to regenerate themselves also by scattering their seed by hand.

Bauera rubioides, the river rose, in both the large and small flowered forms, is a most vigorous plant for the rockery, and I find that it will thrive in any position, but needs lots of space. Invariably it spreads out quite prostrate, even though it is propagated from the tall growing wild plants.

Brachycombe multifida and several other small members of the daisy family are very useful as colour relief in the off season, e.g. Autumn, when they, in common with *Crocea saligna*, will give a much needed lift to the foliage of the spring flowering plants. These two, have in common with the *Leschenaultias*, the property of being possibly the easiest of all Australian plants to propagate from cutting.

ROCK GARDENS — 3

THE USE OF IMPORTED OR MADE-UP SOILS FOR GROWING NATIVE ROCK GARDEN PLANTS IN ADELAIDE by I. G. Holliday

The natural soils of a large percentage of the Adelaide Plains, as well as most South Australian country towns, are alkaline, derived from a limestone origin. In Adelaide, in particular, these soils are often heavy clays, wet and unworkable in winter, but dry and cracked in summer.

In general, these soils are not easy soils in which to grow a great majority of the smaller rock garden plants of our bushland, particularly those which inhabit forest country or sand plain. Practically all of these plants prefer well drained acid soils.

An excellent way of overcoming this problem is to import or manufacture a soil to their liking, and to build up a rock garden or raised bed of this soil 2ft. to 3ft. above natural ground level. Sometimes only 12 inches of such soil is sufficient to give good results but increased soil depth is safer if practicable.

This can be achieved by mounding the soil to make a rock garden. The inclusion of rocks has the dual purpose of binding the soil and providing a cool root run for the plants, as well as an aesthetic attraction if the rocks are carefully chosen and arranged.

Another method is to simply build a stone or brick retaining wall and back fill with soil. This method can often be extremely effective around the footings of a building.

With regard to the soils used, we in Adelaide tend to think in terms of pure sand, mainly I suppose, because of our naturally heavy clays. In the writer's experience, the yellowish sand of the Tea Tree Gully-Orange Grove area has proved the best in spite of its appearance. The grey sands of parts of the Mt. Lofty Ranges seem to lack nutrients and growth is usually

Kunzea micromera 2'-3' is a small compact and formal shaped shrub with small dense foliage and bright deep red ball flowers.

Varieties of *Chamaelaucium uncinatum* "Grandiflora" 6-8' very large deep pink flowers and of weeping habit, and "University" deep red, flowering period at least 6 months, are two very good forms that have been introduced to the Eastern States during recent years, and make a show of flower that is outstanding. A white form "Alba" 6'-8', has flowers of pure creamy white—a very desirable plant.

DWARF ACACIAS

Small Wattles for the Rockery — Part 1 of a series by F. C. ROGERS

It is thought that when the acacias are thoroughly reviewed over 700 species will be listed in Australia; compare this with about 600 eucalypts. There is only one species *A. farnesiana*, which is found overseas and is not found in Australia. In Australian wattles the leaves may be simple or compound. In the compound types the leaves are made up of numerous leaflets which are arranged along the stalks of pinnae which are paired on the main leaf stalk. All overseas species have bipinnate leaves, and there are about 200 species in these other countries. Some Australian wattles have phyllodes. A phyllode is an adaption of the leaf stalk which behaves like a leaf for the plant. Australia has a monopoly of this type of *Acacia*. It is very interesting to note the variation of the phyllode. *A. spinescens* has none, the stem acts as a leaf, *A. diffusa* has very sharp spiny points, and *A. bancroftii* has large flat leaves. If possible, grow *A. pycnantha* from seed and watch the feathery leaves change to the phyllodinous type. It is worth the effort to watch one of nature's marvels, and it is confined to Australia, too.

In the more settled parts of the Eastern States many people remove the wattle because they claim that it produces hay-fever. I now quote some information from the National Herbarium, Royal Botanic Gardens. "Certainly some wattle pollens are known to irritate the eyes and noses of a few highly sensitive people. However, since the flowering season is brief, this trouble will soon pass. Wattles, in general, have been listed among the first 30 species of plants investigated for hay-fever and found to be positive by the Commonwealth Serum Laboratories, but in order of importance—20th on the list. They rank lower than a number of popular garden flowers (Poppy, sunflower, dahlia, cosmos etc.) which it would be unthinkable to exclude from garden culture."

Acacia drummondii is a small shrub from W.A. It is not long lived here, lasting five or more years but it is most attractive and we can replace it. It grows 3-4 ft. high and has the unusual combination of feathery leaves and rod-like flowers. It will grow readily in small drums or large pots and is happy to flower in these situations. If planted in full sun I feel it benefits from summer watering, but it may also be grown under cover of taller trees. It likes good drainage and is one of our most beautiful little shrubs.

Editor's Note: Few people realise the value of our tiny wattle trees in the garden. The front page of our last issue illustrates how one prostrate form will blend in with other plants in a rock garden.

TRIGGER PLANTS

From D. Lewis, c/- P.O. Bindoon, Western Australia

It is some time since the lovely "Trigger Plants", *Stylidium*, have been mentioned. ("Australian Plants" No. 10, March, 1963). They are such delightful little plants that I would like to add a few observations. They would be ideal for rockery gardens.

There are many species only growing a few inches high to form a carpet of rustling colour. The perfect plant for a rockery would be *Stylidium piliferum*.

S. piliferum is the mat plant that grows here. Thousands germinate in autumn and we have acres of them on the flattish area in heavy gravelly soil. Strangely they do not grow higher up where the tall ones do. Why? It's damper in the flatter areas. We had not had a fire there for 15 years. There is more frost on the flats.

The summers are very hot and dry and the plants look dead. A summer storm comes and about two (2) days later they green up and then go dry again. When the heat gets to about 75° and showers start they stay green and put a long pink root down. This is the best time to transplant. Cut the stem attaching small plants to the main root and poke them into the ground.

The gravel here is mostly about pea size with patches of red loam without gravel. Many triggers grow in this, some in association with *Daviesia* and *Dryandra*. A few grow in swamps and one in the yellow sand at Jurien. Some grow around granite but these usually grow elsewhere as well. Most triggers seem to need acid soils.

Germination

Remember that trigger seeds fall on the surface of hard soil and lay in a temperature of over 100° off and on during summer and germinate in autumn temperatures of about 75° followed by a winter rainfall of 25"-30".

I have not bothered much about special germination. I usually throw the dead flowers, seed stalks and all, among the rocks behind the house and they grow well. Those germinated in the bucket by just throwing these seeds, stalks, etc. have been *S. piliferum*, *S. scabridum* and *S. ripens*.

Container for Seed Germination—

I use buckets that are so old I have to wire on the bottoms. They are mostly one big hole at the bottom. Buckets are used as they preserve the moisture deep down when exposed to hot sun. During the summer they receive direct sun for a few hours of each day but when autumn comes they are moved to receive sun all day. They are always placed high on stumps or tank stands away from ground insects.

Watering—

In winter they are not watered but left in the rain. Water sinks further in a bucket or an old tin washup bowl allowing damp, not wet soil at the roots. Roots from Western Australian wildflowers go down deep in the soil, sometimes before the plant comes up. I keep the soil damp using about a pint of water a day in the summer, sometimes more in hot weather. As there is a good depth it does not matter if it gets dry on top between waterings.

Soil—

I put bush gravel (mostly pea sized gravel and a large grained soil) into the containers during winter. No manure. Seed is just scratched in.

Editor's Note: We have a Study Section for Trigger Plants for those who are keen to grow them.

Figure 1 shows a cross section through a typical electrically warmed propagating bed and indicates the cables laid in a bed of sand. Whilst it is also permissible to lay the cables direct in the soil they must never be laid in peat or fibrous material. When installing it is essential to lay the cables evenly and without twists, kinks, or sharp bends. Cables should not cross or touch one another.

AIR WARMING IN CLOSED FRAMES

Where combined soil and air heating is used in an outdoor propagating frame it is usual to allow sufficient heating to raise the temperature in the frame by 25-30°F. to achieve this 15-18 watts per square foot of glass area is required.

For a propagating box inside a greenhouse, however, it is normally only necessary to allow for a temperature rise of 20°F. requiring approximately 12 watts of air heating for each square foot of glass area. The cables should be fixed around the walls of the case or frame as shown in Figure 2, using porcelain cleats or nylon clips.

THE WARMING CABLES

Horticultural warming cables (Panelec) incorporate a metallic screen and are P.V.C. sheathed overall. The metallic screen gives additional mechanical protection, and when properly earthed, prevents danger from electric shock in the event of the cable being inadvertently damaged. The P.V.C. sheath is generally immune to attack by the chemicals normally met with in horticulture.

Two sizes are currently stocked. The smaller of 150 watts capacity is specifically designed for small amateur propagating beds. With a length of 75 feet plus a connecting lead to one end of 6 feet it will heat an area of 20 sq. ft. at 7½ watts per sq. ft. This allows a box size of 4ft. x 5ft. (Price £6/2/0). The large size, priced at £13/7/0, is 1000 watt and is 267ft. long heating an area of 133 sq. ft. at 7½ watts per sq. ft.

CONTROL

The correct temperature of the sand bed (60-65°F.) can be maintained by hand switching according to observation of a thermometer placed with its bulb in the sand beneath a box or pot. More accurate control is possible using a rod type thermostat also placed in the sand bed. Such automatic control is desirable for loads in excess of 2 watts per sq. ft. Control of air heating in a propagating box should be a rod type thermostat set at 55°F and mounted in the centre of the case away from the warming cables.

Prepared from information provided by Cablemakers (A.C.T.) Pty. Ltd., P.O. Box 22, Erskineville, who market the B.I.C.C. Panelec Horticultural Warming Cables and who will supply the cables at the prices quoted above.

PROPAGATION OF WILDFLOWERS

Each issue deals with this aspect. Previous issues have given details of very simple methods for beginners. This issue describes the germination of *Grevillea* on page 143, of Kangaroo Paw on page 132, Flannel Flower on page 141, Trigger Plants on page 106, *Bellendena* on page 105, *Isopogon* and *Petrophila* on page 135, and *Pileanthus* (or lack of it) on page 100. Propagation of *Leschenaultia* by cutting is described on page 141.

I try to keep away from the difficult plants to propagate? There is need for advanced research in propagation of certain difficult species and the above article is for the benefit of those who wish to try the more difficult species.

Crossing the continent, we find that *Tetrathecas* grow in greater profusion in the West than in the East. There, too, is found a unique family relative, *Platytheca*—unique in that there is only one species in the genus, *P. verticillata*. Its relationship to the *Tetrathecas* is obvious. It has the same drooping flower-heads and black eyes; but here, instead of the usual mauve colours, we find a *Lasiandra*-like purple-blue. The little leaves (bronze-green, soft, pin-like) are arranged in whorls around the stems, thus providing the specific name *verticillata*, 'in whorls'. The flowers, suspended on fine stalks and similar in habit to many *Tetrathecas*, lend a delicacy of balance to *Platytheca* that is almost fragile. In sunlight, the petals are spread widely, closing with the clouding of the sun. In West Australia, this small shrub (it is only about a foot in height) has the common and appropriate name, "Blue Mist." It was the colour of its flowers that first drew my attention to it in Dargan Hill Nursery of Mr. Nigel Quick at Glen Waverley, Victoria, and the fact that it was flowering in the off-season. A small plant brought back to Sydney and transferred to a prune tin has been in flower almost constantly.

Here, then, is a plant with strong claims to inclusion in the rockery garden or to being grown as a specimen potted plant. In this latter capacity it has proved itself over the last two years. It would be interesting to speculate on what a small colony of these plants would be like in a well-drained rock-garden. Well . . . perhaps a blue mist?

THE PLANT BODY (Part 2 by Helen Lee)

Each issue has an article on elementary Botany so that we may better understand our plants. The segment was not ready for this issue but the following paragraph was omitted at the end of the article in the last issue.

(b) Phloem.

The chief functional cell of the phloem is called a sieve-tube member. A vertical row of sieve-tube members forms a sieve tube. In the flowering plants each sieve-tube member is usually associated with one or more so-called companion cells. (See Fig. 7). The companion cells which retain a living protoplasm and nucleus, lie parallel and adjacent to the sieve-tube member which apparently has no nucleus although it retains its cytoplasm. Sieve-tube members have structures called sieve plates in their side or end walls. Groups of pores in a sieve plate are called sieve areas and the cytoplasm of adjacent cells is connected by strands passing through these pores. A substance called callose is gradually deposited on the sieve area and surrounds each strand of cytoplasm. When the sieve-tube members are mature the sieve areas are no longer thin places in the wall but have become raised cylinders due to the callose deposition. It is thought that the callose may eventually block the sieve plates and at this stage the sieve tube would no longer function as a food-conducting element.

EUCALYPTUS STUDY SECTION

Our purpose is to collate and share any useful information on the successful growing of EUCALYPTS in garden, street or park. From results reported by members we will endeavour, eventually to state conditions under which certain species are anticipated to grow well. Simple experimental projects are in hand. Enquiries c/- Editor.

Members have been very good in sending in carefully recorded data on their trees.

PHOTOGRAPHERS . . .

The wildflower season is just commencing. I need good colour slides on loan. The first family of plants to greet us is often the *Eparidaceae* and many will be in full colour now. I need good slides of every species of *Epacris*, *Styphelia*, *Sprengelia*, etc. in this family. Help me to give you an outstanding issue on our "Heath Plants."

I also need slides of *Boronia*, *Hibiscus*, *Patersonia*, *Thysanotus*, *Grevillea*, *Hakea*, *Cassia*, *Pultenaea*, *Ptilotus* & *Trichinium*.

Portulaca interterranea from the dry inland is a very showy annual with growth and foliage similar to the garden weed "Purslane" but with large yellow flowers one inch or more across. The petals have a satin appearance and a plant in full flower is very striking indeed. This lovely plant must have excellent drainage and a hot sunny position to really succeed.

A NATIVE SUCCULENT OR "PIG-FACE"



Photography by J. Glass

CARPOBROTUS EQUILATERALE (Haw.) J. M. Black

"This is the name which has been used for this plant. However Dr. S. T. Blake of Qld., is reviewing this genus and a change of name is likely"—R. D. Royce. R. Hill of the Botanic Gardens, Adelaide is of the opinion that it is *Disphyma australe* which is described in his article.

THE NATIVE SUCCULENTS OF AUSTRALIA

The succulents that are native to Australia are so little known and so rarely grown. Who will undertake to collect and grow these plants that would require so little attention and be so rewarding. Who can report on other species? We intend to do a further issue on these plants when Dr. Blake has completed his revision and in the meantime it is up to us to try and collect and grow as many as possible. The plants listed by Ron Hill belong to two closely related plant families and quoting from "Dictionary of Australian Plants Genera" by N. T. Burbidge, the Australian genera with the number of recorded species in brackets, are as follows:

AIZOACEAE—*Aizoon* (4-5), *Carpobrotus* (2-3), *Disphyma* (1), *Glinus* (3), *Lempranthus* (1), *Macarthuria* (2), *Mollugo* (2), *Neogunnia* (2), *Sarcozona* (1), *Sesuvium*, *Tetragonia* (4), *Trianthema* (12).

PORTULACAEAE—*Anacampseros* (1), *Calandrinia* (30), *Claytonia* (1), *Montia* (1), *Portulaca* (15), *Sedopsis* (1)—Editor.

Cassia in Central Queensland

by G. FOSTER, P.O. Box 34, Capella, Qld.

I have seven different *Cassias* growing in the garden. Six of them are growing in the district and have been brought into the garden as young plants or grown from seed. Two varieties of *C. eremophila*, one with one pair of leaflets, the other with two pairs of leaflets, are about 4' high. They are bushy shrubs with green foliage. Flowering season is August-September.

Two varieties of *C. artemisioides* (silver *Cassia*) are growing here, one with two pairs of leaflets, the other with four pairs of leaflets. I have seen another one with six pairs. This is another bushy shrub growing to about 4'. Flowering season is June-July-August.

C. costata is an upright shrub about 5' high. Starting from a seedling in open ground in August it had reached a height of 3' 6" and was flowering within seven months.

C. retusa another upright shrub growing to about 4-5' high is rather unusual. Brought in out of the scrub as a small plant it soon reached a height of over 3'. It was then cut back to make the main stem stronger, the new shoots produced flowers, and with selective cutting back and two good waterings it has been flowering for nine months.

C. sturtii an upright shrub, grows about 4' high.

All the above *Cassias* are quite hardy. I have noticed with the upright varieties that if they are cut back as soon as they have finished flowering, and watered if the weather is dry, they straight away put forth new shoots and have another lot of flowers.

C. brewsteri, a local *Cassia* grows to about 15' with hard looking dark green leaves. The flowers are quite different from the usual yellow flowers being in large sprays about 1' long and about 6" across. The pale pink calyx blending with the dark cream petals is most attractive. It has round seed pods about 6-8" long, about $\frac{3}{4}$ " thick and each seed is enclosed in a tough leathery jacket. A hardy tree.

C. laevigata grows well here as we are in a frost free area. This shrub responds well to hard cutting back after flowering.

C. pleurocarpa grew very fast but after flowering the borers very promptly killed it.

CASSIA ARTEMISIOIDES

by R. Nash, Blackwood, S.A.

I have had *Cassia artemisioides* growing in my garden for about 10 years now. It has flowers on it for almost every month of the year. During winter the blooming falls off but is at its best in spring and summer.

These plants normally are to be found in the dryer parts of South Australia. To help this plant of mine to survive the wet winters, I have made a special drain, running away from its roots. Now, as the roots are drier in winter, the plant does not die back as much in this period. I find it to be a slow grower, growing only a few inches a year in its first few years. The one adult plant I have is only about 3 ft. high and about the same in diameter in 10 years.

FROM THE EDITOR—An issue on *Cassia* is planned. Reports such as these are excellent and of great assistance to me. Will other readers follow suit and report on their experiences with *Cassia* in the garden or in the wild. I also need good colour slides.

Wildflowers for the Seaside

by A. L. HARGRAVE

Members who contemplate growing native plants near the coast, or those who have already planted them, are advised that it is essential to plant a good windbreak to protect the property and guard the foliage from the strong salt-laden winds. The windbreak should be made up of at least three rows—the main one being fairly dense, with medium sized trees in the middle row, and taller trees at the back. There are several species of shrub suitable for the main windbreak, two of which are *Leptospermum laevigatum* and *Melaleuca pubescens*. This hedge would need to be pruned regularly to prevent plants growing too high.

A seaside garden can be laid out to suit every taste and purpose, using for a foundation, trees and shrubs that will thrive and give permanent satisfaction. Despite opinions to the contrary there is an extremely wide range of plants for coastal gardens. The following list is grouped in order of height.

MEDIUM TREES—20'-30':

Acacia baileyana, *A. dealbata*, *A. pycnantha*, *Bursaria spinosa*, *Brachychiton populneus*, *Casuarina suberosa*, *Eucalyptus calophylla*, *E. ficifolia*, *E. viminalis*, *Geijera parviflora*, *Hakea flexilis*, *Melaleuca linariifolia*, *Tristania laurina*.

TALL SHRUBS AND SMALL TREES—10'-15':

Acacia armata, *A. longifolia*, *A. oxycedrus*, *Banksia ericifolia*, *B. integrifolia*, *B. marginata*, *B. spinulosa*, *Callistemon citrinus*, *C. rugulosus*, *C. speciosus*, *Eucalyptus forrestiana*, *E. lehmanni*, *E. nutans*, *E. preissiana*, *Hakea elliptica*, *H. gibbosa*, *H. laurina*, *H. multilineata*, *H. salicifolia*, *Melaleuca elliptica*, *M. hypericifolia*, *M. neglecta*, *M. nesophila*, *M. squarrosa*, *M. styphelioides*.

LOW TO MEDIUM SHRUBS—UP TO 8':

Albizia distachya, *Anigosanthos flavida*, *Cassia artemisioides*, *C. australis*, *C. eremophila*, *Calothamnus quadrifidus*, *Chamelacium axillare*, *C. megapetalum*, *C. uncinatum*, *Correa alba*, *C. backhousiana*, *Crowea dentata*, *C. exalata*, *Dodonaea viscosa*, *Darwinia citriodora*, *D. fascicularis*, *Epacris impressa*, *E. longiflora*, *Eriostemon myoporoides*, *Grevillea juniperina*, *G. lavandulacea*, *G. lanigera*, *G. trinervis*, *Hakea erinacea*, *H. kippistiana*, *H. leucoptera*, *H. rugosa*, *Hardenbergia violacea*, *Helichrysum apiculatum*, *H. axillaris*, *H. cinereum*, *Laurentia axillaris*, *Leschenaultia biloba*. Shrubby type species of *Melaleuca*. *Olearia teretifolia*, *Pimelea ferruginea*, *P. nivea*, *Templetonia retusa*, *Westringia rosmariniformis*.

GROUND COVER PLANTS:

Hemiandra pungens, *Kennedya prostrata*, *Lippia nodiflora*, *Myoporum debile*, *Pultenaea peduncularis*, *Rhagodia nutans*.

CLIMBERS:

Billardiera cymosa, *Hardenbergia comptoniana*, *Hibbertia scandens*, *Kennedya nigricans*, *K. rubicunda*, *Pandorea pandorana*, *Sollya fusiformis*.

Heights given are only approximate; the conditions under which a plant grows determine its size and height.

WILDFLOWER GARDENS

A major objective of this publication is to encourage you to grow Australian wildflowers in the garden. The following aspects may assist you.

SUITABLE CONDITIONS FOR A SUBURBAN WILDFLOWER GARDEN

Ideal conditions for other general garden subjects are also generally suitable for natives. The last issue, No. 22, deals with this aspect together with the garden preparation and care for those more fussy, harder to grow, but showy natives.

ROCKERIES—Throughout this issue.

GARDENS IN DRY AREAS

Our No. 12 issue was devoted to this aspect. The principal factors are optimum use of water, surface mulching of the soil and correct selection of plants. Each issue will carry an article on "Wildflowers of Central Australia" and "Plants for Gardens in Warmer Districts." Another issue devoted to "Dry Area Gardening" is planned so send comments.

GARDENS NEAR THE SEA

The following comments from Victorian growers, supplement the previous two articles. Will readers please add to this list.

- I. C. HAMMET: *H. elegans* (Lake Tyers), *Correa alba* and *Myoporum insulare* (both make good hedges), *Correa reflexa decumbens* (Anglesea), *Actinodium cunninghamii*, *Diplolaena* sp. (showy plants), *Cyathodes acerosa* (Cape Woolamai), *Kunzea baxteri* (growing well on islands off coast near Esperance, W.A.), *Bursaria spinosa* and *Banksia serrata* (Corner Inlet, the latter almost at sea level), *Leucopogon parviflorus* (shelter plant).
- J. ROS GARNET: Lilly-pillies on shore at Sealer's Cove, Eucalypts at Lorne, Blue gums at Wilson's Promontory.
- E. G. ERREY: *Calocephalus brownii*, *Myoporum viscosum*, *Hibbertias* (small) and beard Heaths.
- F. S. WRIGHT: *Acacia pycnantha* and *Casuarinas* (average small-sized garden).
- J. L. FREEMAN: In the Merimbula, N.S.W. area, anything would grow up to 400 yards behind the beach in spite of the salt-laden air, and the following grew successfully in the spray area—*Corea reflexa*, *Epacris* sp., *Hardenbergia* and native pelargoniums.
- G. ECHBERG: *Brachysema*, *Eutaxia*, *Chorizema* and *Melaleuca incana*.
- F. J. C. ROGERS: *Banksia brownii* (Frankston), also most of the rare banksias preferred sandy type of soils. *Dryandra polycephala*, *D. formosa*, *D. nobilis*, *D. floribunda*, *Kunzea baxteri* (1/2 mile from beach at Portland), *Eucalyptus stoatei*, *E. tetraptera* and *Melaleuca armillaris* (in heavy soil at Merricks).

GARDENS IN CLAY OR HEAVY SOIL AREAS—An issue is in preparation. Please send comments.

GARDENS IN TROPICAL AREAS—I have been completely frustrated in getting articles on this subject. Who will assist me by sending comments?

GARDENS IN DAMP SITUATIONS—An issue is in preparation, please send comments—Bay plants, Swamps lovers, Water absorbing plants—not bog but wet soak lovers, etc.

GARDENS IN HEAVY FROST AREAS—All reports to C. W. Frazer, 175 Marsh Street, Armidale, N.S.W.

YOUR GUIDE TO NATIVE PLANT SEEDSMEN

Nindethana, Box 5, Dripstone, N.S.W. For all Native Seed. Packets, ounce or pound lots. Free list on application. Special supplies of West Australian Seed.

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Western Wildlife Supply, Gilgandra, N.S.W.—Bulk supplies of natives and exotic tree and shrub seed to the trade—Special collections to order.

King's Park Seed Supply, King's Park, Perth, Western Australia—Seed list 1/6 post free, seed 3/- pkt.

A NEW SPECIES IS DESCRIBED by A. W. Dockrill

ERIA INTERMEDIA SPEC. NOV.

ERIA DISCHORENSI SCHLTR. AFFINIS, DIFFERT: MENTUM MAIOR; BASIS COLUMNAE TENUIS; ANTICUS LOBORUM LATI LABELLORUM NON BIFIDUS; 3 CALLI FRONTI LOBI LABELLUM ABSI.

HOLOTYPE:—Whitfield Range, North Queensland (A. W. Dockrill 26/12/1961—Herb. BRI).

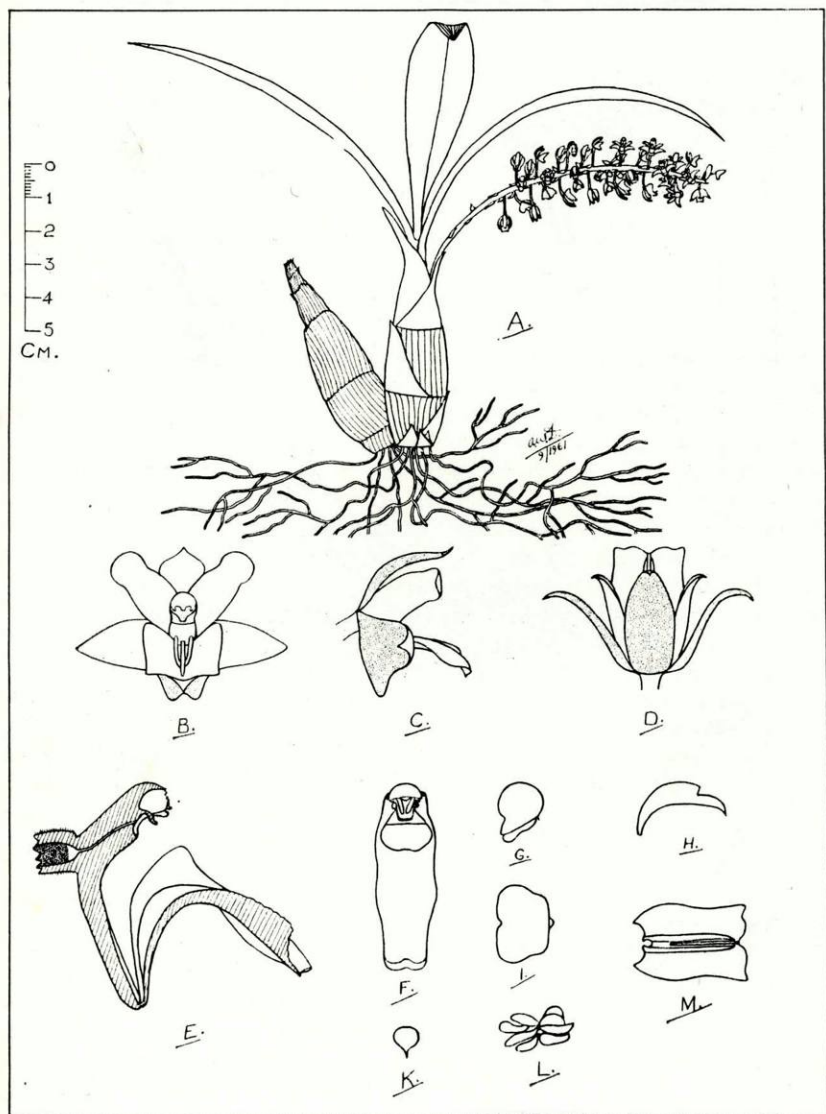
DISTRIBUTION:—So far, seen only in the type locality.

Plant epiphytic, of medium size for the genus. Rhizome about 3-4 mm. diam. Roots about 1 mm. diam., woolly, much branched, the branches thinner than the main root. Pseudobulbs 2.5-3.5 x 1.2-1.7 cm., ovoid, $\pm$ oval in cross section. Leaf solitary, 7.0-14.0 x 2.5-3.5, narrow ovate, thin, coriaceous, usually somewhat irregularly twisted and concave below. Inflorescence 6-7 cm. long, sheltered by the overhanging leaf. Pedicels + ovaries 8-12 x about 1 mm., tomentose, the hairs very short and of the same colour as the pedicels; bracts about 4 mm. long, sheathing. Flowers 4-8, rather large for the genus, not very widely expanding, glabrescent, $\pm$ translucent cream with a few, irregularly placed, red spots on the inside of the segments. Dorsal sepal about 6 x 3 mm., oblong-cucullate, ovate when flattened, acute, the apical point decurved. Lateral sepals about 6.5 x 5.0 mm., subdeltoïd, slightly falcate, ridged on the outside, margins incurved, joined at their bases to form a broad, truncate mentum. Petals about 4.5 x 2.0 mm., narrow-oblong, acute, curved. Labellum about 6 x 2 mm., about 6 x 5 mm. when flattened, trilobate; callus-plates of the disk 2, about half the length of the labellum and placed in the middle of it, narrow-triangular, broadest and raised at the anterior end; lateral lobes suberect, joined to the disc along its whole length, short, obliquely crescentic, highest near the apex of the disc, the free anterior ends very short, acute, when flattened, pointing to the apex of the mid-lobe; mid-lobe decurved, very short, thick, crescentic, apiculate, the apical point somewhat recurved. Column, including the foot, about 6.5 x 2.0 mm., white, gradually broadening from the apex of the foot to the height of the stigma and curved throughout its length. Stigma reniform. Rostellum an upcurved deltoid point in the centre of the anterior margin of the floor of the clinandrium. Anther about 1.2 x 0.7 mm., white, turning grey with age, very shallow, not prostrate, 4 celled, there are 2 large reniform swellings, one on each lateral extremity and 2 small sub-orbicular ones, one on each side, at the base. Pollinia more or less typical of those of the genus, 8 in 2 bundles of 2 pairs.

This species is readily distinguished from all other Australian species of the genus by having small pseudobulbs which are $\pm$ oval in cross section and a rather large solitary coriaceous leaf and large flowers which are irregularly red-spotted inside. The other Australian species with small pseudobulbs have very small flowers and the pseudobulbs are not oval in cross-section. The narrow-triangular calli of the labellum are, likewise, quite unlike those of any other Australian species, so also is the red-spotting on the segments.

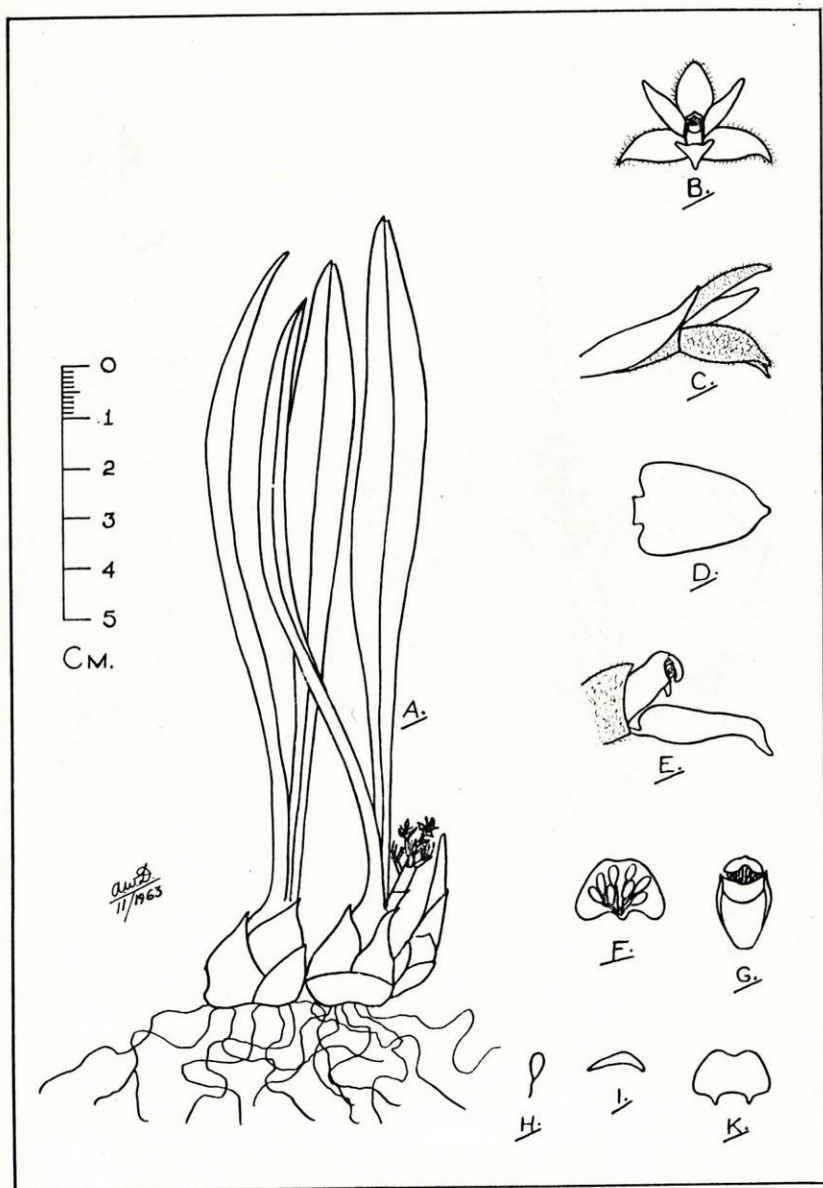
Perhaps its closest relative is *E. dischorensis* Schltr., but it differs from that species by having a much larger mentum, a column which is thin at the base rather than dilated, free ends of the lateral lobes of the labellum

(Continued on page 128)



ERIA FITZALANI F. v. Muell.

- A. Portion of plant . . . to $\frac{1}{2}$ scale.
 B. Flower from front . . . to scale x 5.
 C. Flower from side . . . to scale x 5.
 D. Flower from above . . . to scale x 5.
 E. Median longitudinal section of column and labellum . . . to scale x 10.
 F. Column from front . . . to scale x 10.
 G. Anther from side . . . to scale x 20.
 H. A variation of labellum . . . to scale x 5.
 (margins of mid-lobe incurved)
 I. Anther from above . . . to scale x 20.
 K. Pollinium from side . . . to scale x 20.
 L. Pollinia from above . . . to scale x 20.
 M. Labellum from above . . . to scale x 5.

**ERIA IRUKANDJIANA St. Cloud**

- A. Portion of plant . . . to scale x 2.
 B. Flower from front . . . to scale x 10.
 C. Flower from side . . . to scale x 10.
 D. Labellum from above . . . to scale x 20.
 E. Column and labellum from side . . . to scale x 20.
 F. Climandrium, showing pollina . . . to scale x 40.
 G. Column from front . . . to scale x 20.
 H. Pollinium . . . to scale x 50.
 I. Anther from side . . . to scale x 40.
 K. Anther from above . . . to scale x 40.

SUMMARY OF CHARACTERISTICS OF THE AUSTRALIAN SPECIES OF *ERIA*

Species	Dimensions of Pseudobulbs	Dimensions of Leaves	Average Length of Sepals	Spacing of Pseudobulbs along Rhizome	Length of Inflorescence	Labellum	Elevations at Which Found
ERIAEOIDES	4-8 x 0.9-1.4 cm.	10-20 x 2-3 cm.	3 mm.	Wide Apart	3-5 cm.	Lateral Lobes: Prominent, obliquely crescentic. Mid Lobe: Deflexed at 90 degrees, $\pm$ triangular, thick. Disc: With 2 parallel ridges.	Sea-level to 3,000 ft.
FITZALANI	8-15 x 2-5 cm.	10-30 x 2.5-4.0 cm.	7 mm.	Close Together	10-20 cm. (Semi- Pendulous)	Decurved about the middle. Lateral Lobes: Usually indistinct. Mid Lobe: $\pm$ square and $\pm$ truncate. Disc: With 3 ridges which extend practi- cally to apex of mid-lobe, but the central one does not extend to the base.	Sea-level to 3,000 ft.
INORNATA	8-20 x 2.5-5.0 cm.	20-35 x 2.5-4.0 cm.	7 mm.	Close Together	20-30 cm. (Rigidly Erect)	Lateral Lobes: Large erect from the front of the disc, longer than broad. Mid Lobe: Deflexed at a 90 degrees angle, $\pm$ triangular and with a central ridge. Disc: Without ridges.	Usually between 1,500 & 2,500 ft.
INTERMEDIA	2.5-3.5 x 1.2-1.7 cm.	7-14 x 2.5-3.5 cm.	6 mm.	Close Together	6-7 cm.	Lateral Lobes: Obliquely crescentic, free anterior ends acute and pointing to apex of mid-lobe when labellum is flattened. Mid Lobe: Decurved, short and thick, $\pm$ crescentic apiculate, the point some- what recurved. Disc: With 2 ridges which are about half the length of the labellum and placed in the middle of it, narrow-triangular, broadest and raised at the anterior end.	Sea-level to 3,000 ft.
IRUKANDJIANA	0.5-1.0 x 0.5-1.0 cm.	3-7 x 0.4-0.7 cm.	2 mm.	Close Together	0.7-1.0 cm.	Joined to the column by a short claw. Lateral Lobes: Indistinct but highest at the posterior end. Mid Lobe: Decurved very small, subacute. Disc: Without ridges.	Found so far only at about 2,000 ft.
QUEENSLANDICA	2.5-4.0 x 0.8-1.2 cm.	5-10 x 0.9-1.6 cm.	3 mm.	Close Together	1.0-3.5 cm.	Lateral Lobes: Large, obliquely crescentic. Mid Lobe: Decurved at about a 45 degree angle, $\pm$ deltoid. Disc: With a large, central, $\pm$ narrow- obovate ridge, the outer edges of which, especially in the posterior half, are raised; bases of the lateral lobes are also usually thickened and ridge-like.	Usually between 2,000 & 3,000 ft.

A NEW SPECIES IS DESCRIBED (continued from p. 120)

which are not bifid and the 3 calli, one on each lobe, at the apex of the labellum are lacking.

The new species appears to be well established in the area in which the holotype specimen was collected, at least 12 plants were seen in all stages of development from small seedlings to plants which had been flowering for many years.

The specific name refers to the small plant with large flowers, thus, fancifully, intermediate between the two main divisions of the Australian species.

EXCLUDED SPECIES

- Eria Australiensis* F. M. Ball., Occas. pap. Qld. Flor. 1: (1886); & Qld. Flor. 5: 1541 (1902).
 = *Podochilus Australiensis* (F. M. Ball.) Schltr., Fedd. Repert. (Nov. Spec. 3) 316 (1907).
E. Johnsonii T. E. Hunt, Muelleria 1:21 (Feb. 1956)
 = *E. irukandiana* St. Cloud.
E. linartiflora Rupp., Aust. Orch. Rev. 18, Pt. 2: 67 and Figured 63 (June, 1953).
 = *E. inornata* T. E. Hunt.
E. liparoides T. E. Hunt, Qld. Nat. 15, pts. 1-2: 33 (Sept., 1954).
 = *E. inornata* T. E. Hunt.

LIST OF AUSTRALIAN SPECIES OF ERIA

- Eria eriaeoides* (F. M. Ball.) Rolfe, Orch. Rev. 17: 95 (1909); Rupp. Proc. Linn. Soc. N.S.W. 72: 234 (1948); Fitzg., Ined. 41.
 Syn.: *Dendrobium eriaeoides* F. M. Ball., Sec. Suppl. Syn. Qld. Flor. 56 (1880); & Qld. Flor. 5: 1535 (1902); Krm., Pflanz. 249 (1910).
E. fitzalanii F. v. Muell., South Sci. Rec. 2: 252; F. M. Ball., Qld. Flor. 5: 1541 (1902); & Fie. in Comp. Cat. Qld. Pits. 528 (1909).
E. inornata T. E. Hunt, Orch. Journ. 1, pt. 4: 190-1, Fig. 142 (April, 1952).
 Syn.: *E. linartiflora* Rupp., Aust. Orch. Rev. 18, pt. 2: 67 & Fig. p. 63. (June, 1953).
E. liparoides T. E. Hunt, Qld. Nat. 15, Nos. 1-2: 33 (Sept. 1954).
E. intermedia Dockr., Spec. Nov.
E. irukandiana St. Cloud, Nth. Qld. Nat. 23, No. III:1 (May 1955).
 Syn.: *E. Johnsonii* T. E. Hunt, Muelleria 1: 21 (Feb. 1956).
E. queenslandica T. E. Hunt, Nth. Qld. Nat. 15, No. 85: 14 (Dec. 1947).

ERIA SPECIES

THEIR CULTIVATION IN THE SOUTHERN STATES by R. Deane

All *Erias* require a heated glasshouse during the colder part of the year in most Sydney suburbs and particularly so in the Western Suburbs. *E. eriaeoides* and *E. queenslandica* both do well mounted on a small piece of tree fern fibre and hung in the bushhouse during the warm weather. They should be watered copiously during the growing period. As the weather cools they should be transferred to the glasshouse for the winter. During this period water should only be given sparingly. On the other hand *E. fitzalanii* will not tolerate tree fern fibre and we have had best results growing it in Fir Bark in a plastic pot. These plants are kept in the glasshouse all the time.

Growing in the fir bark, the plants are fertilised weekly with an inorganic soluble fertiliser. They also do better with a little more shade than most of our epiphytic orchids and I have found that they do well with the light intensity normally used for cypripediums.

DEANE'S ORCHID NURSERY

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It is hardy in many soils and is attractive and a dense cover plant for the rockery.

THE ROCK GARDEN

All the plants mentioned so far are ideal rockery plants because here we build up the soil and give the plants good drainage. Perhaps here is a good opportunity to give something for us to think about. When we build our rockery make sure we bury our stone well, i.e. use big stones and put as much under the ground as possible. There is good reason for this. If put well embedded in the ground, the stone will heat slowly in the hot sun. During the night it will then still be warm and will disperse its warmth slowly into the surrounding soil and atmosphere. There could be intense heat reflection from stones placed on the surface. These also prevent the soil from heating.

Acacia aculeatissima is another rockery plant as it grows in the drier soils in Victoria where it makes a small to large spreading shrub up to 2 to 3 ft. diameter. The phyllodes are small, thin, pointed and usually slope back down the stem. It is widespread and there is much variation in the size of plants. It is late spring flowering.

Acacia farinosa is another ground hugging plant. Near Horsham, Vic., it grows in heavy soil that is waterlogged in winter. In gardens it will grow in almost any soil.

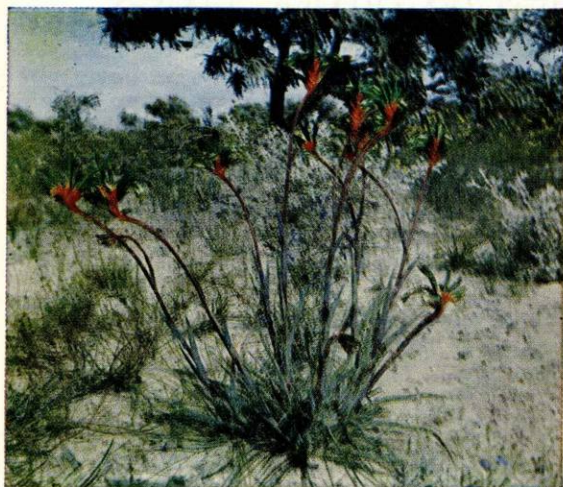
Acacia colletioides is a Flinders Range, S.A. and other dry area shrub. It likes stony rocky soil where it forms a small shrub 3-4 ft. The foliage is round, prickly and spiky, and looks uninteresting; but when spring comes we have a flowering period worthy of its common name "Wait-a-while."

Acacia inophloia is one destined to become popular as a garden species. It is from W.A. but in the gardens here has made a slender shrub to about 6 ft. The leaves are long, thin and very sticky. The flowers are long rod-like. The only times I have picked it, the branches have lasted well and the flower has continued to come out. The young growth has an attractive bronze colour.

A very dwarf, showy acacia is *Acacia brownii*. It is a hardy dwarf growing little higher than a foot, but may spread a little. It has hard stiff flat phyllodes at all angles along the stem and flower balls on slender stalks, one to each.

Before we leave the smaller acacias, I must mention *Acacia alata*—the 'Winged acacia' from W.A. The stem has a flattened piece along it. It makes a shrub to about 3 ft. It does better in a shady spot and plants that haven't been doing well or which have appeared to be dying have been given some crushed limestone on the surface around them. Perhaps it has only been co-incidence that they have recovered. Other readers may care to comment.

While omitting some worthy species these could be a start to that rock garden, and you may be the one to tell us later of some of the other species.



KANGAROO PAWS

(*Anigosanthos*)

FOR THE ROCK GARDEN

The Kangaroo Paws are the perfect plant for the rock garden. From the small "Cat's Paw", *A. humilis* and the similar *A. preisii* to the larger paws such as the world famous red and green paw, *A. manglesii*. And so easy to propagate as well. A

packet of *A. manglesii* seed sown in a 4" plastic pot of vermiculite or coarse sand will produce 40 plants quickly and easily. For best effect treat them as annuals or biannuals.

MORE ROCK GARDENS — 4

ROCK GARDENS FOR MELBOURNE

Rock is hard to get, and heavy, but slate (which must be laid to recreate natural strata to look effective), granite (which is excellent), sandstone and to a lesser extent, local schists, quartzites, and even mudstone (which is hard to place effectively), can all be used effectively. Quartz is a bit "glary" in summer, and does not hold moisture well, but is otherwise very suitable. A "wash" of blood and bone in water will quickly produce a mossy pattern on any rock, a useful "maturer."

Unfortunately too many Melbourne gardeners tend to regard a rock garden as a dry escapement of rock and soil and do not tend and water it as they do other gardens. Intelligent care and nutrition of soil will produce a very pleasing effect.

ROCKERIES IN TASMANIA from M. Simmons, Launceston

A number of Tasmanian plants have proved ideal for rockeries. The prostrate *Pimelea filiformis* tends to run over an area of approximately 2 feet. It has very fine foliage, with white flowers on a red background.

Pulkenaea hibernioides which is also found in Victoria, is bright yellow and grows 1'-1'6". It is very compact in shape.

Important Notice . . .

The publication *Descriptive Catalogue of West Australian Plants* has been delayed because of the unflagging efforts of Mr. C. A. Gardner in making sure that it is up to date and the most complete publication on the West Australian Flora ever produced. We shall be deeply indebted to Dr. J. S. Beard, Mr. C. A. Gardner, and many others in W.A. for their fine effort. It is now with the printer and will be another 4-6 weeks. As this book is included in Volume No. 2, these have not been bound yet. Please give me another 6 weeks.—Editor.

Intricate beauty in miniature. What else but the fascinating sundews. Our fascination is a journey in beauty and wonder, far different from the reward to much smaller creatures. *Drosera* and other insect devouring plants are ideal miniature garden subjects.

Other tiny beauties I have grown include a pink "pussytail", *Ptilotus*, a large yellow pea flower on a tiny leafless *Isotropis*, small *Gompholobium* and the lovely *Hybanthus*. The family Liliaceae has many small plants such as *Burchardia*, *Sowerbaea*, *Stypandra* and the beautiful fringed violets, *Thysanotus*.

Others that come to mind, all perfectly hardy in sunny spots are:—*Kunzea parviflora* "Compacta" 8"-12"—A miniature in lavender of the typical form.

Calocephalus brownii "White Dwarf"—Compact, tidy, very silvery.

Scleranthus biflorus (Alpine Moss)—A green "vegetable boulder" almost hard enough to step on.

Jasminum suavissimum—Usually a light climber it easily prunes to a small shrub and several times a year is covered with white flowers, deliciously and strongly (for stronger than any of the introduced species) scented of carnation. It will scent the entire garden.

Please send in species to add to the list.

Who is interested in miniature gardens? Replies to the Editor.

WILDFLOWER STUDY SECTION

A number of readers with a common interest form a study section. They correspond, compare notes and experiences and exchange seed and plants. Research and development experiments are devised on request for those who wish to do such work at home. Contact with growers from all parts of Australia is by mail and represents the only expenditure involved. The objective of the sections is to provide a link and interest for gardeners of common interest but also to find out how a particular genus of plants will grow in the garden, record results and develop better forms.

To join, send a stamped addressed envelope to the Editor and nominate your own interest. Study Sections already exist for *Acacia*, *Anigosanthus*, *Banksia*, *Blandfordia*, *Roronia*, *Cassia*, *Correa*, *Dampiera*, *Dryandra*, *Eriostemon*, *Eucalyptus*, *Isopogon*, *Lentospermum*, *Melaleuca*, *Nuytsia*, Orchids-Terrestrial, Orchids-Epiphytal, *Petrophila*, *Stylidium*, *Telonea*, etc. Special groups also exist to examine certain aspects such as Photography, Propagation, Street Trees, Natives For Sea Side Planting, Frost-Hardy Natives, etc.

STUDY SECTION ON CARNIVOROUS PLANTS

Mr. M. C. Russell, 41 Lusk Drive Vermont, Victoria, will lead a Study Section on our Carnivorous Plants. He advises that the known Australian carnivorous plants belong to the genera—*Aldrouanda* (1), *Byblis* (2), *Cenhalotus* (1) (so the last two were featured in our No. 8 issue with colour plates), *Drosera* (60-70), *Nepenthes* (1-11), *Polypompholya* (2) and *Utricularia* (37). These amazing, often beautiful and intricate plants can become an absorbing interest and very little space is needed to grow them. Who will join with Mr. Russell in this absorbing interest?

STUDY SECTION ON EPACRIDACEAE

Mrs. C. A. Robertson, of Leonard Road, Kilsyth, Victoria is forming a Study Section on these beautiful plants so suitable for gardens. Who will join it with her? Known widely as heaths there are many very beautiful easily grown plants. Propagation is the problem but this can be overcome.

NUYTSIA STUDY SECTION

Mr. D. Hanna, 134 Bav Street, Rockdale, N.S.W. advises he has adequate quantities of seed for anyone who will send a stamped addressed envelope.

SIMILAR GREVILLEA

A note from A. S. George, Dept. of Agriculture, Perth, W.A., following publication of colour plates in our No. 21 issue of *Grevillea patentiloba* and *G. macrostylis*. See also the article on page 143

G. tripartita and *G. macrostylis* are erect shrubs up to 3 m. tall; *G. tripartita* has leaves divided into 3 linear lobes, while *G. macrostylis* has rhomboid-cuneate leaves with deltoid lobes. The flowers of both are in short axillary racemes, the perianth 1-1.5 cm. long, and the style 4-5 cm. The fruit has a prominent ridge on each side.

G. patentiloba is a spreading shrub up to 1 m. tall, leaves bipinnatifid with divaricate, linear lobes; flowers usually in racemes arranged on leafless branchlets, the perianth 7-8 mm. long, the style 1.5-2 cm., fruit smooth.

The Native Orchids from North Western Tasmania

by B. J. DUDMAN

In Australia we have approximately 660 species; and of this total, Tasmania has about 130. With the exception of two, *Dendrobium striolatum* found only on the East Coast, and *Sarcochilus australis* found in rain forests near the coasts, all our orchids are terrestrials.

Along our North West Coast of Tasmania there are orchids in bloom throughout the year with majority blooming in the Spring months. Rocky Cape area is one of the best areas, and has about 40 varieties to be found growing amongst the heath in sandy and rocky soil. The *Acianthus*, *Corybus* and *Pterostylis* prefer the sheltered eastern side, and grow beneath the trees in rich leaf mould. The *Thelymitra*, *Caladenia*, *Glossodia*, *Calochilus* prefer the more exposed flat areas, and are well camouflaged amongst the heath scrub and are all very common. At the top of the hills, *Lyperanthus Nigricans* form a near carpet of leaves, and the season following a bush fire are a mass of blooms making a spectacular show. *Caladenia latifolia* can be found in this area very close to the sea but it is not common. Moving a couple of miles in an easterly direction along the coast at Sisters Creek, several patches of the quaint Duck Orchid (*Caleana major*) grow, also *Gastrodia sesamoides* makes a show with its clumps carrying numerous spikes of glistening brown and white blooms. The attractive spikes of *Dipodium punctatum* can also be found along this area, as well as being scattered all along the coast.

Around the Burnie area many varieties grow but each year their numbers are being reduced by building expansion and land cultivation. For instance an area of robust *Thelymitra grandiflora* some up to 4 ft. in height and carrying up to 65 1¼" blooms, in colours ranging from shades of blues, mauve some pinks and the occasional white. These have almost disappeared and this location is now a golf course. On Round Hill, *Pterostylis nana* and *Thelymitra ixioides* are very common. A large area of *Cryptostylis subulata* grow happily under the broken shade of Eucalyptus trees, in clay soil with very little other low vegetation offering shelter for them, on the slopes of the hill. In the Fern Glade reserve on the banks of the Emu River, an interesting item is an increasing colony of *Pterostylis pedunculata* growing in the manferns near their top. Also in this reserve can be found many *Pterostylis nutans*, *Pterostylis longifolia* and *Caladenia carnea*.

Along the coast, 11 miles to Penguin and inland to Mt. Montgomery, there is a varied selection growing on the slopes. *Calochilus campestris*, *Calochilus Robertsonii* and *Calochilus paludosus* are scattered in the sandy soil at the base of the mountain. *Caladenia carnea*, *Caladenia cucullata* and *Caladenia angustata* add colour all up the sides, and on the top *Chiloglottis gunnii* is growing in large patches in sheltered areas.

An interesting find was *Spiranthes sinensis* growing in sand, under bracken fern near the sea, on the track from Hells Gate to the Cape Sorell Lighthouse on Tasmania's rugged West Coast. This has attractive small blooms of waxy pink petals with a prominent white labellum. Finding orchids surviving in the Central Highlands out on the open plains and some in damp shaded gullies shows their range is great in our State.

F. C. PAYNE

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Rhododendron Lochae in Melbourne

by W. N. B. QUICK

Rhododendron lochae has been grown by myself in Melbourne for the last six years, flowering in February each year, but also September-October 1960. I have never had a plant flourish when grown in garden soil, but in a pot using a compost similar to that used for Cymbidium orchids with a little peaty soil added, and due attention to adequate drainage, the story is very different. A soft fern fibre with just a little coarsely gritty granite soil is also excellent for containers.

The species withstands badly-lit situations well, not becoming drawn as most terrestrial species have a habit of doing under these conditions. Leaves do, in fact, burn easily in almost any sunlight. Good shelter from wind, particularly North and West winds, seems desirable if not perhaps essential, and the plant will thrive under quite dank conditions. I have never had to move a plant to a warmer situation for the winter.

Altogether, *Rh. lochae* seems remarkably tenacious of life, but there can be no doubt that it benefits greatly by at least one good watering with half-strength Aquasol in spring and autumn as new growth commences, and adequate waterings through the heat of summer. The root-system is small, and with due regard to prevention of drying out in summer, a good sized specimen can be grown in quite a small container. Propagation, as for most other *Rhododendron* species is by cuttings or seed when available. Single plants will set fertile seed.

NOTE: Only comments I have omitted are in relation to well-rotted cow manure. The species loves it, and the Aquasol can then be omitted. As it is not essential I have omitted mention in the hopes of preventing anyone making a substitute from not-so-well rotted material, which it *doesn't* like!

Our No. 9 issue contains articles and a full colour plate of this plant—Editor.

... AND FROM A. L. HARGRAVE—Melbourne

I have had two plants growing for some years. One plant is the original and the other is from a cutting I propagated. Both plants are growing in the garden, a bed which is devoted to *Rhododendron* and *Azaleas*. Neither plant gets any sun all day. They are growing in a light soil, mulched underneath with tan bark and on top with well rotted grass cuttings. I have had several flowerings from the original but none from the other but I think it will come good soon.

I have a further propagated plant growing in a four gallon drum placed on the south side of my block, where it gets the sun for about $\frac{3}{4}$ of the day. It is growing in a mixture of nearly all peat moss with about $\frac{1}{4}$ in. bulk, of a sandy loam and a sprinkling of well rotted fowl manure through the whole mixture.

FROM D. MINNUS, Christchurch, New Zealand:—

We have several specimens of *Rhododendron lochae* in two glasshouses in which the temperature rarely drops below 60°F. The plants are in the ordinary hanging baskets and are all very healthy. No trouble has appeared from scale or red spidermite despite these pests infesting nearby tall plants. Flowers have appeared as early as October and the plants have flowered right up till March. The soil mixture contains equal portions of mountain loam and peat quarter of the bulk being river sand. They are fertilized with "Aquasol" every fortnight using a 0.14% solution of "Aquasol."

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THE BLUE TINSEL LILY — CALECTASIA CYANEA

1. A SERIES ON LONG LIVED NATIVES by J. S. Seaton, Caulfield, Victoria.

The Blue Tinsel Lily, *Calectasia cyanea*, is a small, semi-shrubby plant, with short narrow leaves covering the stems and beautiful star-like six "petalled" flowers of satiny blue about an inch across. The blue-purple petals and sepals appear to shine and contrast with the golden stamens.

In 1936, I obtained a plant propagated from the form growing in the Victorian Grampians. It has flowered every year since then.

In its natural habitat it is a suckering form but it has not shown this characteristic in cultivation. In the grampians it prefers wet margins of soils and swamps—the plants are less than 2 feet and spreading.

I have been completely frustrated in attempts at propagation. Repeated attempts with cutting material (they hold for 12 months but do not form roots) and seed have failed. I feel root divisions may be the answer.