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STURT'S DESERT PEA

WILDFLOWERS THAT REQUIRE LITTLE WATERING

HOW TO GROW STURT PEA

by F. N. Hall

A well grown Sturt Pea in full flower is a traffic stopper anywhere, and is worth the effort to grow it in the garden or a large container.

Time to plant. In the wetter areas or where frosts are severe. Sow September to early December. In areas where winters are mild and fairly dry, autumn sowings can be made for spring flowers.

Soil preparation. Dig over soil in usual manner. If soil has not been previously used, up to 1 oz. of superphosphate may be used to advantage.

Soil. Most soils are satisfactory, sandy loams, clay loams and sand. The important thing is for the soil to be deep and without obstruction to allow the tap roots to go down. Another important point is drainage which must be good, so no soggy soils.

Seed & Treatment. Seed is available commercially and is no problem to obtain. As the seed has a hard testa or coat it is necessary to assist nature to allow water to reach the seed. There are several ways of doing this—(a) By rubbing the seed lightly between two sheets of sandpaper or emery cloth to break the tough outer coat. Warning: Don't rub too hard or long or there won't be any seed left; (b) By nicking the seed with a razor or filing with a file. File or nick on the edge away from the "eye" of the seed; (c) By soaking in hot water.

Sowing. Sow in groups of 3 or 4 seeds at intervals of 18 in. or in rows 1 ft. to 1 ft. 6 in. apart. Plants can be thinned out later if over-crowding takes place. These methods will make a dense mat of plants. Germination takes place in 7 to 10 days. Sturt Peas should be planted where they are to grow as they resent moving. Sow in a sunny situation.

Watering. The soil should be just moist under the surface. Watering can be by sprinkler, but if leaf scorch occurs, water should be applied in furrows in the soil a short distance from the plant. Do not overwater as once the plants are established with their long tap roots, they require moisture only at depth. If they are overwatered or the ground becomes waterlogged, it is usually fatal as stem rot takes place at ground level.

To grow in a container, drum, etc., follow the preceding but be sure to:
1. Put in plenty of crocks for drainage; 2. Have a reasonably rich soil;
3. Have an open soil for drainage; 4. Mulch the surface to conserve moisture;
5. Grow in a sunny situation.

CONTENTS OF THIS ISSUE

In keeping with our policy of providing reliable information on the cultivation of wildflowers, this issue is devoted principally to those who wish to establish wildflower gardens that require a minimum of maintenance. The main articles "Gardening in Low Rainfall Areas" and "Home Landscape in the Country" clearly indicate their intent but the conditions that they meet clearly apply to most gardens throughout Australia that are not located in very wet climates and from which artificial water is withheld. The initial idea for this theme arose following reports of distress from home gardeners in drought affected areas, including our large cities.

On this continent we will have to beautify our environment without the use of copious artificial watering so why not learn to do this with plants that have survived the rigours of our climate for centuries.

A number of series form articles have been suspended for this issue such as Street Tree, Epacridaceae—The Heath Plants, etc., but our series on native orchids is continued for the orchids *Pterostylis* on page 60.

LILIES? IRIS?

SOUTH AUSTRALIAN PLANTS WITH FLESHY OR BULBOUS ROOTSTOCK (EXCLUDING ORCHIDS)

by T. R. N. Lothian, Director, Botanic Garden, Adelaide, South Australia

Although we normally associate a bulbous or fleshy rootstock with the plant families Iridaceae, Amaryllidaceae and Liliaceae, there are other groups which also have this characteristic. These notes cover the principal genera and species.

In addition there are numerous examples of herbaceous plants either with or without persisting foliage which possess sub-woody rhizomes or similar rootstocks. Plants included in this group have been mentioned briefly.

Anacampseros australiana (Portulacaceae)

A large South African genus of approximately 50 species, with one Australian representative. This plant is a low growing succulent under-shrub, with short stems arising from a thick fleshy tuberous rootstock which is up to 3" long and 1" in diameter. Numerous buds are found at the apex. The stems are between 2-6" high, usually with thick ovate-lanceolate leaves crowded at their apices. The succulent leaves are 1-1½" long, ¼" wide, glossy or slightly hairy, green or greenish red in colour. The flowers are borne on long bracteate stems 4-6" high. The sepals are fleshy, enclosing 5 pink petals about ½" long.

Usually propagated by seed it can also be readily increased by stem cuttings. It grows readily in coarse well drained soils or in a rockery. The tuber should be placed horizontally 2-3" deep, preferably alongside a large rock (simulating the natural habitat).

Originally found in the Flinders Ranges on rocky slopes, it has more recently been located by the author on open gibber plains in association with *Atriplex*, *Bassia*, and similar plants. It is fairly common, with the rootstock under gibbers a few miles south of Woomero and also north of Pimba towards Lake Hart.

ANGUILLARIA DIOICIA (Liliaceae)

An interesting small bulbous plant usually growing between 3-6" or even 9" high with a terminal spike of flowers. *A. dioica* is widespread, there are two other species in this genus.

Two or three long stem clasping green leaves are usually present. The flowers are either polygamous dioecious, star-shaped usually sessile and number between 2-6. There is variation in the colour. Usually white with a dark purple or almost black blotch about the middle of the petal, colour variants of cream, pale yellow or even pale pink, with or without the blotches are common especially in the drier parts of this (South Australia) state.

The white flowered form inhabits savannah country with light-canopy and is found in a variety of soils and habitats. In the arid areas, the yellow and cream forms can be seen in open country preferring sandy soils in which the bulbs are up to 6-9" deep. The pink flowered forms are usually on rocky areas associated with hills or ranges. One of the most spectacular was seen at Mt. Olga. It grows in colonies which often number several dozens.

A light sandy soil appears ideal and it also thrives in pockets in the rock garden. Propagated from seed.

This article is continued on page no. 74 describing the species in alphabetical order. The author concludes the article by describing a miscellaneous collection of plants that do not have fleshy rootstock but the roots are usually persistent. They are also Liliaceae and as they are of considerable horticultural value (and for economic reasons the colour plates must appear on the next few pages), they are described on the next page and on page 56.

FRINGED VIOLETS

by T. R. N. LOTHIAN, Director, Botanic Gardens, Adelaide, South Australia

These species really come under the Miscellaneous group of plants that was to conclude the article on the previous page "South Australian Plants with Fleshy or Bulbous Rootstock". They do not have fleshy rootstock but the fibrous rootstock is usually persistent.

THYSANOTUS "Fringed Lily", "Fringed Violet" (Liliaceae)

This genus numbering nearly two dozen species one or two of which extend well north of Australia into China and the Philippines contain some of the most beautiful of our native bulbous plants. Species are usually herbaceous with tuberous roots which are frequently distant from the central rootstock, to which they are attached by fibrous roots. Leaves radical, glabrous, linear or filiform often deciduating before flowering is completed. The flowers have six segments, the inner three are fringed. The colour of the perianth segments is usually blue or even purple, but may be lilac or rarely white in colour.

Thysanotus baueri. Tubers are away from the rootstock. Leaves are shorter than the flowering stem, narrow, linear, withering early leaving white thin bracts (this gives the appearance of a leafless flowering plant). Stem usually erect, short 6-12" high, often stout, branched in the upper quarter. The flowers are lilac in colour, 2-5 in umbels along the branchlets, $\frac{3}{4}$ " in diameter.

T. dichotomus. Rootstock thick, horizontal and appears as a line of united corms. Leaves short, deciduating early. The flowering stems are up to 2 ft. high, rigid, frequently channelled, often zigzag in growth, glabrous, frequently with dichotomous branching from the lower part of the stem. Flowers in umbels, dark purple, one to two in number about a $\frac{1}{4}$ " in diameter.

T. exasperatus. Tubers distinct from the central rootstock. Leaves up to 15" long, narrow, linear, glabrous. The flowering stem is of equal length or slightly shorter, erect and branched in the upper third, the lower part usually densely covered with minute wart-like growths. The flowers are one to four in number at the apices of the branches and about $\frac{3}{4}$ " in diameter.

T. patersoni. A beautiful climbing plant often 4-6 ft. high, scrambling over shrubs. Rootstock tuberous, oblong and close to the stem. Stems are twining, slender, and branching. Basal leaves are filiform and disappear very quickly, those on the climbing stems are bract-like. The flowers are solitary at the end of branchlets or 2 or 3 at the ends of short lateral branchlets and each about $\frac{3}{4}$ " in diameter.

T. tenellus. This is not known in the field, but has a short stem like *T. baueri* and the inner perianth segments are narrow and scarcely fringed.

T. tuberosus. This is very similar to *T. dichotomus*. The principal differences are the tuberous rootstock and it is slightly smaller in height.

The fruit of all species is a more or less globular capsule with black seeds with a coloured (often orange) fleshy outgrowth, (caruncle). Seeds are usually freely produced and germinate readily when fresh.

Except for *T. baueri* and *T. tenellus* which grow in more open sites and usually low rainfall regions, all the above species are native to savannah or open woodland in partial shade. They thrive in medium textured soils.



Colour photography by Frank Hurley

Blocks by courtesy of John Sands Pty. Ltd.

THYSANOTUS TUBEROSUS

GARDENING IN THE LOW RAINFALL REGIONS

by T. R. N. LOTHIAN, Director, Botanic Gardens, Adelaide, South Australia

Because of our better understanding of the factors which influence the growth of the plants—water, aspect, site, salt, climate, soil and plant foods, the establishment of a garden in the low rainfall areas is no longer a bogey it used to be. Not so very long ago, if the question was asked, "What will grow in the under 20" rainfall region" the answer was "Nothing—there is no water available!"

With the advent of "Australian Plants" and also the "Society for Growing Australian Plants" together with the numerous widespread plantings which have been carried out by various authorities in low rainfall regions, water need be the least of our worries. However, there are a number of principles which need attention and these will be discussed below.

The positioning of a home in the rural and agricultural areas is usually decided upon the closeness to a roadway, the availability of services such as telephone and electricity and also the lay of the land in relation to aspect, ease of erecting farm buildings and all the other items which the owner will need to successfully farm the area. The establishment of a garden comes later, but if consideration can be given to this when siting the house, so much the better.

Such homes because of their distances from government water are still often dependent on either supplies from a bore or a dam, although now more and more trunk mains are appearing through the countryside. However, for the purpose of this article regard is paid to natural rainfall only and if spare water is available in the summer, so much the better. In the arid regions where rainfall does not exceed 12-14" annually, then considerable care and thought must be paid to the selection of the plants used. These notes refer principally to rainfall regions between 15-18".

GENERAL LAYOUT OF GARDEN

In establishing a rural garden, emphasis would be placed on shelter and displays with the minimum of work, maintenance and consideration to water supplies. Consequently hardy plants whether they be trees, shrubs or other material will be the basis of the selection.

Shelter is always of paramount importance, not only for sheltering the house, but to provide more congenial conditions in which to establish a garden. If the site is already denuded and bare, then this is the first matter to be resolved, but if one is building in a woody area, do not make the fatal mistake of clearing away everything and then trying to replant with material which is often unsuited to the locality, no matter how much you may like the particular plant.

Those of us who have formed gardens in a new suburban sub-division know from experience many plants fail during the first few years. Later when some greenery has grown in the neighbourhood better shelter is present and now many of those failures will grow freely. This lesson must be understood wherever a garden is to be established.

Shelter should be produced from local trees if possible or if they are not suitable or available then species which grow in similar conditions. Today a very wide range of species is available for the low rainfall regions.

Numerous species are available of Eucalypts, Acacias or Wattles, Sheoaks (*Casuarina*), Wilga (*Geijera*), Native Pines (*Callitris*), Tea Trees (both *Melaleucas* and *Leptospermums*), Sugar Woods (*Myoporum*), Apple Myrtle

(*Angophora*) and the like. Whilst high shelter is always desired, it must be remembered that in low rainfall regions tall trees are the exception rather than the rule. This shelter may be achieved by a single or even double row planting. However, a bank one to two chains thick should be the desired object, for anything smaller will not be effective. In setting up such a shelter, small and hardy material should be used for the outside row. The succeeding row can be of taller growing species and thus a thick bank will be formed. Remember also that shelter needs to be established at right angles to the prevailing winds, not necessarily parallel to the walls of the house.

Make sure that these shelter belts are planted well away from the home. All too often and in later years, congestion is present merely because insufficient thought has been given to the various items, e.g. buildings, garages, drying areas, lawns etc. which are required and are adjoining the house.

During the past few years, several excellent books on landscape design and on designing farm gardens have appeared. It is not proposed to discuss this matter in detail except to mention a few of the obvious points. The positioning of pathways and roadways should be decided before anything else is done. These are the main access routes to the house and surrounding it. Decisions regarding the sweeping drive, circular, direct, and placed to one side of the house should be made. Views, not necessarily only aesthetic views, but where vision lines are necessary to view the roadway, front gate, farm building and other places should be preserved. Unless these are selected, thoughtless plantings could obscure them.

Wherever possible, an area of lawn should be included in any design. Whilst this presupposes that some water will be available, there are grasses and other plants which can be used and which will survive on fairly heavily mineralised water. Also this means that an area adjoining the house will at least be free from surface dust and with garden plantings of trees and other greenery, a pleasant area can be developed.

SITE PREPARATION

In preparing the site for various plantings, some thought should be given, otherwise unnecessary harm as well as work will be caused. On light soils where existing vegetation has been removed or the area was bare to commence with, the less the soil is disturbed the better. Cultivation will also pulverize the area with consequent dust—a major problem. This however, does not mean that the planting sites are not prepared. At present we are dealing with the garden area as a whole.

Where soils are heavy, then some form of cultivation is most useful, but before it is done, try to obtain any kind of organic matter and spread this over the surface. There is very little of the bush or scrub trash which is harmful and organic matter in any form is the best way to improve the soil texture. Sand is sometimes used, but this is of a temporary nature only because it will gradually work down to the lower levels, thus it does not permanently improve its texture.

One of the most difficult sites is where a shallow depth of soil is present overlaying rock or very dense clay. Under these circumstances, it is permissible to increase the depth by bringing in soil from elsewhere. However, avoid building up beds which are much higher than the surrounding area. It is true that this gives greater depth of soil, but unless water is available in quantity, the greater part of these built up beds will remain dry and of no use to the roots of the plants.

LILY AND IRIS TYPE WILDFLOWERS

This is the last section of the article, "South Australian Plants with Fleshy or Bulbous Rootstock" by T. R. N. Lothian, Director, Botanic Gardens, Adelaide, South Australia.

There are a number of plants native to South Australia, members of Liliaceae and related families which do not have a fleshy rootstock but of which mention should be made. The rootstock are either woody or fibrous and the growths are usually persistent. Many make most attractive garden plants and these are briefly described hereunder.

CALECTASIA "Blue Tinsel Lily"

Calectasia cyanea is a woody perennial up to 15" high with crowded erect almost pungent and very short leaves. Flowers are star shaped, blue or purple with a metallic sheen. The anthers are usually bright yellow or orange thus making a very beautiful and attractive plant when in flower.

DIANELLA "Flax Lily" (Liliaceae)

Thick woody rootstock almost rhizomous, with stiff leaves arising from them. The flowers are in panicles, blue, usually followed by blue berries. Flowers are up to ½" in diameter and pendulous. *D. laevis* has light yellow anthers, whilst in *D. revoluta*, the anthers are nearly black.

LOMANDRA "Iron Grass"

There are a number of species, all dioecious. Flowers are insignificant, usually in panicles, but in *L. leucocephala* the white flowers are clustered in cylindrical or woolly heads. This species makes a useful garden plant.

ORTHROSANTHUS (Iridaceae)

Orthrosanthus multiflorus is a robust tufted perennial with persistent linear leaves. Inflorescences are branched and bear numerous large pale to deep blue open flowers. The height when in flower is between 18-36". The flowers last a day only but the flowering period is over many weeks. The rootstock is fibrous, clustered and this species can be readily cultivated.

PATERSONIA (Iridaceae)

A group of species which are perennial herbs with deciduous erect linear leaves and a short rootstock. The flowers are large, blue or purple, more rarely white or yellow, clustered at the apices of stout stems and within a large brown bract. *P. fragilis (glauca)* the leaves are longer than the flowering stem. *P. longiscapa*—the flowering stem is about a ¼ as long again as the leaves. The species prefer moist soil to flower freely and usually an almost completely open site.

STYPANDRA "Grass Lily" (Liliaceae)

An attractive blue flowered plant (sometimes white). The rootstock is fibrous from which arise persisting perennial stems. The flowers are in cymes. *Stypandra caespitosa* is a tufted plant with leafless stems and the flowers are erect, normally small growing.

S. glauca is a tall growing somewhat robust plant frequently up to 3 ft. high with erect or small flaccid leaf stems. The flowers are blue and nodding.

TRICORYNE (Liliaceae)

Tricoryne elatior is a small tufted plant in the open with rigid, coarse stems—in partial shade, with weak flaccid stems. The rootstock is fibrous. Masses of flowers are produced at the apices of the branchlets—the flowering continuing for several weeks. The plant is either erect or somewhat decumbent depending on the site and when in flower varies in height from 12-18".

THYSANOTUS—See page 52.



Photography by Frank Hurley

Blocks by courtesy of John Sands Pty. Ltd.

PATERSONIA GLABRATA

Although the colour plate is for a species not described, it is quite suitable to illustrate the article. The species described could best be defined as an average purple, that is a colour without showing a trace of blue or red.

LANDSCAPING

HOME LANDSCAPE IN THE COUNTRY

by D. Field, Landscape Architect, Botanic Garden, Adelaide, South Australia

Home landscaping is an art which conjures up in the imagination ideas of shady patios, home barbecues, lavish swimming pools and all the fancy knick-knacks that we all see in the glossy magazines.

When we're thinking of doing something of the sort with our own homes, we thumb through the photographs and drawings to see what we'd like in our own backyard. But we confine our thoughts to the house and that 20 x 20 yard square of ground surrounded by that paling fence and concentrate on the particular feature that we especially like. Well, this is alright if you live in the town. Your bit of land's so small that if the neighbour has some nice shrubs on your fence line they're yours as well and you don't need to plant many on that side. You can't be too concerned about the overall landscape since in the main it has been dictated to you before you moved in. It is a landscape of bricks and mortar, relieved by a few trees and shrubs, with your own private landscape behind the house, which ends in the back fence and the neighbour's shrubs (if you're lucky), and the glossy magazines show you all sorts of ways to make your block look something special.

What about the country folk? Their houses are parked out there in the open with wide open country all around, as we so often see, with hardly a stick to hide behind or a tree to get a bit of shade from on a hot day.

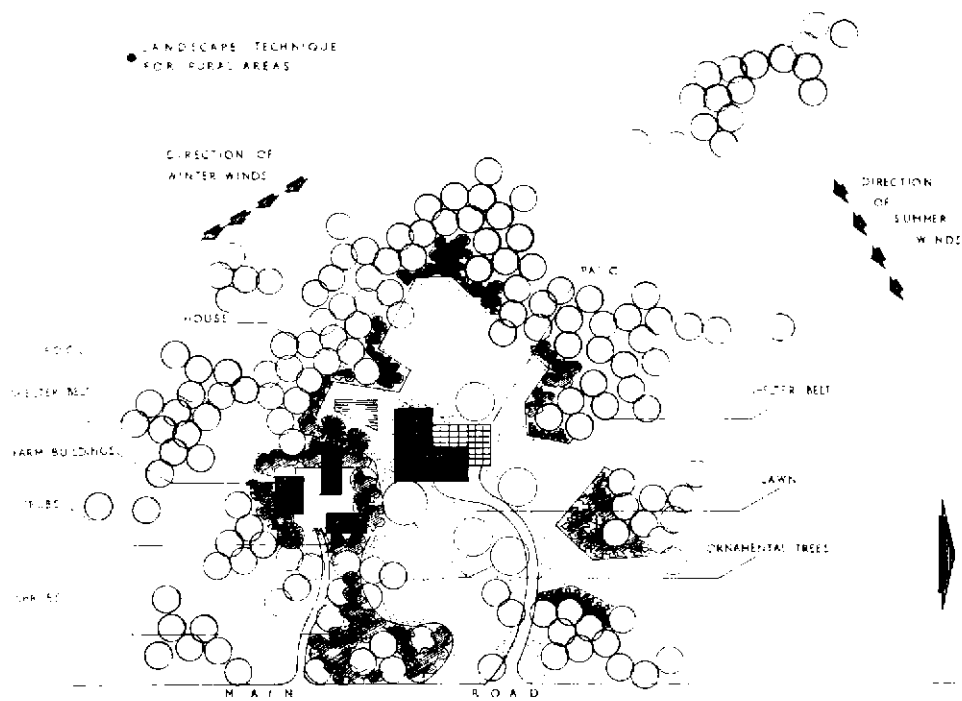
These days even farmers can expect a little leisure time from their work and with this comes the desire to make the surrounds to their homes pleasant and relaxing. One often sees in the country the house set around with trees and shrubs and a paling fence or hedge, then the open country as before. The farmer has got his garden alright, but, it's a suburban garden, complete with boundary fence, but no neighbour's shrubs, not even neighbours, just a rectangular patch in the open. It looks strangely out of place, as of course it is, since in reality it is a suburban garden.

What can be done then to make a successful garden in the country, to make a garden look right in such an expanse? The answer is really quite simple.

The farmer just simply does not operate on the same scale as the suburbanite. He doesn't play around with a couple of rows of beans in his vegetable patch. While it may not be desirable to have a large garden, since this takes a bit of time to look after, it is none-the-less necessary to fit whatever sized garden he does want into the whole landscape.

Just as the farmer operates on a large scale—hundreds and sometimes thousands of acres for his crops and herds—so he must think broadly in landscape terms for his house and garden.

The whole farm is really his garden in a sense and truly often more beautiful than any city park. If he wants to improve his homestead garden he must look out towards these fields and take the essential qualities of these areas, intensifying them towards the homestead. A group of trees could be extended—extra shelter belts near the house, but not in straight



rows—at least near the edges. Every farmer knows, or should know, the value of shelter belts, how valuable an asset they are for stock. Well, they're just as valuable near the house because they will help create a microclimate which will enable him to begin his garden in its lee.

Usually the best trees to use are native gums and mallees. The particular species to use depends upon the district, but the toughest and commonest one in the area will be the best ones to use. Once these are well established it will be possible to use other less hardy plants.

These shelter belts and screens are really the most important element in country garden design. They are the "bones" of the whole garden both from a visual and a horticultural standpoint. These must be regarded as the tools of trade which the farmer may use to bind his homestead area into the landscape and at the same time make a special microclimate about the homestead in which he may begin to build up the garden containing the features he most desires.

The way in which they are used is most important, for to be effective, both visually and functionally, they must be carefully arranged. This depends upon a number of factors and no two sets of circumstances would necessarily be alike. However, such things as the orientation of the house to the sun, prevailing winds, main road etc. will be practical issues to consider carefully. In addition, the general topography of the land—hills and valleys etc.—must be considered. The plantations should be arranged to deflect winter winds, yet not impede the flow of air in frosty areas which might create a frost pocket.

PTEROSTYLIS

AN ILLUSTRATED CHECK-LIST OF THE GENUS *PTEROSTYLIS*

by Leo Cady, Kiama, N.S.W.

This paper listing the species in the genus *Pterostylis*, is the result of many years work in attempting to clarify a very confused record of names. Many mistakes have come to light and the need for much more work on this genus is obvious. The paper is not intended to be a monograph; but only a record of the position as the author sees it at the moment.

It is an alphabetical list of species with the present accepted name, its author, and where it was originally described, an illustration other than in this list, colour of the flower, and distribution. Synonyms, with notes on doubtful species and other important points follow. The number preceding the species name coincide with the plate numbers, unless otherwise stated.



SOME AUTUMN FLOWERED *PTEROSTYLIS*

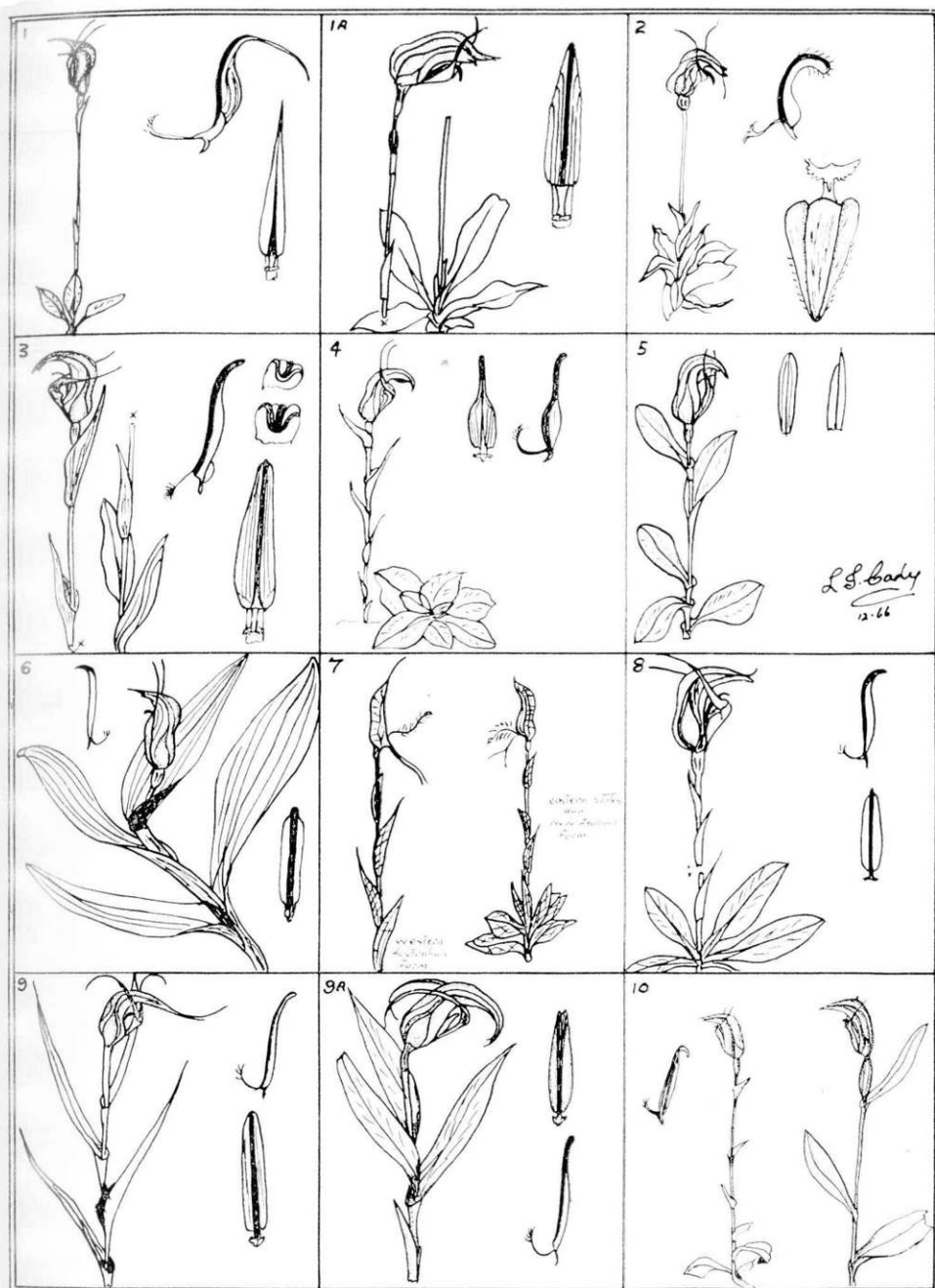
Described and illustrated by Peter Uhlherr

Left to right: *Pterostylis obtusa*. The plate shows the very noticeably protruding sinus of the lateral sepals which is characteristic of the species; the protrusion is notched when viewed from the front. Tip of labellum is dark and just visible.

P. parviflora. The only multiflowered species with erect lateral sepals closing the galea.

P. acuminata. Brown labellum curved for half its length protrudes markedly between lateral sepals, the points of which are swept slightly backwards.

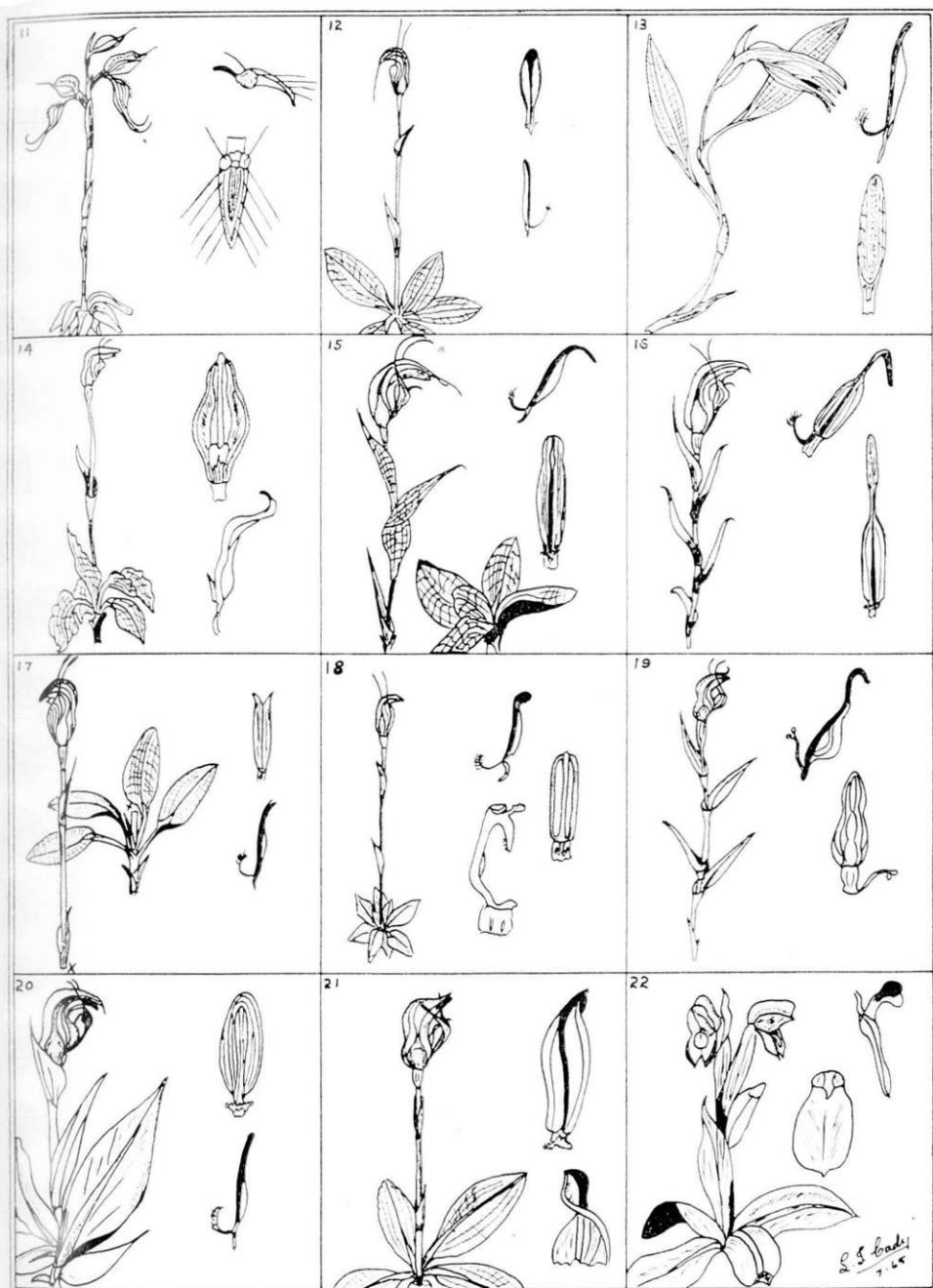
P. grandiflora. Described in the No. 36 issue of "Australian Plants" where it is shown in full colour with five other species which will serve as a guide to proportion.



Figures 2 & 3 are to scale. All other figures are approx. half natural size. This only refers to the plants, the segments being much enlarged. Description on next page.

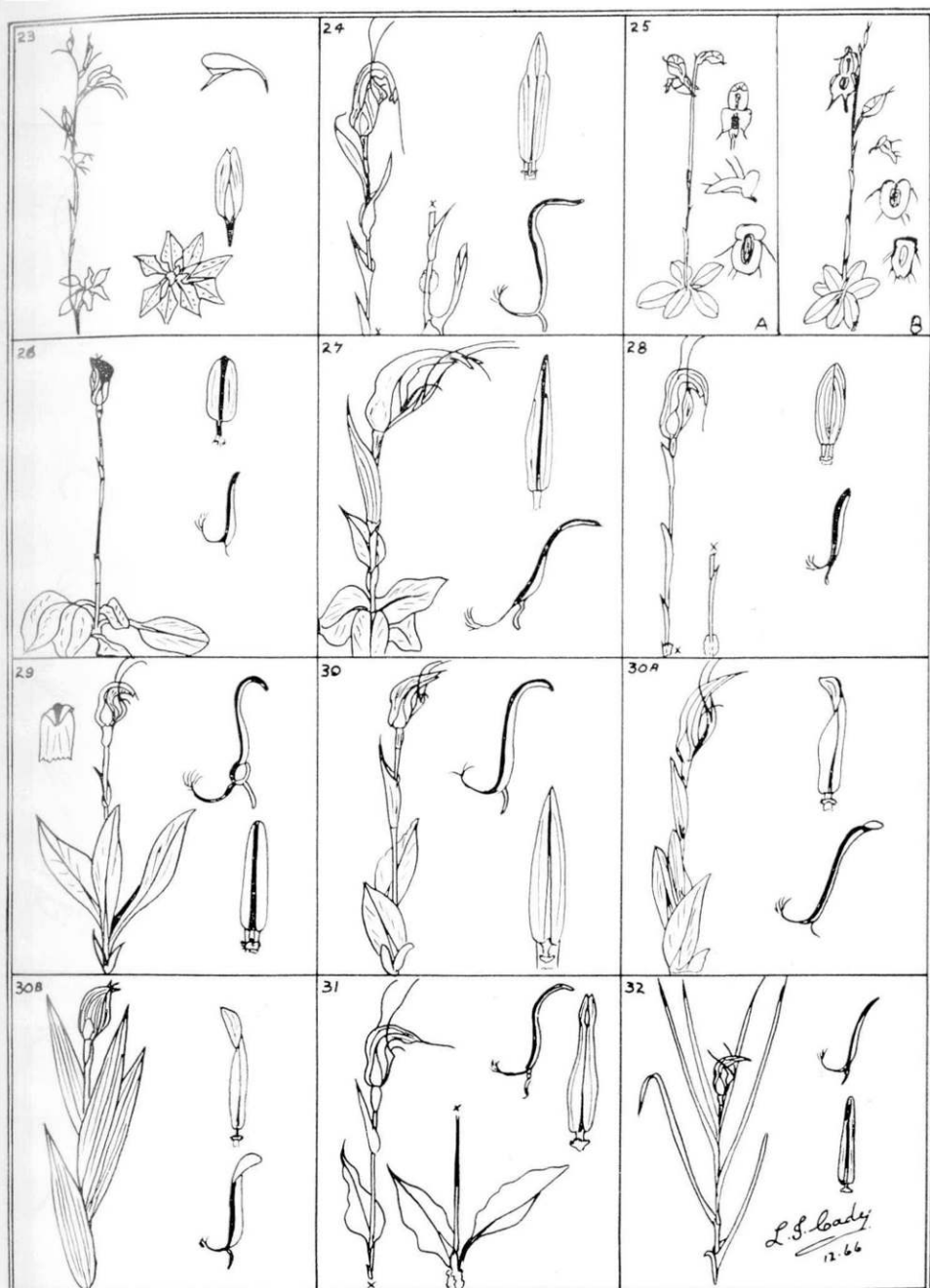
Part 1—Recognized species and varieties

1. *P. acuminata* R.Br. Prod., (1810) 326.-0. of Austr. Nich. (1951) Pl. 68—greenish white, apex reddish, New Guinea, New Caledonia, Queensland, N.S.W., Victoria.
- 1a. variety *ingens* Rupp. Proc. Linn. Soc. N.S.W. 53:552 (1928) .0. of Austr. (1951). Pl. 69—greenish some red, Vic. & S. Australia.
2. *P. allantoidea* Rogers: Tran. Roy. Soc. S. Austr. 64:139 (1940). 0. of Austr. Nich. (1951). Pl. 61 (see also "Orchids of the West" Ericson (1951)—green with dark purplish stripes and markings, W. Austr.
3. *P. alpina* Rogers. Proc. Roy. Soc. Vict. 28 (1915) 108 Pl. 8. 0. of Austr. Pl. 70—pale green on a whitish background. N.S.W., Vict. & Tasmania.
4. *P. alata* (Labill.) Reichenb. f. Beitr. Syst. Pfl. 70, 0. of Austr. (1951), Pl. 70. Almost transparent, whitish, striated with distinctive dark green or brownish lines. N.S.W., Vict., S. Austr. & Tasmania.
- 4a. *P. alveata* Garnet. Vict. Nat., LVI (1939) 152 Ill. in ibid. LVII (1940) 152. Light greenish. N.S.W. & Vict.
5. *P. areolata* Petr. Trans. N.Z. Inst. 50 (1918) 210, Trans. Roy. Soc. of N.Z. 80 (1953) 326 Pl. 72. Green with reddish striae. South Island of New Zealand.
6. *P. australis* Hook. f. Fl. Nov. Zel., 1, 1853, 248. Trans., Roy., Soc. N.Z. 77 (1949) Pt. 21. S. Island of N. Zeal., Stewart Is., Chatham Is.
7. *P. barbata* Lindl. Swan River App. (1839) 53, A. Orch. 1, 7 (1882). Green with a bright yellow ciliate labellum. All states of Austr. except Queensland. Also N. Zeal. See note 1 end of list.
8. *P. baptistii* FitzG. Austr. Orch. 1, 1 (1875) Ill. Vict. Nat. LVII, 8 Dec. (1940). Light green with fawn markings. From Queensland to eastern Vict.
9. *P. banksii* R.Br. ex. A. Cunn. Bot. Mag. (1882) T.3172. The Orchadian No. 10 (1965) P. 129. Green with red or red-brown stria. N. & S. Islands of N. Zeal. Stewart & Chatham Islands.
- 9a. variety *patens* (Col.) Hatch. Trans. Roy. Soc. N.Z. 75 (1945) 370 as type. Lateral sepals very recurved. N. & S. Island N. Zeal., Stewart Island.
10. *P. bureaviana* Schlechter. Engl. Bot. Jahrb. 39 (1907) p. 38. Light green Banks of the Rivière des Lacs near Yaté New Caledonia.
11. *P. boormanii* Rupp. O. N.S.W. (1943) 98 The Orchadian 7 (1964) 81—Aust. O. Review Sept. (1965) 129. Reddish brown and green. N.S.W. only. See note 10.
12. *P. carinata* Dock. N. Queens. Nat. 23 (1955) III. Ill. Greenish, Ravenshoe district, N. Queens. See note 9.
13. *P. caulescens* L. O. Williams. Bot. Mus. Lft. Hav. Uni. 12(5) 149 (1946). Flesh pink. New Guinea Rawlinson Rg., Morobe District at 10,000 to 12,000 ft. alt.
14. *P. celans* Rupp. Vict. Nat., LXI (1944) 106. Orch. of Austr. Nich. (1951) Pl. 92. Green, Vict.
15. *P. coccinea* FitzG., Austr. Orch. 14 (1878) Ill. Orch. of Austr. Nich. (1951) Pl. 82. Red or greenish red with darker stria. N.S.W.
16. *P. constricta* Sargent, Journ. W. Aust., Nat. Hist. Soc. 2, 24 (1907), Orch. of Austr. Nich. (1951) Pl. 88. Translucent white with green and dark brown striae, W. Austr. only.
17. *P. concinna* R.Br. Prod. (1810) 326. Orch. of Austr. Nich. (1951) Pl. 63. Green with brown markings. All states except W. Austr.
- 17a. *P. conoglossa* W. T. Upton, The Orchadian Vol. 2, 9 (1967) 115. Translucent with brown and green markings. N.S.W. (Plate No. 56b).
18. *P. clavergera* FitzG. Journ. Bot. 23 (1885) 138. Unpublished plate of Fitzgerald in the Mitchell Library Syd. Green, N.S.W. See note 11.
19. *P. crypta* Nich. Vict. Nat. LXI (1945) 207 ill. O. of Austr. Nich. (1951) Pl. 92. Green with rufous markings. Vict.
20. *P. cucullata* R.Br. Prod. (1810) 327, O. of Austr. Nich. (1951). Pl. 74. Green with chocolate brown markings. Vict., S. Austr. & Tasm.
21. *P. curta* R.Br. Prod. (1810) 326. O. of Austr. Nich. (1951). Pl. 65. Greenish, all states, the W. Austr. record is doubtful, also New Caledonia.
22. *P. cynocephala* FitzG. Austr. Orch. 1, 2 (1876), Trans. Roy. Soc. N. Zeal. 80 (1953). Pl. 73. Rich green. N.S.W., Vict., S. Austr., Tasm. & N. Zeal.
23. *P. daintreana* F. Muell. ex Benth. Fl. Austr. VI (1873) 360. O. N.S.W. Rupp (1943) Pl. 16 pp. 95. Rich green. Queens. and N.S.W.

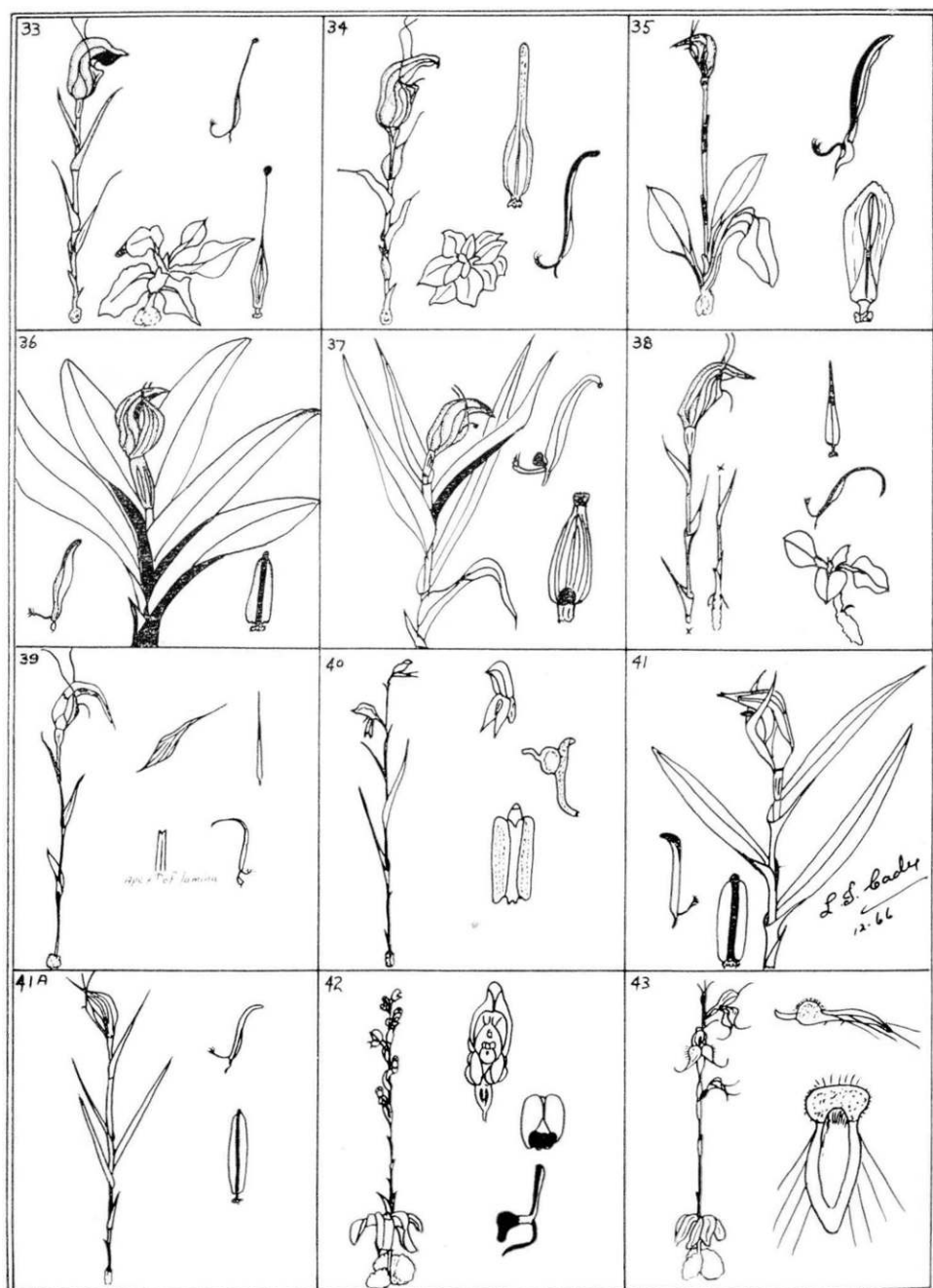


Figures 14, 18, 19 and 22 are natural size. All others are approx. $\frac{1}{2}$ natural size to scale, i.e. for the plants, the segments are much enlarged.

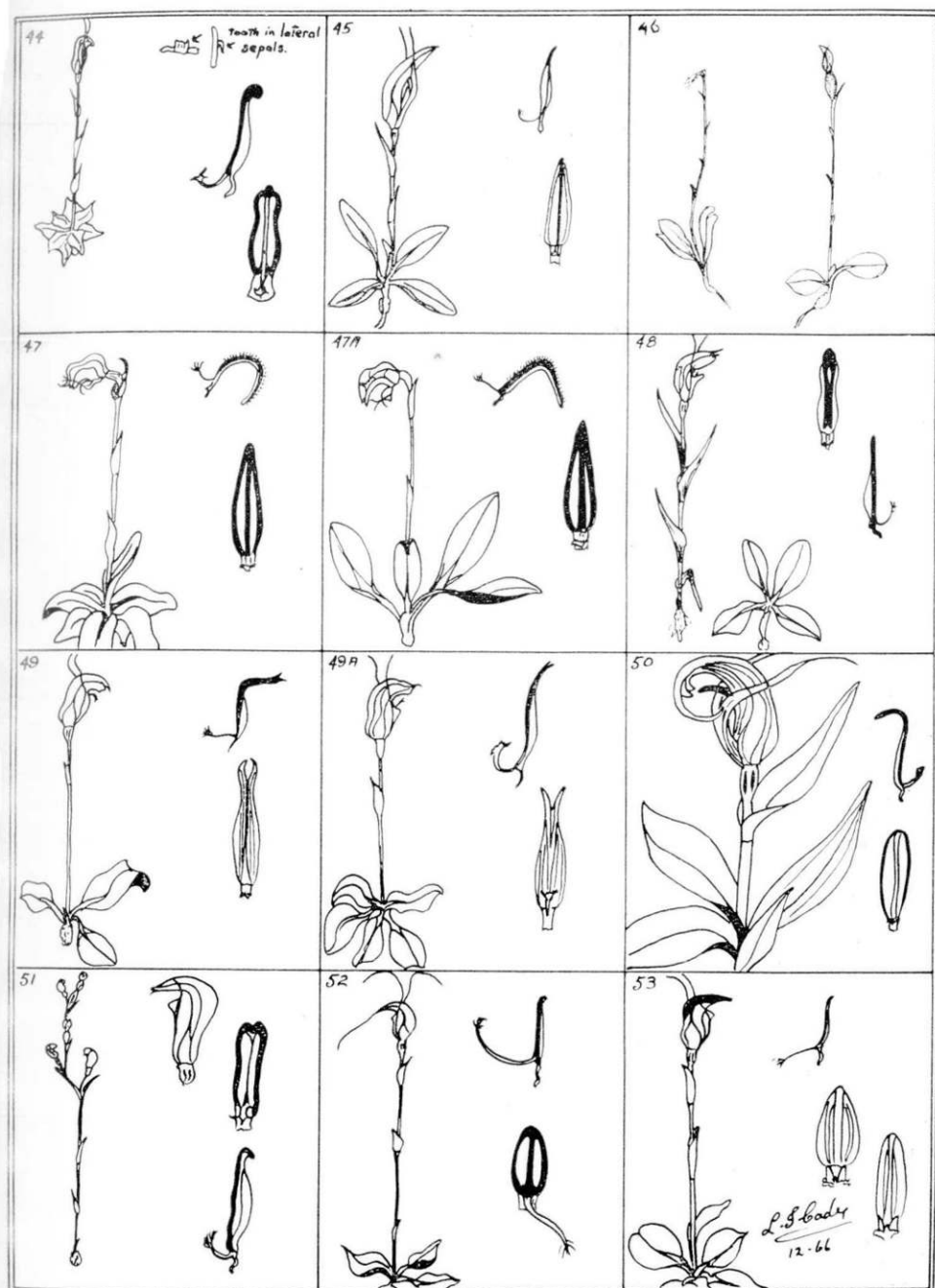
24. *P. decurva* Rogers, Tran. Roy. Soc. S. Austr. XLVII (1923) 339. O. of Austr. Nich. (1951). Pl. 84. Translucent white with green striae brownish-red towards the apex. Tasm., Vict. & N.S.W.
25. *P. depauperata* Bail. Bot. Bull. IV, cannot find any illustrations. A very little known plant, green, N. Queens. (Plate No. 12). See note 9.
26. *P. erecta* T. E. Hunt. Proc. Roy. Soc. Queens. LXIX (1958) 8, 89, Ill. Dark red brown, S. Queens.
27. *P. falcata* Rogers, Proc. Roy. Soc. Vict. N.S. 28 (1915) 106. O. of Austr. Nich. (1951). Pl. 71. Light green, N.S.W., Vict. & Tasm.
28. *P. fischii* Nich. Vict. Nat. 67:45-47 (1950). Ill. O. of Austr. Nich. (1951). Pl. 83. Green with rufous striae on a translucent white background. N.S.W. & Vict.
29. *P. foliata* Hook. f. Flor. Nov. Zeal. I. (1853) 249. O. of Austr. Nich. (1951). Pl. 77 & 78. Greenish red brown at apex. Vict., Tasm., N.S.W., North & South N. Zeal.
30. *P. furcata* Lindl. Gen. et Sp. Orch. (1840) 390. O. of Austr. Nich. (1951). Pl. 67. Darkish green. N.S.W. (very rare). Vict. & Tasm.
- 30a. variety *micromega* (Hook. f.) Hatch. Trans. Roy. Soc. N. Zeal. 77 (1949) 242. Auckland Orchids. E. D. Hatch. The Auckland Bot. Soc. 1959). Darkish green. N. Is. N. Zeal.
- 30b. variety *linearis* Hatch. Trans. Roy. Soc. N. Zeal. 77 (1949) 243. Greenish, National Park and Murimotu, N. Zeal.
31. *P. furcillata* Rupp. Proc. Linn. Soc. N.S.W. LV (1930) 415. O. of Austr. Nich. (1951). Pl. 73. Vivid green with darker bands, N.S.W.
32. *P. graminea* Hook. f. Flor. Nov. Zeal. I, (1853) 248, Tran. Roy. Soc. N.Z. 77 (1949) Pl. 28. Greenish with darker bands, N. & S. Islands of N. Zeal., Stewart Island.
33. *P. grandiflora* R.Br. Prod. (1810) 327. O. of Austr. Nich. (1951). Pl. 80. Rich green with red/brown markings. Queens., N.S.W., Vict., Tasm.
34. *P. hamiltonii* Nich. Vict. Nat. L. (1933) 89, ill. O. of Austr. Nich. (1951). Pl. 91 Red striae on a white background. W. Austr. & S. Austr.
35. *P. hildae* Nich. Queens. Nat. X (1937) 39, ill. O. of Austr. Nich. (1951). Pl. 66. Wholly green brownish at apex. S. Queens. & N.S.W.
36. *P. humilis* Rogers, Tran. Roy. Soc. S. Austr. 46 (1922) 151. Tran. Roy. Soc. N. Zeal. 77 (1949) Pl. 31. Kaimanawa Range & Ruahine Range N. Zeal. Translucent with thin green striae.
37. *P. irsoniana* Hatch. Tran. Roy. Soc. N. Zeal. 78 (1950) 104. Pl. 18. The Orchardian 10 (1965) Pl. 29. Translucent with green and red striae. Mt. Egmont, N. Zeal.
38. *P. longicurva* Rupp. Cont. Nat. Herb. N.S.W. I (1941) 125. Pale green with darker green or brownish striae. N.S.W.
39. *P. longipetala* Rupp. Proc. Linn. Soc. N.S.W. LXVIII (1943) 9. Green with darker markings. N.S.W.
40. *P. longifolium* R.Br. Prod. (1810) 327. Austr. Orch. Fitz. I, I (1875). Green, all states except W. Austr.
41. *P. montana* Hatch. Trans. Roy. Soc. N. Zeal. 77 (1949) 239. Greenish. Mt. Ruapehu, and Lake Manapouri, N. Zeal., also Stewart Island.
- 41a. variety *rubricaulis* (Math.) Hatch. Trans. Roy. Soc. N. Zeal. 77 (1949) 240. Greenish marked with red/brown towards the apex. Waitakere and Hunua Ranges, N. Zeal.
42. *P. mutica* R.Br. Prod. (1810) 328. Austr. Orch. 1, 2 (1876). Light green, all states and N. Zeal.
43. *P. mitchellii* Lindl. Mitchells, Trop. Austr. (1848) 365. The Orchardian (1964) 6, 67. Green with a few rufous markings, all states except Tasm. See note 10.
44. *P. nana* R.Br. Prod. (1810) 327. O. of Austr. (1951) Pl. 76. Light or golden green, all states except Queens. Also N. Zeal.
45. *P. novoguineensis* Ridley. Trans. Linn. Soc. II, IX, 208 (1916). Brilliant red. Eastern Highlands of New Guinea.
46. *P. neocaledonica* Schlechter. Engl. Bot. Jahrb. 39 (1907) 38. Jgnambi, New Caledonia.
47. *P. nutans* R.Br. Prod. (1810) 327. O. of Austr. Nich. (1951) Pl. 96. Green all Austr. states except W. Austr., also N. Isl., N. Zeal., N. Caledonia.
- 47a. variety *hispidula* FitzG. Austr. Orch. 1, 6, ill. O. of Austr. Nich. (1951) Pl. 96. N.S.W.



All figures are approx. half natural size to scale, i.e. the plants. Segments are much enlarged.



All figures are approx. half natural size to scale, i.e. the plants. Segments are much enlarged.



Figures 44 and 52 are natural size to scale and all others are half natural size, i.e. the plants. All segments are much enlarged.

48. *P. obtusa* R.Br. Prod. (1810) 327. O. of Austr. Nich. (1951) Pl. 85. Green. Queens., N.S.W., Vict. and S. Austr.
49. *P. ophioglossa* R.Br. Prod. (1810) 326. O. of Austr. Nich. (1951) Pl. 62. Green, often with pinkish tints. Queens., N.S.W. and New Caledonia.
- 49a. variety *collina* Rupp. Proc. Linn. Soc. N.S.W. LIV (1929) 552. O. of Austr. Nich. (1951) Pl. 62. Red/brown. Queens. and N.S.W.
50. *P. oliveri* Petr. Trans. N. Zeal. Inst. 26 (1894) 270. Trans. Roy. Soc. N. Zeal. 77 (1949) Pl. 24. N. Zeal. (S. Island).
51. *P. parviflora* R.Br. Prod. (1810) 327. Austr. Orch. 1, 7 (1882) (colour is shown rather too deep). Wholly green or green with red brown markings. All states except W. Austr.
52. *P. pedaglossa* FitzG. Austr. Orch. 1, 3 (1877). O. of Austr. Nich. (1951) Pl. 94. Wholly green with some red/brown right at the apex. N.S.W., Vict. and Tasm.
53. *P. pedunculata* R.Br. Prod. (1810) 327. O. of Austr. Nich. (1951) Pl. 95. Green with deep red/brown suffusions. All states except W. Austr.
54. *P. pulchella* Messmer. Pro. Linn. Soc. N.S.W. LVIII (1933) 429. O. of Austr. Nich. (1951) Pl. 87. Green with red/brown markings. N.S.W.
55. *P. pusilla* Rogers Proc. Roy Soc. S. Austr. XLII (1918) 26, ill. A.O.R. 30, 3 Sept. (1965) 129. All Austr. states. See note 10.
- 55a. variety *aciculiformis* Nich. Vic. Nat. LII (1936) 167 ill. p. 168. Glaucous green with pale rusty brown markings. Vict., N.S.W.? (Plants that the author received from the Orange area agree very closely with Nicholls drawing). See note 10.
- 55b. variety *prominens* Rupp Proc. Linn. Soc. N.S.W. LVI (1931) 136-7 ill. Red/brown. N.S.W. See note 10.
56. *P. papuana* Rolfe Kew Bull. (1899) 112, Nova Guinea XII, 3 (1915) 185, T. LXI 99. Unknown but possibly reddish. New Guinea.
- 56a. variety *artakensis* J. J. Smith, In Gibbs, Cont. Phytogeogr., Fl. Dutch New Guinea 107 (1917). Pink. Arfak Mts., Angi Lakes, New Guinea.
- 56b. variety *seranica* J. J. Smith, Bull. Jard. Bot. Buitenz. ser. 3, 10:91 (1928). Central Seran, New Guinea. Reddish brown darker towards the apex.
57. *P. pyramidalis* Lindl. Swan River App. to Edwards Bot. Reg. 53 (1839), O. of Austr. Nich. (1951) Pl. 75. Green, W. Austr. (See note 6).
58. *P. reflexa* R.Br. Prod. (1810) 327. O. of Austr. Nich. (1951) Pl. 86. Green with darker bands. Queens., N.S.W. and Vict.
59. *P. revoluta* R.Br. Prod. (1810) 327, O. of Austr. Nich. (1951) Pl. 81. Translucent green with darker bands, occasionally almost white. Queens., N.S.W. and Vict.
60. *P. recurva* Benth. Fl. Austr. VI (1873) 360, O. of Austr. Nich. (1951) Pl. 79. White with prominent green or red/brown or grey striae. W. Austr. and N. Territory.
61. *P. russellii* T. E. Hunt. The Orchid. Journal (U.S.A.) 1, 1 (1952) 42 ill. Greenish, South Queensland.
62. *P. robusta* (Ewart) Rogers Tran. Roy. Soc. S. Austr. LI (1927) 296. Gems of the Bush Nich. et Barrett (1932) 36. White with green or brown striae. S. Austr., Vict., W. Austr.
63. *P. rogersii* Coalman Vic. Nat. XLVI (1929) 100. O. of Austr. Nich. (1951). Pl. 89. Translucent white or grey with rufous striae. W. Austr.
64. *P. rufa* R.Br. Prod. (1810) 327, Austr. Orch. Fitzg. (1876) 1, 2. Green with red/brown markings or white with green or reddish striae. All states. (See note 2 at end of text). Also note 10.
- 64a. variety *despectans* Nich. Vic. Nat. 66 (1950) 215, ill. p. 213. White with green striae. Vict. See note 10.
65. *P. sargentii* Andrews Journ. W. Austr. Nat. Hist. Soc. May (1905), O. of the West Ericson (1951) 39. White background with red-brown markings. W. Austr.
66. *P. speciosa* T. E. Hunt Queens. Nat. Vol. 16 1 & 2 (1958) 7 ill. pg. 8. White with red/brown striae. Stradbroke Isl., S. Queens. (See note 3).
67. *P. squamata* R.Br. Prod. (1810) 327, Austr. Orch. 1, 6 (1880). Vic. Nat. LIII (1936) 136. White with green or red/brown striae. N.S.W., Vict., S. Austr., Tasm. See note 10.
- 67a. variety *valida* Nich. Vic. LVIII (1941) 115, ill. pg. 116. Wholly green. Maldon, Vict. See note 10.

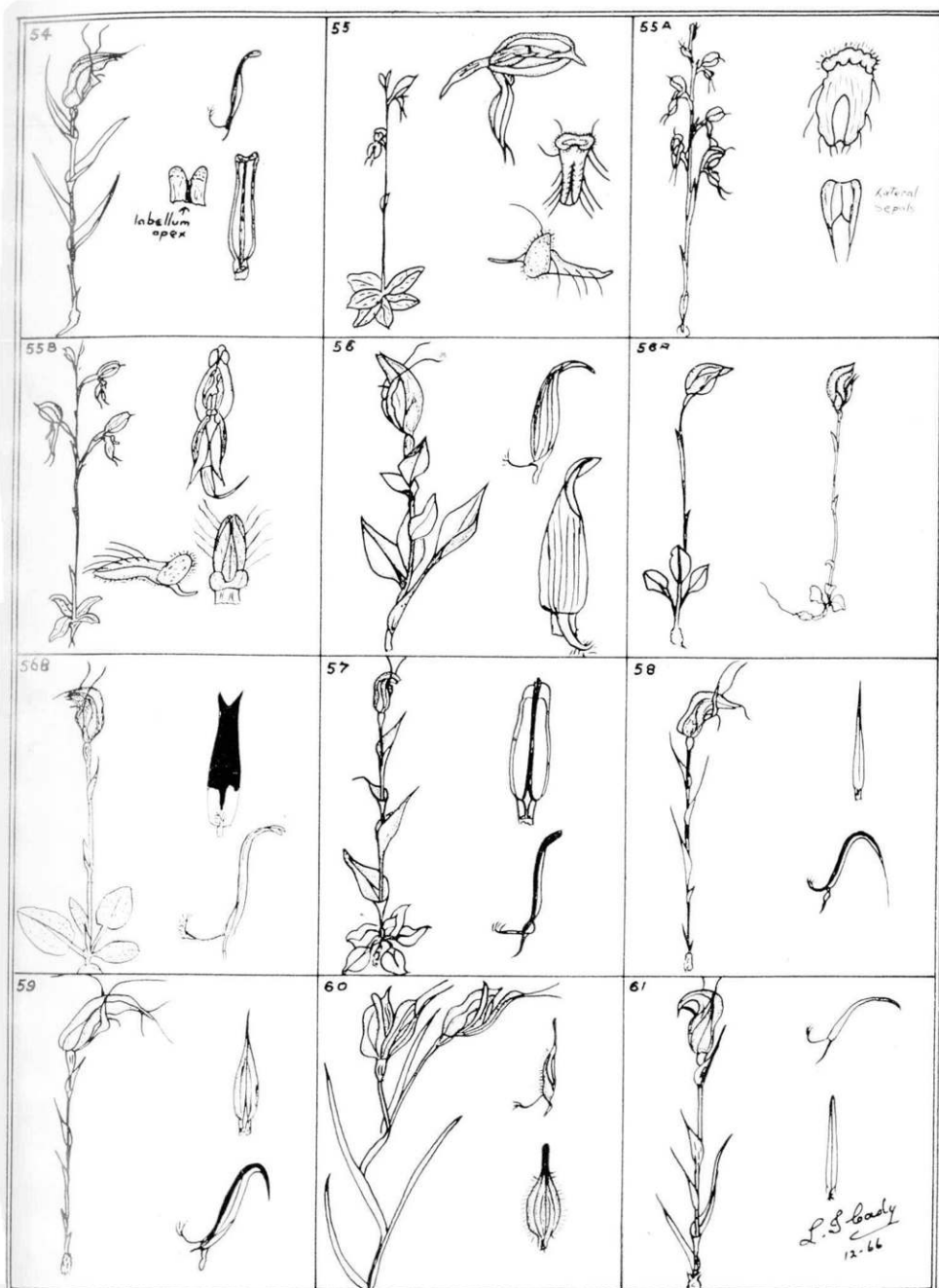


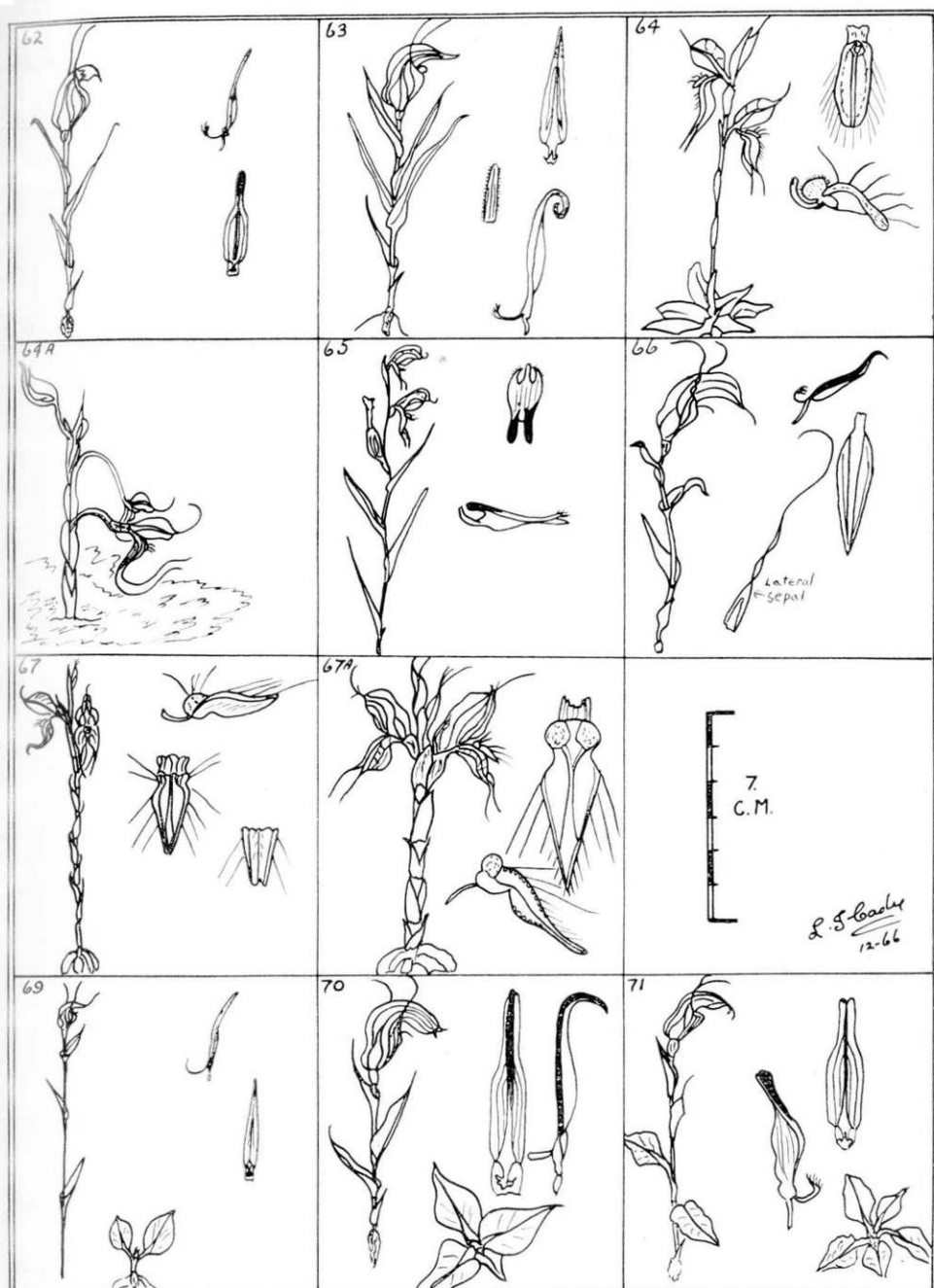
Figure 57 is natural size to scale. All others are half natural size to scale, i.e. the plants. The segments are much enlarged.

68. *P. tenuicaula* Kraenzl. Viertl. Natur. Gesell. Zurich. 74 (129) 63. New Caledonia.
69. *P. tenuissima* Nich. Vict. Nat. 67 (1950) 46. ill. p. 47. White with green striae. Vict.
70. *P. truncata* FitzG. Austr. Orch. 1, 4 (1878). O. of Austr. Nich. (1951) Pl. 90. Translucent white with bold and fine red/brown and green striae. N.S.W. and Vict.
71. *P. toveyana* Ewart et Sharman. Proc. Roy. Soc. Vic. 28 (N. ser.) 235 (1916). O. of Austr. Nich. (1951) Pl. 64. Coppery coloured or dark greenish on a white background. Vict., Tasm.
72. *P. trullifolia* Hook. f. Fl. Nov. Zel., 1 (1853), 249. As no type form is known only the 3 varieties are listed.
- 72a. variety *rubella* (Col.) Hatch. Trans. Roy. Soc. N. Zeal. 77 (1942) 244. The Orchadian 10(1965) P. N. Zeal.
- 72b. variety *gracilis* Cheesmn. Tran. N. Zeal. Inst. 47 (1914) 46, Tran. Roy. Soc. N. Zeal. 77 (1949) 244, Pl. 30. N. Zeal.
- 72c. variety *alobula* Hatch. Tran. Roy. Soc. N. Zeal. 77 (1949) 244, Pl. 30. N. Zeal.
73. *P. vereenae* Rogers Tran. Roy. Soc. S. Austr. 38 (1914) 360 T.18. O. of Austr. Nich. (1951). Pl. 72. White with green or red/brown striae. S. Austr. and Tasm. (See note 4 at end of text).
74. *P. venosa* Col. Tran. N. Zeal. Inst. 28 (1896) 610, Tran. Roy. Soc. N. Zeal. 77 (1949). Pl. 19. Greenish. N. Zeal.
75. *P. vittata* Lindl. Bot. Reg. Vol. 25, Swan River App. 53 (1839), South Aust. Orchids, Rog. (1911). White background with either dark green or red/brown markings. S. Austr., Vict., W. Austr. and Tasm.
- 75a. variety *viridiflora* Nich. Vic. Nat. XLIX (1933) 254. Translucent white, with prominent dark green bands. W. Austr.
- 75b. variety *subdifformis* Nich., Vic. Nat. XLIX (1933) 253. Red/brown suffused and striae on a white background. W. Austr.
76. *P. woollsii* FitzG. Austr. Orch. 1, 2 (1876). Gems of the bush, Nich. et Barrett (1932) centre plate. Green with yellowish brown markings or wholly red/brown. N.S.W., Queens., Vict.

PART 2

Names that are *Synonymus* or *Doubtful*

Synonym	Accepted Name
<i>P. aphylla</i> Lindl.	Regarded as a form of <i>P. parviflora</i> R.Br. See O. of N.S.W. Rupp (1943) 94.
<i>P. auriculata</i> Col.	<i>P. banksii</i> R.Br.
<i>P. acuminata</i> Sieb. ex Lindl. (non R.Br.)	<i>P. concinna</i> R.Br.
<i>P. banksii</i> R.Br. var <i>B</i> Hook. f.	<i>P. australis</i> Hook. f.
<i>P. banksii</i> R.Br. var. <i>australis</i>	<i>P. australis</i> Hook. f.
<i>P. carinata</i> Dockrill	<i>P. depauperata</i> Bailey
<i>P. confertifolia</i> Allan	<i>P. humilis</i> Rogers.
<i>Dispersis alata</i> Labill.	<i>P. alata</i> (Labill.) Reichb. f.
<i>P. emarginata</i> Col.	<i>P. banksii</i> R.Br.
<i>P. gracilis</i> Nich.	<i>P. foliata</i> Hook. f.
<i>P. gibbosa</i> R.Br.	<i>P. rufa</i> R.Br. (referred to this species by Benthams, but nothing seems to be known of the original species).
<i>P. graminea</i> Cheesmn. (Non Hook. f.)	<i>P. montana</i> Hatch. var. <i>montana</i>
<i>P. graminea</i> Hook f. var. <i>subricaulis</i> Math. ex Cheesmn.	<i>P. montana</i> Hatch var. <i>rubicaulis</i> (Math) Hatch.
<i>P. micromega</i> Hook. f.	<i>P. furcata</i> Lindl. var. <i>micromega</i> Hatch.
<i>P. micromega</i> Cheesmn.	<i>P. furcata</i> Lindl. var. <i>cinearis</i> Hatch.
<i>P. mathewsii</i> Cheesmn.	<i>P. nutans</i> R.Br. var. <i>nutans</i>
<i>P. mackibbinii</i> F. Muell.	<i>P. cucullata</i> R.Br.
<i>P. nana</i> Hook. f. (Non R.Br.)	<i>P. pedunculata</i> R.Br.
<i>P. obtusa</i> R.Br. as shown in both J. D. Hooker's Fl. Tasm. and Rodways Tasm. Flora	<i>P. decurva</i> Rog.
<i>P. puberula</i> Hook. f.	<i>P. nana</i> R.Br.
<i>P. praecox</i> Lindl.	<i>P. alata</i> (Labill.) Reichb. f.



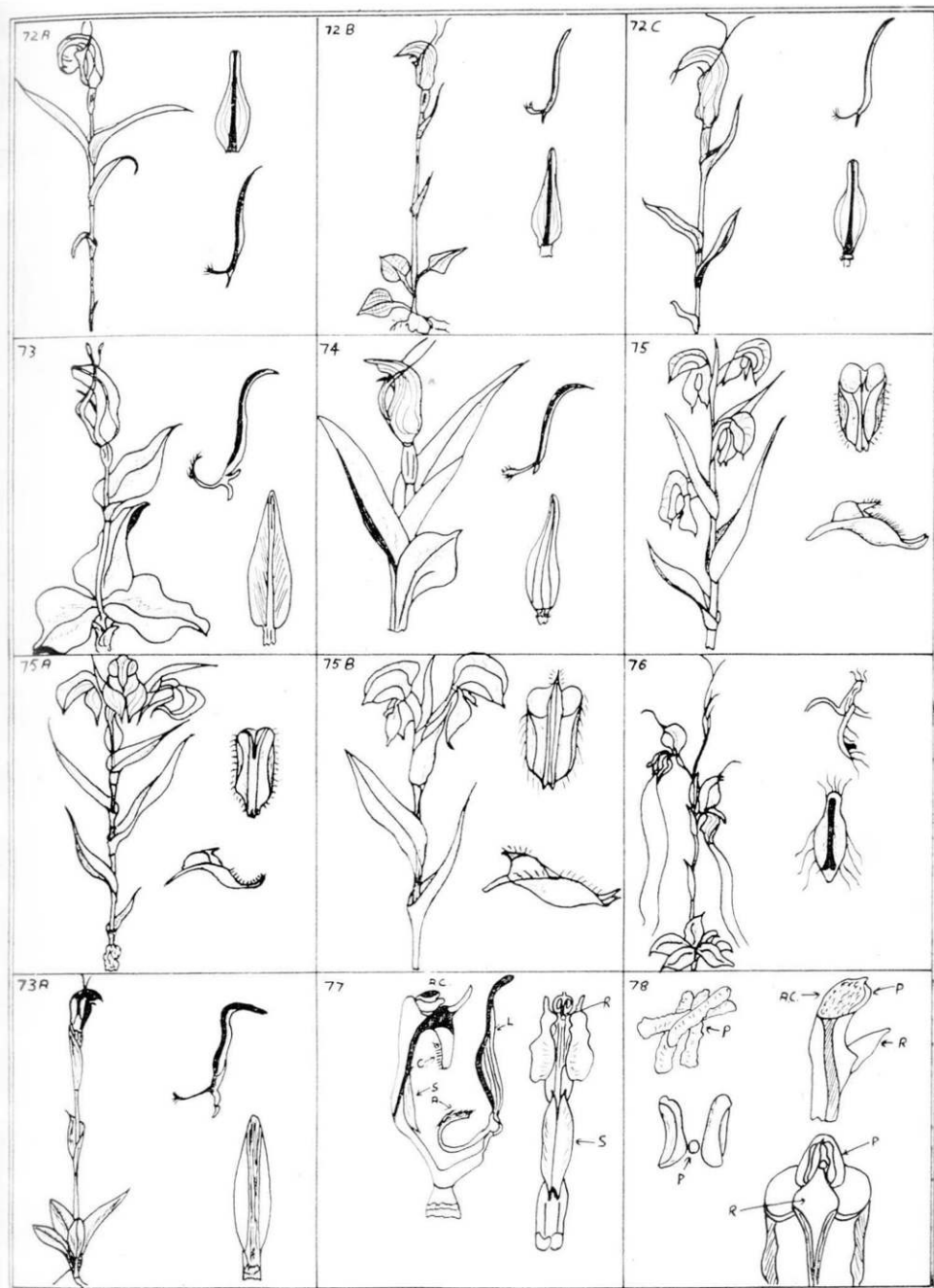
Figures 64, 64A and 67A are natural size. All others are half full size to scale, i.e. the plants. Segments are much enlarged.

<i>P. praecox</i> Lindl. var. <i>robusta</i> Ewart	....	<i>P. robusta</i> (Ewart) Rog.
<i>P. patens</i> Col.	....	<i>P. banksii</i> R.Br. var. <i>patens</i> (Col.) Hatch.
<i>P. polyphylla</i> Col.	....	<i>P. furcata</i> Lindl. var. <i>furcata</i>
<i>P. reflexa</i> Benth. (Non R.Br.)	....	<i>P. robusta</i> (Ewart) Rog. in part.
<i>P. rufa</i> R.Br. var. <i>mittellii</i> (Lindl.)	....	
FitzG.	....	<i>P. mittellii</i> Lindl.
<i>P. rufa</i> R.Br. var. <i>squamata</i> (R.Br.)	....	
FitzG.	....	<i>P. squamata</i> R.Br.
<i>P. semirubra</i> F. Muell.	....	<i>P. pedunculata</i> R.Br.
<i>P. speciosa</i> Col.	....	<i>P. banksii</i> R.Br.
<i>P. striata</i> FitzG.	....	<i>P. alata</i> (Labill.) Reichb. f.
<i>P. squamata</i> Hook. f. (Non R.Br.)	....	<i>P. barbata</i> Lindl.
<i>P. subsimilis</i> Col.	....	<i>P. banksii</i> R.Br.
<i>P. trifolia</i> Col.	....	<i>P. venosa</i> Col.
<i>P. tristis</i> Col.	....	<i>P. mutica</i> R.Br.
<i>P. turfosa</i> Endl.	....	<i>P. barbata</i> Lindl.
<i>P. whitei</i> Bail.	....	<i>P. parviflora</i> R.Br.
<i>P. species</i> (undescribed) Rupp Proc.	....	
Linn. Soc. N.S.W. 50304,	....	
Fig. 3 (1925)	....	<i>P. foliata</i> Hook. f.

PART 3

Note on Points of Interest

- Note 1—In the Western Austr. Nat. Vol. 8 No. 2 Oct. (1961) 38-41. Mr. A. S. George reduces *P. turfosa* Endl. to a synonym of *P. barbata* Lindl. stating that the original type of *P. barbata* Lindl. was described from W. Austr. material in Swan River App. (1839) 53, if this is so then this may leave the eastern states and New Zealand, with unnamed species. Two plants that have long been accepted as valid species, differ materially from one another particularly in the length of the sepal. Any one who is conversant with the two plants would agree that they are not conspecific.
- Note 2—*P. rufa* R.Br. is and has been for a long time an "ill" known species and is to say the least a very variable plant, it belongs to the multi-flowered group; the plant accepted as this species in South Australia is much different to the plant that is figured in Fitzgerald's Australian Orchids Vol. 1 pt. 2, which up to the present has been accepted as Brown's species. A critical review of this group is badly needed, in which the forms now evident in Australia should be compared materially with the types in England at Kew and the British Museum.
- Note 3—*P. speciosa* T. E. Hunt. The name *speciosa* has been used previously for a New Zealand plant now regarded as a synonym of *P. banksii* and is therefore invalid. The plant described by Hunt appears to be only a form of *P. revoluta* and in the writer's opinion should be synonymed under this species.
- Note 4—*P. verecna* Rogers. Two plates of this species are shown, plate No. 73 is after W. H. Nicholls plant in O. of Australia based on material from Tasmania, plate No. 73a is taken from plants received from the type area from Mr. H. Goldsack of South Australia. It is evident that Nicholls' plant is not the same as the type. Further work will have to be done on the Tasmanian *P. furcata* complex of which Nicholls' plant is a member.
- Note 5—*P. alveata* Garret. This species cause quite a lot of controversy when it was described. W. H. Nicholls rejected it as only a form of the cosmopolitan species *P. obtusa*, which it does resemble, but after examining specimens of the former from Tathra on the far south coast of N.S.W., particularly the emarginate tip to the labellum and its general all green colour the author feels that it is as good a species as some of the other controversial ones, and has retained it.
- Note 6—*P. pyramidalis* Lindl. This species is thought to be only a very leafy form of *P. nana* R.Br. by some botanists.
- Note 7—The illustrations in Plate No. 46 of *P. neocladonica* is a poor one, being taken from a photo of Schlechter type sheet and the plants are in a seeding condition, and therefore can be used only as a guide to the form of the species shape.
- Note 8—*P. revoluta* R.Br. W. H. Nicholls reports in O of Austr. "E. Nubling of Sydney (10.6.1928) recorded a specimen having a lateral growth of



The plants shown are half size, the segments being much enlarged. For Figures 77 & 78—A—appendage, AC—anther cap, C—column wings, L—labellum, P—pollina, R—rostellum, S—stigma, all much enlarged.

large leaves at the base of the stem; and a remarkable specimen came from Kurri Kurri (N.S.W.). It possessed a well developed rosette of leaves immediately below the floral pedicel and was found by Mr. M. W. Nicholls."

Note 9—Since the text was written this species (*P. carinata* Dockrill) has been synonymed under *P. depauperata* Bail., the mistake in identity occurring because of the inadequate description given by F. M. Bailey.

Note 10—Since the main text was written a paper has appeared in the Orchadian Vol. 2.12.(1968) 148. "Reviewing the so called 'Rufous Group of the Genus of *Pterostylis*'" by Blackmore et Clemesha. A number of changes have been made in the nomenclature, with the resurrection of R. Brown's *P. gibbosa* and the classification of 3 "new" species. A synopsis of the paper is appended below.

1. *P. woollsii* FitzG. remains the same. Plate 76.
2. *P. biseta* Blackmore et Clemesha a new taxon, for illustration of this plant, see Plate 64 and 64A. (This is not a typical plant). Synonym: *P. rufa* R.Br. var. *despectans* Nicholls.
3. *P. boormanii* Rupp. Late II, and 67A. Syn.—*P. squamata* R.Br. var. *valida*.
4. *P. hamata* Blackmore et Clemesha. A new taxon. Plate 67.
5. *P. ceriflora* Blackmore et Clemesha. A new taxon. Plate 25A.
6. *P. gibbosa* R.Br. ssp. *gibbosa*. Plate 25B.
7. *P. gibbosa* R.Br. ssp. *mittellii* (Lindl.) Blackmore et Clemesha. Plate 43.
8. *P. rufa* R.Br. ssp. *rufo*. Plate 55B. Syn.—*P. squamata* R.Br. and *P. pusilla* Rogers var. *prominens* Rupp.
9. *P. rufa* R.Br. ssp. *aciculiformis* (Nicholls) Blackmore et Clemesha. Plate 55 and 55A (more typical). Syn. *P. pusilla* Rogers var. *aciculiformis* Nicholls, and *P. pusilla* Rogers var. *pusilla*.

Note 11—*P. clavergera* FitzG. Has recently been found in its type area and has proved to be only an aberrant form of the now widespread *P. nana* and should be reduced to a synonym of this latter species.

Note 12—It seems desirable to mention that while examining the species from New Caledonia and New Guinea, just how close some of the so called species come to Australian and New Zealand plants. It will possibly be found when material from these countries is critically examined that a further reduction of species will be required and a wider distribution of our local species will be recorded.

Note 13—The only species which could not be illustrated due to lack of material were No. 56 *B. papuana* var. *seranica* and No. 68 *P. tenuicaula*, the former from New Guinea, the latter from New Caledonia.

Credits for Plate Illustrations

After W. H. Nicholls: 1a, 2, 14, 24, 31, 49a, 54, 55a, 57, 64, 64a, 67, 67a, 73.

After E. D. Hatch: 5, 6, 9a, 30b, 36, 37, 50, 37a, b, c, 74.

After G. Dillon: 13.

After J. A. P. Blackmore: 25B.

After W. Brinsley: 18.

After T. E. Hunt: 26, 61.

After W. T. Upton: 38, 75a. Labelum only.

The rest from the author's collection of drawings and live material or from specimens sent from different sources.

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PLANTS WITH FLESHY OR BULBOUS ROOT STOCK—continued from page no. 51

ARTHROPODIUM (Liliaceae)

A genus of several species (including those previously described under *Dichopogon*), found in Australia, New Caledonia and New Zealand. The rootstock is fibrous ending in tubers at a distance from the root stock. Leaves are broad and prostrate. Stems are erect, usually branched, each with several small attractive pendulous flowers in loose racemes, stalked, white, purplish

and similar colour. Seeds are black or brownish-black, angular. The anthers are bearded.

Arthropodium fimbriatum—somewhat similar to *A. strictum* but flowers often in clusters of 2-3.

A. milleflorum—grows to 18-24" high, flowers are numerous, white or purplish, drooping or fine pedicels, in the form of a panicle.

A. minus—a small flat usually under 12" high with oblong tubers close to the base. Stems simple and flowers few.

A. strictum (*Dichopogon strictus*)—tall growing up to 3 ft., with long fibrous roots with tubers. Stems erect, leaves basal, grass-like, flaccid. Flowers borne in loose panicles, single, drooping, purple, lilac, rarely white up to ½" diameter, sweetly scented.

BURCHARDIA (REYA) UMBELLATA (Liliaceae)

An attractive white flowered plant with a short angular rootstock, usually growing in a shaded or slightly open area. There is a single species.

Stems are erect and up to 18" high, with 2-3 narrow linear stem-clasping leaves—1-2 at the base, then 1-2 along the stems. The flowers are few to several in a terminal umbel subtended by bracts; perianth white, up to ½" diameter. The fruit is a capsule with pronounced horns at its apex.

It is widely spread throughout temperate Australia and in South Australia is confined to those regions receiving at least 25" rainfall per year. Under cultivation it responds to soils enriched with organic matter and requires some shade. It is propagated by seed.

BULBINOPSIS "Bulbine Lily" (Liliaceae)

Although a fairly large genus in South Africa, only 2-3 species are Australian. These are herbaceous plants, with deciduous foliage. Rootstock is usually a bulbous tuber from which a number of fleshy thin roots develop annually. The leaves are succulent, radial, linear to broad linear, and with yellow star-shaped flowers borne on a simple raceme. After flowering the perianth segments twist and deciduate.

B. bulbosa varies in size with the moisture present, but under ideal conditions, a plant 15-20" high—or as small as a few inches on dry sites. Leaves, radical, glabrous 3-10" long, broad linear, channelled; from the centre of which arises an erect single flowering stem 3-20" high with numerous flowers. Perianth yellow with green ridge down each segment; 1" diameter. Anther filaments are bearded. Capsule almost globular, ¼" diameter. The species is widely spread throughout South Australia and also temperate Australia.

B. semibarbata closely resembles the above but the flowers are usually smaller. (A variety (*var. deplita*) has somewhat twisted flowering stems and the filaments usually plain). The rootstock is fibrous, usually lacking the tuber.

Both plants make attractive garden plants and can be readily raised from seed.

CAESIA (Liliaceae)

A small genus of very attractive herbaceous plants with grass-like light green foliage at the base, tuberous rootstock and blue flowers. There are about six species native to Australia and several found in South Africa. The South Australian species are usually found in partially shaded sites in moist soils.

Caesia vittata is a freely colonising plant occurring in large patches. The flowering stems are erect 10-15" high, glabrous, usually pale green, single

or sometimes slightly branched. The flowers are pale to dark blue—more rarely white or lilac—in colour and occur in clusters on the upper part of the stems, $\frac{1}{2}$ – $\frac{3}{4}$ " diameter; star shaped. Capsule containing black seeds is sub-globular in shape. *C. parviflora* is usually much smaller, with flowers up to $\frac{1}{2}$ " diameter. The leaves in both species are light green in colour sub-erect, radial linear to lanceolate and up to 9" long.

Like *Bulbinopsis* the species can be raised from seed. However instead of an open sunny site, *Caesia* species require better soil and partial shade.

CALOSTEMMA

A small Australian genus of attractive free flowering herbaceous bulbous plants. Two species are found in South Australia each occupying distinct habitats and different sites may be necessary to flower them.

The bulbs are usually globular 1–2" in diameter and covered with brown or black sheathing tunics. The leaves are linear, a third to half an inch in width usually developing in length after flowering. They are all radical. The flowers are borne in umbels on a cylindrical or slightly compressed leafless scape varying in height between 12–24". The seeds are fleshy and germinate in a manner similar to that described for *Crinum flaccidum*. For a full colour plate of both species see "Australian Plants" No. 26.

Calostemma purpureum is a plant found on rocky slopes or woodland areas usually in partial shade, and forming large colonies. The flowers, 6–15 in number or rarely more, are light to dark reddish purple in colour, but pink and very rarely almost white forms have been reported. The tube of the perianth is almost equal to one third of the total length of the individual flower which is between $\frac{1}{2}$ – $\frac{3}{4}$ " long and slightly spreading to an equal diameter. The capsule is somewhat globular in shape and contains 2 or 3 seeds.

Calostemma luteum is found only in the drier and more arid parts of the State usually along flood plains of water courses. The habitat is similar to *Crinum flaccidum*, but it often forms dense localised colonies in depressed moist areas. The soil is frequently heavy and is probably best described as a sticky-clay although elsewhere the topsoil can be light and sandy, then the bulbs are resting on an impervious clay layer. This species is similar to the above, but differs by a taller habit, more erect foliage, larger flowers, which are a clear buttercup yellow. It is a most attractive plant and one which is easy to cultivate and flower.

CORYNOTHECA (Liliaceae)

This genus is now regarded as identical to *Caesia*. There were originally three Australian perennial species and until revision of the species has been completed the position is not clear.

Corynotheca micrantha is a species found in the far north-west portion of the State. Stems are terete and rigid, somewhat zig-zag in branching; flowers are very small.

C. lateriflora was recently discovered by the author in the Simpson Desert.

CHAMAESCILLA (Liliaceae)

There are two Australian perennial species with tuberous root stocks.

Chamaescilla corymbosa. A low-growing herbaceous plant, about 3"–6" high with two-five channelled basal grass-like leaves. The flowering stem is erect, bearing near the summit a loose corymb of usually several bright-blue flowers about $\frac{1}{2}$ " in diameter. The floral segments spirally twist after flowering and deciduate. The capsule is laterally compressed, acute on the

edges and truncated at the summit. Seeds are black and glossy and few in each cell. It is found frequently in savannah-like country and grows readily in medium soil. It is a very attractive plant with its green leaves, frequent red stems and bright dark-blue flowers.

CRINUM—"Murray" or "Darling Lily"

A very large genus of bulbous plants widely distributed throughout the warmer parts of the world. Some authorities place the number of species as high as 150—others about 120, indicating the need for a thorough botanical revision. The South Australian species most certainly require investigating, because of marked differences in flower form, shape, colour, perfume and other features. The genus is readily divided into those species which have persistent evergreen foliage and those whose foliage is deciduous.

For a reference to all Australian species of *Crinum* and a line drawing, see "Australian Plants" No. 26.

C. flaccidum belongs to the second group. The seeds are large— $\frac{1}{2}$ "– $\frac{3}{4}$ " in diameter, fleshy and usually produced in abundance.

New plants are produced by the production of a long thin arching outgrowth from the seed, usually greenish grey in colour with a root at its end. The region immediately above the root swells rapidly after the root has penetrated the soil, forming a fleshy base, the embryonic bulb.

C. flaccidum. This is a most attractive plant in flower 15-30" high with a flaccid rosette of broad linear to lanceolate bright green glossy leaves up to 2 ft. long. The bulbs take a number of years to flower from seed (between 4 to 10 depending on the seasons experienced). The root-stock is a large bulb often several pounds in weight, with a long attenuate neck.

Under natural conditions, contractile roots slowly pull down the developing bulb until they reach the clay horizon. This may vary from 6-36" below the soil surface. On sloping ground it is interesting to trace the growth demands made on the bulb to enable it to reach this moist clay layer.

The usually scented flowers are produced in umbels at the top of a stout scape, 15-30" high. Two large papery bracts enclose the flowers usually a few to ten or more in number. The flowers are usually white when found in the immediate vicinity of the Murray or its tributaries. However, on the flood plains of rivers in arid regions, the colour varies from pale cream to yellow, with reports made, now and then of a pale pink flowering form.

Individual flowers are large. The tube if present is from 2-3" long or often almost absent (especially in some of the yellow flowered forms). The perianth segments are six in number, somewhat spreading and of equal length.

Under cultivation, they grow readily in pots or in the open soil. In either case, planting to a depth of at least 9" is recommended although if light soils are present, then this should be increased to 15". Leaf and flower production can be produced at will about three to six months after heavy and continuous watering. Leaf production often commences following good winter rains but unless supplemented the flower stems are not produced and then usually during the warmer parts of the year.

Seed is sown by merely placing it on the soil surface. Germination is fairly rapid and young bulbs can be provided 12 months after the seed has been sown.

This plant requires an open sunny site to obtain maximum development. **DROSERA** (Droseraceae)—Sundews. These will be described in a latter issue.

HYPOXIS "Weather Glass" "Star Grass" (Hypoxidaceae)

A fairly large genus of some 90 species principally South African of which half a dozen or so species are native to Australia. Two are recorded from South Australia. The rootstock is a corm like structure (which is covered with coarse fibres) from which arises long grass like leaves—all radical, but their bases sheath the lower portion of the thin flowering scape.

H. glabella. An herbaceous glabrous plant a few inches to about nine inches high with usually one erect linear sheathing bract about the middle of the scape. Flowers usually one, terminal, star shaped, bright yellow inside, greenish brown on the outside, about $\frac{1}{2}$ to $\frac{3}{4}$ " in diameter. The capsule is oblong with roundish dark coloured seeds.

H. pusilla is a much smaller plant rarely more than a few inches high with two small deciduous stem bracts, leaves very slender, flowers usually solitary about half an inch in diameter and coloured as in the above species. The capsule is globular or egg shaped.

They are usually found through savannah country preferring partial shade. The flowers open only in bright sunlight or when temperatures are high. Flowering occurs during the late winter to spring. There is a variety of soils in which they are found varying from medium to heavy textured to moist. Along with most of the spring flowering bulbous plants, they require a completely dormant period after leaf maturity when the soils dry out. New plants are raised by seed.

MICROSERIS "Yam" (Compositae)

A member of the Compositae, *Microseris scapigerum*, is a glabrous perennial with fleshy tapering roots up to $\frac{1}{2}$ " in diameter and 2" long. The leaves are all radical 6-10" long, linear to lanceolate, usually entire or with a few distant deflexed teeth or more rarely small lobes. Flowering scapes are erect, glabrous up to 15" high and single headed. In open sunny sites, the scape is often stout and rigid. In shady sites, it is frequently weak and flaccid. The capitulum is green coloured, involucre bracts in 4-6 rows. The florets are ligulate, yellow or yellowish orange (rarely) and overall very much like the *Taraxacum* or English Dandelion. The seeds are terete, ribbed, $\frac{1}{2}$ to $\frac{3}{4}$ " long.

It grows naturally in diverse habitats from fully exposed sunny sites to partial shade. It is also found on rocky slopes and in savannah country. A very attractive plant and one which is very rarely seen in cultivation.

HOME LANDSCAPE IN THE COUNTRY—continued from page 59

They should be contrived to incise into the open spaces beyond the house thereby reducing the force of the wind as a sort of baffle. This type of planting is desirable aesthetically since it helps to relate the homestead landscape to the farm landscape, especially if there are existing plantings on the farm itself. An admixture of species is desirable particularly if Eucalyptus and Acacias form the dominant top story vegetation. Ecologically associated genera of a shrubby nature are important in the planting to prevent excessive ground draught through the belt, but it must be appreciated that a solid hedgerow barrier effect is less effective than an informal loose planting in baffling the winds.

Once the major shelter plantings have been established the more desirable plantings can be made nearer the house, the selection of which will depend upon local conditions and personal choice, but again the selection should be based upon hardiness of the material. Remember, a well grown salt bush is infinitely more effective than a half dead rose!

In siting the actual garden plants there are one or two important points to bear in mind.

The first is function. Ask yourself what you want the tree or shrub to do. Do you want a shade tree summer and winter or just summer?

Do you want a specimen shrub to be walked around and admired or do you need a screening group of shrubs to blot out a shed or garage?

In looking at it in this way one can begin to organise one's thoughts.

The plant material can be grouped into 3 or 4 basic types:

1. Shade and ornamental trees.
2. Screen and shelter shrubs.
3. Ornamental and accent shrubs.
4. Ground covers.

These should be used for practical and physical purposes first and for ornament second. Don't forget that most plants are really ornamental so that this aspect should be treated as a bonus.

With this new set of plant equipment one can now set about organising one's space.

All successful gardens have an element of surprise. This can only be achieved by with-holding one's view of some portion of the garden and this is brought about by arranging visual barriers. These can be in the form of walls, hedges, fences and groups of screening shrubs or combinations of two or more of these.

By organizing these materials one is in a position to create as many new spaces as one desires, the number and size of which will depend entirely on the size of the garden itself and the effect one wishes to obtain, but it must be stressed that these new spaces should always be well proportioned. (Well proportioned spaces are usually where the width is in excess of two thirds the length). The size of the space should also be proportionate to the material used and the elements contained therein. For want of a better description, the space should look "comfortable". For example, a home swimming pool would look ridiculous sitting out in a fifty acre paddock, but if it were sited in one of these spaces that has been especially made for it the result would be satisfactory. This would have the element of surprise since one would come to it rather suddenly if it were adequately screened.

While the aspect of surprise is important one should not run away with the idea that there should be surprises around every corner! Simplicity and unity are over-riding factors in all design and garden design is no exception.

By organising plant material into strong groups and visual barriers one simplifies the garden scheme.

By selecting the features that one desires most of all and arranging the vegetation to enhance this feature the unity of the garden is most likely guaranteed.

By spotting shrubs in lawns add lib and plastering the area with as many features as possible, chaos will certainly be the result. In any event, individual shrubs spotted in lawns increases maintenance while the effect is always disappointing—it loses its punch!

A garden around the homestead of a farm offers far more opportunity for imagination and interest than one in a city. The farmer has much more control over the overall landscape than a city dweller and with the sensible use of indigenous trees he can make an impact of some consequence.

GARDENING IN LOW RAINFALL REGIONS—continued from page 55

On flat areas and especially those which are subject to flooding in times of heavy rain—assuming that the house has been built on high foundations—it is worthwhile making the beds 6-12" higher than the natural soil level.

A couple of other situations should be mentioned. Where a band of ironstone or hardpan and broken sheet limestone or punctured rock lies a few inches under the soil surface, it is worthwhile ripping this to increase the potential root run of the plants. Hardpan can be particularly limiting by preventing the roots from penetrating below it.

The other occasion is where salty soils are present. This is probably one of the most limiting factors and although we know a few plants which will grow in such places, ripping and increasing the depth of soil will help. The raised beds will be gradually leached free from salt thus increasing the root run. A costly but alternative method is to lay black polythene sheeting before making up the beds but this cannot be considered wholly practical for large areas. Less expensive is to dress the area of cultivated soil with powdered gypsum using up to ½ lb. per square yard or even more in the case of denser soils. If this can be watered immediately after application, the sodium salts will be leached from the upper soil levels.

Planting Sites

Regardless of the preparation given to the area overall, the actual planting sites should be carefully treated. If the area has been ripped or cultivated (except light soils), it will not be necessary to loosen the soil further, but if this has not been done then an area 2 ft. square and 9-12" deep (if the soil depth allows) should be turned over. Again more bush trash and other organic matter should be incorporated throughout the loosened area. It is also worth remembering that old straw, hay and even very well composted animal manures can be used because our native plants will tolerate such additions.

In dry areas it is unwise to place a thick layer of this material 9-15" deep at the bottom of the planting hole. This material will only rot in the presence of moisture. If water is not available to assist, this material can remain as a dry layer, thus preventing roots from entering into it.

In the experimental plantations which are under the control of the Adelaide Botanic Garden, it has been found that at planting time, it is beneficial to place into the planting hole a small handful of fortified superphosphate before planting evergreens, Conifers excepted. These latter can receive a dressing a year or so after planting and deciduous material if used, can receive a dressing after bud burst.

Time of Planting

Two factors dictate when planting can be done—the incidence of frost and whether there is a period of the year when rains can be expected. There is no set rule of thumb when the actual time to plant. In some low rainfall regions planting before the winter (say May to July) gives excellent results. In others, because of the cold winters it is better to wait until September. However, if rain can be expected regularly towards the end of the year, planting should be completed before it arrives. To wait until it rains often means that you are dealing with water soaked soil which does not work easily nor can plants be properly set out.

Whilst it is unwise to plant into boggy and puggy soil, it is also desirable if planting into dry soil can be avoided. If some water is available, the moistening of the planting site the day before is ideal.

Wherever frosts are heavy during the winter withhold planting until after they can be reasonably expected to stop. Young plants are often very susceptible to frost.

Ordering Plants

This should not be left until the last minute, but should be carried out early in the season. Once conditions are suitable for planting or farm work allows this to be carried out, it is of little use driving off to a nursery and expecting to be able to obtain the selection you require, others will have been there before you.

There is at least one nursery in each state which is specialising in plants for dry regions and except for the unusual and uncommon plants, most types are available, most certainly for initial planting. When the plants do arrive, make sure that the soil is not dry. If so, give them an immediate watering and keep the soil moist until planting.

It is worthwhile raising your own. This is a very simple operation. The process and procedures have been detailed in this Journal and seed is available from a number of places.

Planting Techniques

Because the area has been generally loosened, there is no need to excavate large holes nor in any circumstances should these be made in heavy soils and filled with lighter material. If this is done, they merely become sumps which during the winter months and when filled with water can cause considerable rotting of roots. A hole large enough merely to accommodate the roots of the plant is required. This of course will vary on the size of the root ball, but normally about 9" square and in similar depth is all that is necessary.

Plants should always be removed from whatever container they are growing in. In the case of pots, the plants should be turned upside down with a hand over the soil and the pot given a sharp tap on the top of a spade. This will allow the soil ball to be removed. After this is done, the drainage material should be carefully removed and if necessary any roots which are tightly coiled should be teased out.

For metal or wooden veneer tubes, these should be carefully opened to prevent the soil ball from breaking. Fairly careful handling of these will be necessary because they readily crumble. Some nurseries are now using black plastic bags. The plants can be removed quite readily by holding the bag at the bottom and gently squeezing out the plant. Alternatively, the bag can be slit with a knife or a pair of scissors.

Planting

The technique for planting is straight forward and simple. The top of the root ball should be set an inch or so lower than the level of the soil and therefore the hole may need to be either deepened or some soil placed in the bottom of it to ensure that this is brought about. Where roots have been teased out from the soil ball, these should be spread out and therefore it may be necessary to excavate further soil to accommodate these.

After the depth has been decided on, the plant is placed in the hole and the soil is gradually placed over and around the roots and when a depth of 2 or 3 inches has been replaced, this should be gently firmed with the ball of the foot. Under no circumstances should the soil be rammed hard.

Not only will this prevent air and water penetrating readily, but damage to fine roots could occur.

Care after Planting

After planting it is worthwhile establishing a depressed area for a distance of about 18" around the plants. This ensures that if water is given, then this is concentrated in the present area of the roots. However, this saucer should not remain in position longer than the first year. At the end of the first year season, it should be filled and a saucer in the shape of a ring 18" to 2 ft. from the trunk of the tree should be established. This should be 3 to 4 inches deep and 6-9" wide and if possible filled with coarse gravel or pebbles. When water is to be applied it should be applied to this area thus ensuring that the roots are gradually spreading outward and seeking moisture from a greater area. Too often saucers are left for several years. In dry regions this causes restricted root growth which can be fatal to a tree should supplies of water become unavailable to continue watering the plant or rainfall is well below average.

Whilst many authorities recommend staking the young plants this is not desirable if it can be avoided. If the site is particularly windy it is better to erect a screen 18" away from the plant. This can be in the form of a half circle of wire netting over which hessian or brush is placed or a half circle of tin, set at right angles to the prevailing wind.

However, if the plant is large and a stake is considered necessary to prevent it moving and thus rubbing the bark at ground level, the stake should be put in at an angle of about 30° at a point 12-15" away from the base of the plant. The young plant then is tied in one position only, namely where its stem co-incides with the angle of the stake. In all cases, the stake should be removed if possible at the end of the first and not later than the end of the second season.

Mulching is most important to newly established plants. If the saucer is filled with creek gravel, this is an ideal medium. Alternatively black plastic, opened paper cement bags or fertilizer bags can be used or even jute bags.

The purpose of the mulching is to firstly conserve moisture and secondly and possibly more importantly to prevent weed growth. If mulching cannot be carried out in any form, then immediately after planting, one of the pre-germinating herbicide sprays should be carefully applied for a distance of 18" to 2 ft. all round the young plant. There are a number of these chemicals on the market but they must be used at strengths recommend by the manufacturer. Their purpose is to prevent seeds germinating. The mechanics of the spray is to kill the young seedlings as they germinate by preventing growth. Providing the soil surface is in no way disturbed, they remain affective for periods up to two years. They will not destroy existing vegetation i.e. perennial weeds nor will they destroy any annual growth, therefore they must be applied to bare soil.

The removal of weeds is an essential matter in relation to the establishment of plants whether they be in a garden, for a shrubbery for a windbreak or for specimens in a lawn. Firstly, because of the removal of the moisture from the soil thus competing with the young seedlings, secondly the removal of plant foods which can have a serious affect on the young plants and thirdly in the case of plantings which are in areas which could become a fire hazard. The removal of weeds is necessary to prevent trash being

present at the base and surrounding the young plants which in the case of a fire could destroy them.

Finally it is essential that all young plants be adequately protected from both stock and vermin. The type of fencing to be erected will depend on the nature of the stock and also the prevalence of vermin. For the garden, it is assumed that a proper stock proof fence will be erected and a similar structure is required where plantings are made in various parts of the farm to give shade, shelter and wind breaks.

NOTE

In the following lists trees and shrubs listed for limey soils are suitable for neutral and slightly acid soils but not the reverse. Likewise trees and shrubs listed for heavy soils will usually grow in light or medium soils but not vice versa.

TREES FOR LIMEY SOILS

- Acacia acuminata*, Raspberry Jam Wattle—Small tree 10-12 ft., brownish green foliage, deep yellow flowers.
- A. aneura*, Mulga—Rounded or tall bush or small tree, grey foliage, yellow flowers.
- A. cyanophylla*, Orange Wattle—Spreading small tree to 12 ft., long bluish green leaves, deep orange flowers.
- A. loderi*, Nealie—Similar to *A. sowdenii*, but broader leaves.
- A. salicina*, Broughton or Willow Wattle—Weeping tree to 15 ft., thin foliage, pale cream flowers.
- A. saligna*, Golden Wreath Wattle—Dense spreading small tree, 10-12 ft., green leaves, bright yellow flowers.
- A. sowdenii*, Western Myall—Young trees weeping, mature semi-erect, long thick linear grey leaves, clear yellow flowers.
- Brachychiton populneum*, Kurrajong—Pyramidal tree to 20 ft., glossy green leaves, pale pink bell shaped flowers in pendulous clusters.
- Callitris preissii*, Murray Pine—Stately conical grey or green foliaged tree to 15-20 ft.
- Casuarina cunninghamiana*, River Oak—Tall conical tree to 25 ft., deep green foliage.
- C. cristata*, Black Oak—Somewhat stiffly branched tree, black green foliage, 10-15 ft.
- C. glauca*, Swamp Oak or Grey Bullock—Tall sombre tree 20-25 ft., often suckering grey-green foliage, shelter.
- C. littoralis (suberosa)*, Black Sheoak—Upright attractive tree 15-20 ft., dark green foliage, red topped in Spring.
- Eucalyptus brockwayi*, Dundas Mahogany—Tree 20-30 ft., smooth salmon bark, shiny green leaves, white flowers.
- E. cladocalyx*, Sugar Gum—Tall tree, clean trunk, 30-40 ft. high, shiny leaves, cream flowers.
- E. cladocalyx v. nana*, Dwarf Sugar Gum—Small bushy compact branching tree 10-15 ft., useful for low shelter.
- E. dielsii*, Diel's Mallee—Small bushy tree 12-15 ft., cream flowers.
- E. diptera*, Two-winged Gimlet—Small tree 15 ft., narrow thick leaves, greenish yellow flowers.
- E. diversifolia*, Soap Mallee—Mallee, grey trunks, thick deep green leaves, cream flowers, 12-15 ft.
- E. eremophila*, Tall Sand Gum—Compact small tree or mallee, thin leaves, long greenish cream or pink flowers in stalked groups.
- E. falcata*, White Mallet—Small tree 15-20 ft., smooth dazzled bark, dark green leaves, white flowers.
- E. forrestiana*, Fuchsia Gum—There are two forms (1) Small tree, 8-10 ft., densely foliaged, reddish green leaves, flowers yellow, red 4 winged receptacles, long operculum. (2) Smaller, more spreading, but short rounded operculum.
- E. gardneri*, Blue Mallet—Tree 15-20 ft., smooth silvery brown trunk, bluish foliage, long greenish flowers.
- E. gracilis*, Yorrell—Mallee or small tree, rough bark, thin leaves, white flowers.
- E. intertexta*, Coolabah—Tree 20-25 ft., rough or smooth trunk, sparse foliage, small white flowers.
- E. leucoxylon*, S.A. Blue Gum—Attractive spreading tree, grey, yellow and white bark, large cream flowers, 20-30 ft. high.

- E. leucoxyloides* v. *rosea*—Smaller than above, large red flowers, also, yellow, orange, deep pink flowers.
- E. oleosa*—Forms often glaucous, small trees 10-15 ft., floriferous, cream flowers.
- E. salmonophloia*, Salmon Gum—Beautiful tall tree, bark salmon and smooth, shiny, small leaves, small cream flowers.
- E. steedmannii*, Steedman's Gum—Attractive bushy small tree, deep green shiny leaves, cream flowers, 4 winged fruits.
- E. stoatei*, Pear Gum—Erect compact small tree 10-15 ft., thick roundish leaves, flowers yellow, fruits pear shaped, red, rough.
- E. stricklandii*, Yellow Flowering Gum—Spreading open tree, 15-20 ft., large thick leaves, large yellow flowers in clusters.
- E. torquata*, Pink Gum—Neat rough barked hardy tree 10-15 ft., thick leaves, attractive sculptured buds, pink flowers.
- Eucalyptus* "Torwood" Hybrid Pink Gum—Tall vigorous well furnished tree, cream, yellow or red flowers.
- Geijera parviflora*, Wilga—Attractive broad conical tree, long narrow leaves, flowers small.
- Melaleuca armillaris*, Bracelet Honey Myrtle—Densely branched attractive tall shrub, cream flowers.
- M. halmaturorum*, Kangaroo Is. Paperbark—Paper bark, spreading dense tree, 10-15 ft., small grey foliage, white flowers.
- Pittosporum phylliraeoides*, Weeping Pittosporum—Attractive pendulous open tree, thin foliage, cream flowers, orange fruits.

TREES FOR HEAVY SOILS (not Limey)

- Acacia acuminata*, Gold Dust Wattle—see previous list.
- A. cambagei*, Gidgee—Bushy small rough barked tree 10-15 ft., grey narrow foliage, cream flowers.
- A. cardiophylla*, Wyalong Wattle—Small bushy tree 10-12 ft., feather like foliage with small leaflets, flowers bright yellow.
- A. harpophylla*, Brigalow—Upright tree, 20-25 ft.
- A. normalis*, Queen Wattle—Ornamental tree, 15-20 ft., bright green feathery foliage, pale yellow blossoms.
- A. pendula*, Weeping Myall. Attractive tree up to 20 ft., pendulous branches, bluish narrow foliage, small flowers.
- A. salicina*, Broughton Wattle—see previous list.
- Callistemon salignus*, Willow Bottlebrush—Upright tree 15-20 ft., new growths pink, cream flowers.
- Casuarina cristata* and *glaucocarpa*—see previous list.
- C. luehmannii*, Bullock—Tall somewhat spreading tree to 25 ft., dark foliage.
- Eucalyptus astringens*, Brown Mallet—Erect tree 35-40 ft., light brownish bark, shiny leaves, cream flowers.
- E. brockwayi*, Dundas Mahogany—see previous list.
- E. caesia*, Gungahra—Most attractive graceful small tree to 15 ft., brown shiny bark, twigs whitish-purple, glaucous leaves, rose pink fls.
- E. campaspe*, Silver Topped Gimlet—Neat hardy tree, 15-20 ft., silvery branches and leaves, cream flowers.
- E. cladocalyx* and *E. cladocalyx* v. *nana*—see previous list.
- E. cneorifolia*, Kangaroo Island Mallee—Small tree or mallee to 20 ft., deep green narrow leaves, cream flowers.
- E. dielsii*—see previous list.
- E. dundasii*, Dundas Blackbutt—Erect tree 25-30 ft., upper trunk smooth, reddish brown, green leaves, white flowers.
- E. eremophila*, Tall Sand Gum—see previous list.
- E. erythrocorys*, Red Cap Gum—Attractive, white trunked small tree to 15 ft., glossy green leaves, spectacular large yellow flowers 3" diam., red caps.
- E. erythronema*, Lindsay Gum—Neat, free flowering white trunked small tree to 10 ft., glossy leaves, red flowers.
- E. falcata*, White Mallet—see previous list.
- E. cooperana* (*flocktoniae*), Merritt—Mallee or shapely small tree 15-20 ft., shiny leaves, abundant deep cream flowers.
- E. forrestiana* and *E. gardneri*—see previous list.
- E. gillii*, Curl Mallee—Somewhat gnarled small tree 15 ft., blue cordata foliage, white flowers.
- E. hemiphloia*, Grey Box—Erect tree to 35 ft., rough bark, greyish foliage, white flowers.

- E. lansdowneana*, Crimson Mallee Box—Mallee or small bushy tree to 12 ft., green foliage, colour range of flowers from cream to purple.
- E. largiflorens*, Black Box—Vigorous rough barked tree 30 ft., dull narrow foliage.
- E. leucoxydon* and *E. leucoxydon* 'Rosea'—see previous list.
- E. lehmannii*, Bushy Yate—Low bushy tree 10-15 ft., yellow green foliage, flowers long, green in tight heads.
- E. maculata*, Spotted Gum—Beautiful tree, 25-30 ft., dappled grey bark, broad green foliage, white flowers, frost tender whilst young.
- E. nutans*, Red Flowering Moort—Small bushy tree 10-15 ft., rounded leaves, flowers nodding, cream to crimson in colour.
- E. occidentalis*, Swamp Yate—Tall tree 30-35 ft., with rough grey bark, large yellow flowers.
- E. platypus*, Round Leaf Moort—Compact, vigorous small tree to 15 ft., thick rounded leaves, greenish yellow flowers.
- E. salmonophloia*—see previous list.
- E. salubris*, Gimlet—Neat tree to 20 ft., fluted trunk, smooth shiny greenish red bark, dark olive green leaves, whitish flowers.
- E. sargentii*, Salt River Gum—Medium sized tree to 20 ft., smooth.
- E. spathulata*, Swamp Mallet—Small attractive bushy trees 15-20 ft., erect narrow bluish leaves, cream flowers.
- E. steedmannii*, *E. stoatei*, *E. stricklandii*, *E. torquata*, *Eucalyptus* hybrid 'Torwood'—see previous list.
- E. wandoo* (*redunca* v. *elata*), Wandoo—Tall straight white trunked tree, 35-45 ft.
- E. woodwardii*, Lemon Flowered Gum—Small tree 10-15 ft., whitish trunk, semi pendulous branches, foliage whitish, broad, thick, showy yellow flowers in clusters.
- Ficus macrophylla*, Moreton Bay Fig—Robust spreading tree 35-40 ft., broad brownish green leaves, frost tender when young.
- Lagunaria patersonii*, Pyramid Tree—Erect broad conical tree 25-30 ft., grey green foliage, pink hibiscus like flowers.
- Melaleuca armillaris*—see previous list.
- M. lanceolata*, Dryland Tea Tree—Small tree, spreading habit 10-15 ft., deep green leaves, white flowers.
- Pittosporum undulatum*, Sweet Pittosporum—Bushy, shady tree 15-20 ft., large oval pointed shiny leaves, scented flowers in bunches.
- P. phylliraeoides*, Native Apricot—see previous list.

TREES—LIGHT NEUTRAL OR SLIGHTLY ACID SOILS—NOT SALINE

- Acacia aneura*, Mulga—See Trees for Limey Soils.
- A. brachystachya*, Umbrella Mulga—Similar to *A. aneura*, with shorter spikes of flowers.
- A. excelsa*, Wallowa, wood—Tall tree 25-30 ft., curved broad pointed leaves, cream flowers.
- A. homalophylla*, Yarran—Small spreading tree 10-15 ft., narrow curved leaves, deep cream flowers.
- A. pendula*, *A. salicina*, *A. sowdenii*—see previous list.
- Bauhinia carronii*, Queensland Ebony—Umbrageous tree 20-25 ft., twin leaves.
- Brachychiton gregori*, Desert Kurrajong—Open spreading tree 15-20 ft., smooth greenish trunk, forked leaves, creamy flowers in bunches.
- B. populneum*, Kurrajong—See Trees for Limey Soils.
- Casuarina cunninghamiana*, *C. cristata*, *C. lehmannii*—See Trees for Limey Soils.
- C. columnellaris* (*glauca*), White Cypress Pine—Small attractive dense conical tree 15-20 ft., green or glaucous foliage.
- C. calcarata*, Black Cypress Pine—Erect dark green pyramidal conifer 20-40 ft.
- C. preissii*—See Trees for Limey Soils.
- Erythrina vespertilio*, Batwing Coral Tree—Medium spreading tree 20-25 ft., pointed lobed leaves, flowers orange housed in spikes.
- Eucalyptus brockwayi*, *E. dundasii*, *E. forrestiana*, *E. gardneri*, *E. largiflorens*—See previous list.

TREES—LIGHT TO MEDIUM NEUTRAL OR SLIGHTLY ACID SOILS—NOT SALINE

- Acacia aneura*—see Trees for Limey Soils.
- A. brachystachya*—Similar to *A. aneura*, with shorter spikes of flowers.

- A. excelsa*, Wallowa, Ironwood—Tall tree 25-30 ft., curved broad pointed leaves, cream flowers.
- A. homalophylla*, Yarran—Small spreading tree 10-15 ft., narrow curved leaves, deep cream flowers.
- A. pendula*, *A. salicina*, *A. sowdenii*—see previous lists.
- Bauhinia carronii*, Queensland Ebony—Umbrageous tree 20-25 ft., twin leaves.
- Brachychiton gregori*, Desert Kurrajong—Open spreading tree 15-20 ft., smooth greenish trunk, forked leaves, creamy flowers in bunches.
- B. populneum*—See trees for Limey Soils.
- Casuarina cunninghamiana*, *C. cristata*, *C. lehmannii*—see previous lists.
- Callitris columellaris* (*glauca*), White Cypress Pine—Small attractive dense conical tree 15-20 ft., green or glaucous foliage.
- C. endlicheri* (*calcarata*), Black Cypress Pine, Red Cypress Pine—Attractive conical tree to 20 ft., green foliage.
- C. preissii* (*propinqua*), Murray Pine—See Trees for Limey Soils.
- Erythrina vespertilio*, Batswing Coral Tree—Medium spreading tree 20-25 ft., pointed lobed leaves, flowers orange-brown in spikes.
- Eucalyptus brockwayi*—See Trees for Limey Soils.
- E. desmondensis*—Glaucous mallee 10-15 ft., white bark, cream flowers.
- E. dielsi*, Diel's Mallee—Small tree 15-20 ft., long thick shiny leaves, cream flowers.
- E. dundasii*—See previous list.
- Eucalyptus eximia*, Yellow Bloodwood—Tree to 20 ft., yellow, scaly bark, large falcate leaves, large white flowers.
- E. forrestiana*, *E. gardneri*, *E. largiflorens*—See previous lists.
- E. longicornis*—Tall rough barked tree to 50 ft., dark green shiny foliage, white flowers.
- E. macranda*—Graceful small tree 10-15 ft., roundish leaves, long greenish flowers.
- E. megacornuta*, Warty Yate—Vigorous grower 20-25 ft., dark green shiny leaves, warty long cap, greenish yellow flowers.
- E. microtheca*, Coolabah—Erect, often gnarled, 30-40 ft., grey green foliage, white flowers.
- E. papuana*, Gost Gum—Graceful attractive tree to 40 ft., white bark, light green foliage, white flowers.
- E. pilligaensis*, Narrow-leaf Box—Slender tree to 30 ft., rough barked, white flowers.
- E. salmonophloia*, *E. salubris*, *E. stricklandii*, *E. torquata*, *E. hybrid* 'Torwood'—See other lists.
- Geigera parviflora*—See Trees for Limey Soils.
- Melaleuca halimiflorum*, *M. lanceolatum*—See other lists.

TREES FOR SUB-SALINE SOILS

- Casuarina cristata*, *C. glauca*, *C. littoralis* (*suberosa*)—See Trees for Limey Soils.
- Eucalyptus amplifolia*—Tree 20-30 ft., mottled bark, long leaves, white flowers.
- E. astringens*, Brown Mallet—See Trees for Heavy Soils.
- E. conglobata*, Port Lincoln Mallee—Medium mallee 15 ft., smooth bark, thick leaves, white flowers.
- E. diptera*—Small tree 15-20 ft., fluted trunk, thick shiny leaves, cream flowers.
- E. incrassata*—Mallee to 15 ft., heavy foliage, cream flowers, ribbed capsules.
- E. kirtoniana*, Bog Gum—Medium tree 25-30 ft., narrow leaves, white or pink flowers.
- E. kondininensis*, Stocking Tree—Attractive tree umbrella crown, 20-25 ft., deep green leaves, cream flowers.
- E. largiflorens*, *E. occidentalis*, *E. sargentii*, *E. spathulata*—See Trees for Heavy Soils.
- Melaleuca halimiflorum*, *M. lanceolata*—See other lists.

SHRUBS FOR SANDY OR LIGHT LIMEY AND CALCAREOUS SOILS

- Acacia brachybotrya*, Grey Mulga—Wide spreading, round grey leaf, 8-10 ft., yellow flowers.
- A. burkettii*—Spreading, long green leaf, bright yellow finger inflorescence.
- A. calamitolia*, Wallowa—Shapely spreading bush 6-8 ft., bright green leaves, yellow flowers.
- A. continua*, Thorny Wattle—Rigid, sparse prickly bush 3 ft., large yellow flowers.

- A. dodonaeifolia*—Large spreading bush 8-10 ft., dark green striking foliage, yellow flowers.
- A. farinosa*, Mealy Wattle—Small compact bush 4 ft., thick greyish leaves, small flowers.
- A. glandulicarpa*, Gland Wattle—Spreading and dense bush 5 ft., small leaves, golden flowers.
- A. hakeoides*, Hakea Wattle—Dense spreading bush to 6 ft., floriferous, yellow flowers.
- A. iteaphylla*, Flinders Range Wattle—Graceful, dense, spreading bush 8-10 ft., bluish foliage, pale yellow balls in spikes.
- A. microbotrya*, Manna Wattle—Drought tolerant, quick growing shrub to 12 ft., large leaves, pale flowers.
- A. montana*, Mallee Wattle—Spreading viscid bush to 6 ft., medium foliage, yellow flowers.
- A. notabilis*, Flinders Wattle—Spectacular flowering shrub to 6 ft., long stiff foliage, bright yellow flowers.
- A. ringens*, Nealie—Bushy shrub 4-6 ft., grey needle foliage, yellow flowers.
- A. trincura*, Hindmarsh Wattle—Tall spreading shrub to 10 ft., dark green leaves, yellow flowers.
- A. verniciflua*, Varnish Wattle—Attractive shrub to 10 ft., sticky foliage, yellow flowers.
- A. victoriae*, Elegant Wattle—Tall branched spring shrub to 10 ft., green or bluish foliage, floriferous pale flowers.
- A. wattiana*, Gladstone Wattle—Attractive shrub to 8 ft., green leaves, bright yellow flowers.
- Atriplex nummularia*, Old Man Salt Bush—Bushy or erect shrub to 6 ft., grey foliage.
- Callistemon macropunctatus*, Scarlet Bottlebrush—Dense shrub to 8 ft., stiff pointed leaves, "brushes" scarlet, yellow tipped, up to 4" long.
- C. phoeniceus*, Fiery Bottlebrush—Open spreading bush to 8 ft., grey foliage, rich scarlet flowers.
- C. rigidus*, Stiff Bottlebrush—Dense shrub to 6-8 ft., with sharp foliage, blood red flowers.
- C. teretifolia*, Bearded Bottlebrush—Low spreading shrub to 5 ft., needle-like bearing, crimson flowers.
- Calyrix tetragona*, Fringe Myrtle—Small bush to 4 ft., white or pink star-shaped flowers, small leaves.
- Cassia artemisioides*, Silver Cassia—Silvery leaved shrub to 5 ft., bright yellow flowers.
- C. nemophila (eremophila)*, Desert Cassia—Thin green leaved shrub to 6 ft., yellow flowers.
- C. sturtii*, Dense Cassia—Spreading bushy shrub to 8 ft., green leaves, yellow flowers.
- Correa pulchella (neglecta)*—Attractive small shrub 2-4 ft., ovate shaped leaves, flowers pale red, tubular.
- Dodonaea attenuata*, Slender Hop Bush—Somewhat erect shrub 4-6 ft., foliage purplish, fruits red and yellow.
- D. cuneata*, Wedge Leaved Hop Bush—Spreading shrub to 6 ft., short foliage, bronze fruits.
- D. microzyga*, Brilliant Hop Bush—Rigid branched bush to 6 ft., small leaves, bright red fruits.
- Eremophila* species, Emu Bushes—Various 2-8 ft., floriferous with white, pink, blue, and red tubular flowers.
- Eucalyptus desmondensis*, *E. cooperana (flocktoniae)*—See other lists.
- E. foecunda*, Freintantle Mallee—Small mallee, narrow dark green foliage, white flowers.
- E. grossa*, Phillips River Gum—Compact or spreading bush to 8 ft., thick, broad shiny leaves, greenish yellow flowers.
- E. kruseana*, Kruse's Mallee—Neat compact bush to 8 ft., with bluish leaves and yellow flowers.
- E. longicornis* and *E. oleosa* and forms—See other lists.
- E. orbifolia*, Round Leaf Mallee—Small blue leaved bush to 10 ft., pale yellow flowers.
- E. pileata*, Ravensthorpe Mallee—Densely branched mallee to 8 ft., thick glossy leaves, cream flowers.

- E. pyriformis*, Ooldea Mallee—Open shrub (sometimes a tree) to 10 ft., thick leaves, large cream or red flowers.
- E. websteriana*, Webster's Mallee—Small green or blue leaved bush to 8 ft., yellow flowers.
- Grevillea lavandulacea*, Lavender Grevillea—Small usually spreading green or silvery leaved bush, red flowers.
- G. nematophylla*, Waterbush—Tall open bush to 10 ft., long grey foliage and trunk, heads of cream flowers.
- Hakea francisiana* (*multilineata*), Pink Bottlebrush Hakea—Erect shrub 8-10 ft., long narrow grey leaves, spikes of pink flowers.
- H. laurina*, Pincushion Hakea—Large shrub (small tree) to 12 ft., broad green leaves, globular heads of red flowers.
- H. nodosa*, Yellow Hakea—Bushy shrub 4-6 ft., short sharp foliage, yellow flowers.
- H. petiolaris*, Silver Leaf Hakea—Erect shrub 8-10 ft., stiff rounded serrated grey leaves, globular heads of yellow, cream and pink flowers.
- H. sulcata* and *H. subsulcata*—Bushy shrub 6-8 ft., long thin needle-like leaves, pink or lilac flowers.
- Hibiscus huegeli*, Lilac Hibiscus—Somewhat open shrub to 8 ft., green lobed leaves, large open lilac flowers.
- Lasiopetalum* species, Velvet Bush—Compact shrubs to 3 ft., soft grey green leaves, flowers in spring under the leaves.
- Melaleuca acuminata*, Creamy Honey Myrtle—Roundish bush to 6 ft., small leaves, white flowers, long stems.
- M. decussata*, Cross Leaf Honey Myrtle—Neat bush to 6 ft., small leaves, mauve flowers in brushes.
- Melaleuca incana*, Grey Honey Myrtle—Grey leaved graceful shrub to 6 ft., yellow flowers.
- M. longifolia*, Long Claw Paperbark—Attractive shrub 6-8 ft., tapering green leaves, red brushes. Previously known as *M. macronycha*.
- M. megacephala*, Large Flowered Honey Myrtle—Compact spreading bush 6-8 ft., rounded leaves, yellow flowers in terminal heads.
- M. nesophila*, Showy Honey Myrtle—Attractive bush to 10 ft., rounded shiny leaves, lilac flowers in heads.
- M. pauperiflora*—Spreading bush with papery bark to 8 ft., short round leaves, white flowers in terminal heads.
- M. uncinata*, Broom Honey Myrtle—Erect shrub 6-8 ft., thin hooked leaves, cream flowers.
- M. wilsonii*, Crimson Honey Myrtle—Spreading bush 4-5 ft., short foliage, bright purplish red flowers.
- Myoporum viscosum*, Sticky Boobyalla—Compact shrub to 8 ft., sticky green leaves, white and purple spotted flowers.
- Olearia muelleri*—Low open shrub to 3 ft., greyish leaves, white daisy flowers.
- Phebalium bullatum*, Yellow Phebalium—Attractive shrub to 3 ft., silvery narrow leaves, bright yellow star-shaped flowers.
- P. glandulosum*, Desert Phebalium—Broad spreading 2-3 ft. shrub, bright yellow flowers.
- Prostanthera aspalathoides*, Scarlet Mint Bush—Low compact bush 1-2 ft., soft aromatic small foliage, red or yellow flowers.
- P. striatiflora*—Erect bush to 4 ft., narrow green leaves, large white, purple streaked flowers.
- Swainsona* species, Darling Peas—Low spreading or erect grey or green leaved plants, sprays of pink, lilac, purple pea flowers.
- Templetonia retusa*—Sturdy green leaved bush 4-6 ft., heads of long red pea shaped flowers.
- Westringia* species—Compact low shrubs to 4 ft., small grey foliage, white or lilac flowers.

SHRUBS—FOR HEAVY SOILS—NOT LIMEY

- Acacia acinacea*, Gold Dust Wattle—Attractive shrub 4-6 ft., arched branches, small round leaves, bright yellow flowers.
- A. brachybotrya*, *A. calamifolia*—See previous list.
- A. cardiophylla*, Wyalong Wattle—Beautiful shrub 8-10 ft., arched branches, feathery foliage, yellow flowers.
- A. continua*, Thorny Wattle—See previous list.
- A. cyanophylla*, Orange Wattle—Robust spreading tall shrub 8-10 ft., long bluish leaves, large orange yellow flowers.

- A. cyclops*, W.A. Coastal Wattle—Spreading bush 6-8 ft., narrow leaves, yellow flowers.
- A. farinosa*, Mealy Wattle—See previous list.
- A. gladiiformis*—Erect sturdy bush 8-10 ft., rigid narrow curved leaves, yellow flowers in sprays.
- A. glandulicarpa*, Witchetty Bush—Rounded bush 4-6 ft., short leaves, yellow flowers.
- A. ligulata*, Small Cooba—Rounded shrub 6-8 ft., thick narrow leaves, bright yellow flowers.
- A. longifolia*, Sallow Wattle—Tall spreading shrub 8-10 ft., long leaves, yellow flowers in spikes.
- A. microbotrya*, *A. montana*, *A. notabilis*—See previous list.
- A. oswaldii*, Miljee—Stiff divaricate shrub 8-10 ft., rigid pointed leaves, pale flowers.
- A. podalyriifolia*, Qld. or Mt. Morgan Wattle—Attractive blue leaved shrub to 10 ft., bright yellow flowers.
- A. pycnantha*, Golden Wattle—Erect large leaved shrub 6-8 ft., bright yellow flowers in large panicles.
- A. retinoides*, Wirrilda—Erect shrub to 10 ft., long thin leaves, yellow flowers in heads.
- A. rigens*, Nealie—See previous list.
- A. saligna*, Golden Wreath Wattle—Vigorous spreading large shrub to 10 ft., long green leaves, bright yellow flowers.
- A. stenophylla*, Eumung—Handsome willowy shrub to 6 ft., long narrow leaves, cream flowers.
- A. subulata*, Awl Leaf Wattle—Shrub to 10 ft., long narrow leaves, yellow flowers.
- A. trineura*, *A. verniciflua*—See previous list.
- A. vestita*, Hairy Wattle—Very graceful floriferous shrub 6-8 ft., small triangular leaves, bright yellow flowers.
- A. victoriae*, *A. wattsiana*—See previous list.
- Alyogyne hakeifolia*, Red-throat Hibiscus—Beautiful sparse shrub 6 ft., narrow lobed leaves, large open rosy violet flowers.
- Brachysema lanceolata*, Swan River Pea—Spreading shrub 3-4 ft., green silver backed leaves, bright red flowers.
- Callistemon citrinus*, Crimson Bottlebrush—Large shrub 8-10 ft., narrow leaves, deep red brushes.
- C. lilacinus*, Lilac Bottlebrush—Large bush 6-8 ft., narrow pointed leaves, purplish brushes.
- C. macropunctatus*, *C. phoeniceus*, *C. rigidus*, *C. teretifolius*—See previous list.
- Calothamnus quadrifidus*, Crimson Net Bush—Compact attractive shrub 6-8 ft., small narrow dense foliage, red flowers.
- Cassia artemisioides*, Silver Cassia—See previous list.
- C. desolata*—Similar to above but larger foliage and flowers.
- Correa pulchella* (*neglecta*)—See previous list.
- C. reflexa*, Common Correa—Compact plant 3-5 ft., small rounded leaves, red tubular flowers.
- Dodonaea attenuata*, *D. cuneata*, *D. microzyga*—See previous list.
- Eremophila* species—See previous list.
- Eucalyptus grossa*, Coarse Flowered Mallee—See previous list.
- E. preissiana*, Bell-fruited Mallee—Open shrub 6-8 ft., thick oval leaves, large yellow flowers.
- Gossypium sturtianum*, Sturt's Desert Rose—Rounded bush 4-6 ft., heart shaped leaves, large open lavender flowers.
- Grevillea aquifolia*, Holly Grevillea—Spreading shrub 3-5 ft., holly like leaves, red tooth brush flowers.
- G. lavandulacea*—See previous list.
- G. thelemanniana*, Spider Net Grevillea—Attractive thin leaved shrub 3-5 ft., red flowers.
- Hakea elliptica*, Oval Leaf Hakea—Tall shrub 8-10 ft., oval leaves, golden brown when young, creamy flowers.
- H. laurina*, Pincushion Hakea—See previous list.
- H. leucoptera*, Needle Bush—Rigid bush 8-10 ft., grey needle-like leaves, white flowers.
- H. petiolaris*, Silver Leaf Hakea—See previous list.

- Hardenbergia violacea*, Native Lilac—Usually spreading shrub 2-4 ft., oval leaves pink, white, or purple flowers in sprays.
- Melaleuca crassifolia*—Somewhat spreading, 3-5 ft., small foliage, mauve heads.
- M. huegelii*, Chenille Honey Myrtle—Tall shrub 10-12 ft., fine dark green leaves, long brushes of white flowers.
- M. hypericifolia*, Hillock Bush—Compact bush 6-8 ft., small oval foliage, red brushes.
- M. incana*, Grey Honey Myrtle—See previous list.
- M. laterita*, Robin Red Breast—Tall shrub 8-10 ft., fine foliage, orange red bottlebrushes.
- M. laxiflora*—See *M. crassifolia*.
- M. longifolia*, *M. nesophila*, *M. pauperifolia*—See previous list.
- M. pulchella*, Claw Flowered Honey Myrtle—Beautiful small shrub, small leaves, flowers, claw like mauve.
- M. steedmanii*, Steedman's Honey Myrtle—Lovely small shrub 4-6 ft., oval leaves, mauve red brushes, yellow tipped.
- Myoporum montanum*, Water Bush—Compact tall shrub 8-10 ft., narrow leaves, small white flowers.
- M. platycarpum*, Sugar Bush—Compact but later ogen shrub 10-12 ft., narrow leaves, white flowers.

SHRUBS—NEUTRAL OR SLIGHTLY ACID—MEDIUM LOAM

- Acacia acinacea*, *A. brachybotrya*, *A. calamifolia*, *A. cardiophylla*—See previous list.
- A. craspedocarpa*, Broad Leaf Mulga—Rounded neat bush 6-8 ft., grey oval leaves, yellow flowers in spikes.
- A. cyclops*, *A. dodonaeifolia*, *A. glandulicarpa*, *A. iteaphylla*, *A. longifolia*—See previous list.
- A. merrallii*, Mallee Wattle—Blue leaved shrub to 6 ft., yellow flowers.
- A. montana*, *A. microbotrya*, *A. rigens*, *A. trineura*—See previous list.
- Alyogyne hakeifolia*, Red Throat Hibiscus—See previous list.
- Banksia ornata*, Desert Banksia—Stiff spreading shrub, thick grey scented leaves, large heads of pale yellow flowers.
- Callistemon rigidus*, *C. teretifolia*—See previous lists.
- Calothamnus*—See previous lists.
- Cassia tetragona*, Fringe Myrtle—See shrubs—calcareous soils.
- Cassia artemisioides*, Silver Cassia—See shrubs—calcareous soils.
- Correa pulchella* (*neglecta*)—See shrubs—calcareous soils.
- Fremophila* species—See shrubs—calcareous soils.
- Eucalyptus crucis*, Southern Cross Silver Mallee—Decorative large shrub, lilac foliage, yellow flowers. See colour plate on page 96.
- E. grossa*, *E. kruseana*—See shrubs—calcareous soils.
- E. mitrata*—Small mallee 6 ft. —, thick long foliage, large cream flowers.
- E. orbifolia*—See shrubs—calcareous soils.
- E. macrocarpa*, Rose of the West—Outstanding attractive spreading shrub, blue leaves, very large deep pink flowers.
- E. pinpiniana*—Bush 6-8 ft., thick leaves, ornamental buds, cream flowers.
- E. preissiana*, Bell Fruited Mallee—See previous list.
- E. stowardii*—White trunked small mallee 6-10 ft., large leaves, cream flowers.
- E. tetragona*, White Leaf Marlock—Tall shrub, silvery foliage, white flowers.
- E. websteriana*, Webster's Mallee—See shrubs, calcareous soils.
- Dodonaea attenuata*, *D. cuneata*, *D. microzyga*—See shrubs—calcareous soils.
- Eutaxia microphylla*—Small neat shrub 3-4 ft., sometimes spiny, small leaves, orange and brown flowers.
- Gossypium sturtianum*, Sturt's Desert Rose—See previous list.
- Grevillea aspera*, Olive Leaf Grevillea—Neat bush 4-5 ft., olive like leaves, red and yellow flowers.
- G. bipinnatifida*—Broad spreading shrub 3-5 ft., heavy fern like leaves, red flowers in clusters.
- G. lavandulacea*—See shrubs—calcareous soils.
- Hakea bucculenta*—Attractive erect bush 8-10 ft., narrow green leaves, spikes of red flowers.
- H. francisiana*, *H. laurina*, *H. petiolaris*—See shrubs—calcareous soils.
- H. purpurea*, Qld. Crimson Hakea—Attractive rigid shrub, needle leaves, purplish crimson flowers.
- H. sulcata* and *H. subsulcata*—See shrubs—calcareous soils.

Hibiscus huegelii, Lilac Hibiscus—See shrubs—calcareous soils.

Lasiopetalum species—See shrubs—calcareous soils.

Leptospermum coriaceum, Green Tea Tree—Grey leaved spreading shrub 6-8 ft.

Melaleuca armillaris, Bracelet Honey Myrtle—Graceful tall shrub 10-12 ft.

Melaleuca crassifolia, *M. decussata*, *M. hypericifolia*, *M. laxiflora*, *M. longifolia*, *M. nesophila*, *M. pauperifolia*, *M. pulchella*—See previous list.

Phebalium species—See shrubs—calcareous soils.

Scaevola species, Fan Flowers—Spreading low shrubs, 1-2 ft., flowers fan shaped, white, lilac, blue.

Templetonia retusa—See shrubs—calcareous soils.

Westringia species—See shrubs—calcareous soils.

SHRUBS FOR MEDIUM SALINE SOILS

Acacia cyclops—See shrubs—heavy soils.

Atriplex cinerea, Grey Salt Bush—Spreading grey leaved bush 3-4 ft.

A. nummularia—See shrubs—calcareous soils.

Calceophalus brownii, Cushion Bush—Compact low grey shrub, yellow flowers.

Correa alba, White Correa—Low 1-2 ft., brown/green leaves, white star flowers.

Frankenia species—Mat like plants to small shrubs 1 ft., pink flowers.

Muehlenbeckia adpressa, Climber—Heart-shaped leaves, small yellow flowers.

Myoporum insulare, Boobyalla—Shrub to 10 ft., large green leaves, white flowers.

M. parvifolium, Creeping Boobyalla—Prostrate, small foliage, white flowers.

Scaevola crassifolia, Coastal Fan Flower—Shrub to 2 ft., rounded leaves, blue flowers.

ROCKERIES—Also for edging

Acacia binoeana, Dwarf Nealie—See *A. wilhelmiana*.

A. colletioides, Wait-a-While—Excellent prostrate plant, prickly foliage, floriferous.

A. farinosa, Mealy Wattle—Low compact shrub with yellow flowers.

A. wilhelmiana—Compact dwarf bush to 3 ft., green leaves, bright yellow flowers.

Ajuga australis, Austral Bugle—Perennial, broad grey foliage, spikes of blue flowers.

Baeckia crassifolia, Heath Myrtle—Dwarf shrub, minute leaves, pink flowers.

Brachycome multifida, Rock Daisy—12-15 ins., finely divided leaves, lilac flowers.

Burtonia foliosa—Small bush 9-12' high.

Calostemma luteum, Yellow Garland Lily—Bulb, daffodil like foliage and heads of yellow flowers, 1" diameter.

C. purpureum—Bulb, smaller than the above, with rosy purple flowers.

Carpobrotus species, Noon Flower (Pig Face)—Prostrate plant with large erect succulent leaves and large pink flowers.

Cassia revoluta—Semi-prostrate plant, compound leaves, yellow flowers.

Clianthus formosus, Sturt's Desert Pea—Most colourful prostrate plant, grey foliage, startling red, black, blotched flowers. See cover colour plate.

Correa neglecta and *C. reflexa*, Native Fuchsias—Excellent low growing plants with red tubular flowers.

Dampiera lanceolata and other species—Colourful dwarf shrubs, blue flowers.

Dichondra repens, Kidney Weed—Prostrate creeper with kidney shaped leaves.

Disphyma australe, Australian Noon Flower—Prostrate succulent, small cylindrical leaves, pink flowers.

Eremophila crassifolia—Small compact bush, closely set leaves, purple flowers.

E. maculata, Spotted Emu Bush—Semi-prostrate hardy plants, narrow leaves yellow or red spotted flowers.

Eutaxia microphylla—See shrubs for acid loam.

Frankenia species—See previous list.

Goodenia varia—Low creeping shrub, roundish leaves, yellow flowers.

Grevillea ilicifolia, Holly Leaf Grevilleas—Some forms are prostrate, holly shaped leaves, red flowers.

G. lavandulacea—Some forms are semi-prostrate, silvery leaves, red flowers.

G. bitermata (*tridentifera*)—Excellent bright green leaved plant, cream flowers.

Halgania species—Compact blue flowering shrub, deep green foliage.

Isotoma axillaris (*petraea*), Rock Isotoma—Attractive cut leaved plant with large lobelia like and lilac flowers.

Kunzea pomifera, Muntries—Prostrate small leaved plant, large white flowers.

Lasiopetalum species—See shrubs—calcareous soils.

Lotus australia, Austral Trefoil—Small sub-shrub 9-15", trefoil leaf, white or pink flowers in heads.

Mimulus repens, Creeping Monkey Flower—Mat-like plant, small foliage, purple musk like flowers.

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BOOKS ON WILDFLOWERS

The number of books that have been produced on wildflowers must frustrate many enthusiasts who would probably prefer to spend their money on plants. In the editor's opinion there is little doubt that the periodical "Australian Plants" adequately meets the needs of most wildflower growers, students and admirers. Printed since 1959, and now in 38 issues, all but three may be obtained from the editor:

VOLUME No. 1, issues 1-12, no longer available bound but all issues available separately at 40c each except nos. 2, 3 & 11, i.e. \$3.80 incl. postage.

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VOLUME No. 4, issues 29-36, all available only fully bound at \$6.00 plus 20c postage, including "Western Australian Plants for Horticulture—Part 1" valued at \$3.00—see below.

VOLUME No. 5, issues commencing No. 37. Past issues are 40c each plus 5c postage. Climbing on the bandwagon most publishers have produced books on wildflowers.

Many cover the same range of subjects, which have already been introduced in "Australian Plants" but most have either of the following disadvantages. They either have a large number of beautiful colour plates with inadequate descriptions and practically nothing on cultivation, or they attempt to deal with cultivation and skimp on colour plates leaving it to the readers experience or imagination as to what the plant and flower really looks like. If you bought most of the books available you would have less than half of the range of material available in past issues of "Australian Plants". There are exceptions.

FLOWERS AND PLANTS OF VICTORIA available through the editor at \$9.95 plus 50c postage is one exception. Produced in association with some members of this Society this book shows, in 543 colour plates, the widest range of wildflowers of Victoria ever produced. It does not deal with the cultivation aspects.

WEST AUSTRALIAN PLANTS FOR HORTICULTURE is the latest book by this Society available from the editor for \$3.00 plus 20c postage. The format of the book generally is to have simple but adequate descriptions (using simple features that anyone can distinguish) of three species in one genus with a full colour plate of one of them on the opposite page. Directions as to cultivation are given for each species. Hundreds of West Australian wildflowers are also described. This is the style of book we recommend and is excellent value at this low price. It is proposed to produce more in this series on wildflowers from other states if readers will support us by buying the first one, providing the money to produce the next one.

NEW BOOKS REVIEWED—Now available by postage from the Editor.

From Lansdowne Press comes the following book plus more books in the Periwinkle series. AUSTRALIA'S WESTERN WILDFLOWERS by Michael Morcombe — Price \$5.50 + 40c postage

This large 110 page book is one of those that contains, principally, large colour plates. However the size and quality of these plates is outstanding, a lasting tribute to the skill of the author. The text accompanying the plates is interesting and the section describing pollination is unique.

THE PERIWINKLE SERIES OF BOOKS by John Childs — Price \$1.20 each + 20c postage
The series of books by John Childs must surely be widely known. They cover many aspects of Australian natural history and contain 30-50 colour illustrations plus numerous diagrams and are very simply but clearly written for the layman.

TREES OF THE SYDNEY REGION—This book would be of particular value as a reference to the eucalypts of the Sydney Region.

AUSTRALIAN POND & STREAM LIFE—One of the best in the series and invaluable for a reference to the subject and particularly for the young student naturalist. The first few of the 12 chapters in this 98 page booklet will give an indication of its content—1. Water. The Basis of Life; 2. Freshwater Ecology; 3. Water Plants ("Australian Plants" is unlikely to treat this subject so well); 4. Some Small Creatures; 5. Soft-bodied Creatures, etc.

AUSTRALIAN SEASHORE LIFE—Another exceptional 86 page booklet. Titles to the 13 chapters all very competently written, speak for the contents—1. Life in the Sea; 2. Seaweeds ("Australian Plants" is unlikely to treat this subject; 3. Protozoa; 4. Sponges, etc.

WILDFLOWERS OF THE SYDNEY REGION—An attempt to cover too large a subject in one small book. 60 of the most common wildflowers found in the national parks are described.

BULBS FOR AUSTRALIAN GARDENS by R. T. M. Prescott, Director, Botanic Gardens, Melbourne. Price \$5.50. Of interest to the general home gardener but very scanty reference to Australian natives. No doubt this reflects on our bulbous plants that have been overshadowed by the highly developed exotics of other lands. The author has given adequate reference to the showier bulbous plants grown in Australia.

TROPICAL NEMATODELOGY by a panel of authors—\$8.50 U.S. from the Univ. of Florida Press, 15th Street, Gainesville, Florida, U.S.A. Produced principally to reveal the problem caused by these pests with commercial crops. The study would be of value to the student. Nematodes are certainly a serious problem in the cultivation of wildflowers and it is to be hoped that an Australian entomologist will examine this problem for us.

WILDFLOWERS FOR ROCKERIES—continued from page no. 91

- Myoporum acuminatum*, Strychnine Bush—Semi-prostrate, white star flowers.
M. debile, Amulla—Semi-prostrate plant, lilac star shaped flowers, mauve fruits.
M. parvifolium (humile)—See shrubs for saline soils.
Prostanthera aspalathoides, Scarlet Mint Bush—See shrubs for medium loam.
Rhagodia spinescens var. *deltaphylla*, Creeping Saltbush—Somewhat vigorous semi-prostrate grey leaved plant.
Scaevola species, Fan Flowers—Prostrate with white, blue or lilac flowers.
Swainsona stipularis, Orange Darling Peas and other species—All excellent floriferous plants with spikes of red, purple, bronze flowers.
Zygophyllum species, Twin Leaf—Attractive green leaved plants, yellow flowers.



Photography by Frank Hurley

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EUCALYPTUS CRUCIS — SOUTHERN CROSS SILVER MALLEE

A decorative large shrub, lilac foliage, yellow flowers. This plant is recommended for planting in gardens in low rainfall areas where the soil is a medium loam and is neutral or slightly acid. See page no. 90.