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Australian Plants



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Front cover: *Banksia blechnifolia* growing in the Australian room at the Edvard Anderson conservatory, Bergius Botanic Garden, Sweden. Article page 4
Photo: Astrid Fyhr.

Back cover: The Australian flag hoisted in the Australian room at the Edvard Anderson conservatory, Bergius Botanic Garden, Sweden to celebrate Australia Day.
Photo: Astrid Fyhr.

This issue is dated March 2009 to maintain sequence. It was, however, compiled in February 2010 and may mention occurrences that occurred between these dates.

Australian Plants articles

Australian Plants is published quarterly to promote knowledge of Australian native plants.

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Introduction

John Aitken, Editor, *Australian Plants*.

After much discussion and consultation, it was decided to change the appearance of *Australian Plants*. The former design had been around for many years and the editorial committee felt that a more contemporary design was appropriate and desirable. The committee hopes that you enjoy the new format and welcomes any comments you may have. Doug Rickard designed the new cover of *Australian Plants* and we wish to express our appreciation for his time and effort.

This issue of *Australian Plants* contains a variety of articles, both from Australia and overseas.

The article *Australian plants — a warm home in Sweden* by Astrid Fyhr discusses how Australian plants are being grown in the Edvard Anderson Conservatory, Bergius Botanic Garden, Stockholm, Sweden. Astrid discusses the establishment of the Australian garden from its beginnings in 1995, the planting regime, the sourcing of plants and how the problems of extremely low temperatures and lack of light in winter have been overcome.

The second article by Doug Graddon discusses the type of orchids you will find around Hobart, Tasmania. The interesting aspect of the orchids around the Hobart is that not one is epiphytic; rather they are wholly terrestrial, though some are wholly or partly saprophytic.

Ever thought of moving a very large, well established tree? The Cranbourne Gardens, in Geelong, Victoria did and were successful in relocating a large Queensland bottle tree from Shepparton, Victoria to the Royal Botanic Gardens, Cranbourne. John Arnott and Warren Worboy from the Cranbourne Gardens tell us how it was done.

Many places along the east coast of Australia have colonies of the Grey-headed Flying Fox. In the early 1990s, flying foxes started to roost in the Royal Botanic Gardens, Sydney. Over the years, the colony has grown in size and has had a major impact on a large number of heritage trees in the Gardens. Mavis Sourry's article discusses the impact of the flying foxes on the Gardens and the dilemma caused by their presence.

Also included in this issue of *Australian Plants* is an article by Bob Ross from the South-east Group of the Australian Plants Society, NSW. His Group produced the September 2008 issue of *Australian Plants*, which was very favourable received. I hope that his Group's experiences will encourage other Groups and Regions throughout Australia to produce an issue.



Australian plants – a warm home in Sweden

Astrid Fyhr, Horticulturist, Edvard Anderson Conservatory, Bergius Botanic Garden

All photos were taken at the Edvard Anderson Conservatory by Astrid Fyhr, unless otherwise specified.

Astrid has been an horticulturist at the Edvard Anderson Conservatory in the Bergius Botanic Garden, Stockholm, Sweden since 1994. She has always been interested in Australia and was very happy to have the opportunity to grow Australian plants. In 1995 Astrid went to Perth and collected seeds with the Kings Park Botanical Garden. She has been a member of ASGAP since 1998 and has attended two ASGAP Conferences, in Perth 2005 and in Geelong in 2009.

The Bergius Botanic Garden in Stockholm owes its existence to a donation to the Royal Swedish Academy of Sciences by the Bergius Brothers' Foundation, formed 1791. In 1885 the garden moved to its present site, where Professor Bergianus Veit Wittrock established a botanical garden on scientific principles. The Garden is currently run by Stockholm University and the Bergius Foundation at the Royal Swedish Academy of Sciences. At present the research is led by Professor Bergianus, the Director of the Bergius Foundation and the Bergius Botanical Garden, Birgitta Bremer, and is focused on biodiversity and the plant family Rubiaceae.

In the 9-hectare garden, you can find an arboretum, systematic areas, a herb garden, a very diverse vegetable garden and the park with its Japanese water feature. Within the garden there are more than 7,000 plant species of which 3,000 grow in our two glasshouses. The Victoria house opened in 1900 and is dedicated to tropical swamp and water plants like the giant water lilies, *Victoria cruziana* and *Victoria amazonica*. Here you can also find 16 species of Australian origin, like *Nymphaea gigantea*, *Marsilea hirsuta*, *Drynaria quercifolia* and *Austrobaileya scandens*.



Victoria greenhouse



Austrobaileya scandens. Flecker Botanic Garden, Cairns, donated this plant to the garden in 1998. Photo: Gunvor Larsson



Inside Victoria greenhouse, showing the amazing giant water lilies, *Victoria cruziana* and *Victoria amazonica*

Edvard Anderson Conservatory

The Edvard Anderson conservatory opened in 1995 and houses plants from areas with Mediterranean climate. Its erection was made possible thanks to a donation by the late Mr Edvard Anderson. He was a wholesale dealer in the glazing business and a keen traveller to southern Europe. He was also a frequent visitor of the Bergius Botanic Garden.

Edvard Anderson died in 1936 and left his fortune to the Bergius Foundation of the Royal Swedish Academy of Sciences. His will states that the money should be used for "a winter garden (orangery), where only trees, shrubs and herbs of the Mediterranean area, and of those areas having comparable climates, are to be cultivated."



The Edvard Anderson conservatory



It also states that in the glasshouse, it should be possible to enjoy a cup of tea, coffee or hot chocolate in a small café.

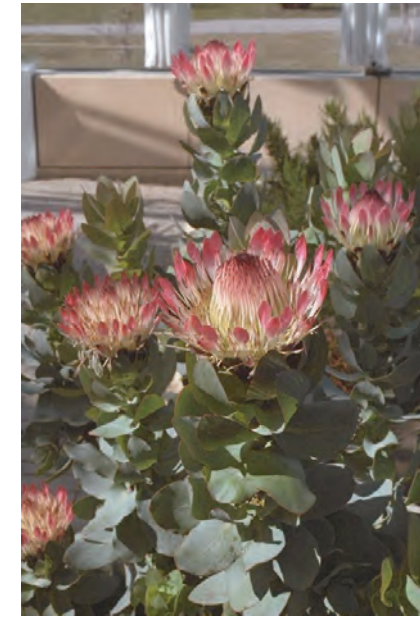
The main hall, measuring 23 by 27 metres and with a maximum height of 14 metres, is dedicated to the Mediterranean area proper. Here you can find attractive garden flowers, fruit trees cultivated in southern Europe, as well as the interesting indigenous flora of the region. The hall is surrounded by four satellite rooms, measuring 11 by 11 metres and with a height of 8 metres, presenting other areas with Mediterranean climate.

One satellite room presents the flora of the Cape Province of South Africa. There are terraces representing the fynbos vegetation of the Table Mountain with plants of the protea family and several representatives of the restio family. You can also find a miniature desert showing the succulent flora of the Karoo desert.

Parts of California also have Mediterranean climate. The type of vegetation here is called “Chaparral”, and this is where you find e.g. *Fremontodendron californicum* and *Simmondsia chinensis*. East of the Cascades Range, where deserts have developed, you are surrounded by high Cacti, Yuccas, Agaves and other succulents in a rocky dry landscape and it is the desert flora that dominates our California room.



Some fynbos vegetation



Protea cynaroides



Two different perspectives of the Mediterranean garden



Two different views of the Cactus house





In the third satellite is the Fern room. Here you can walk under tall tree ferns, *Dicksonia antarctica* and *Alsophila australis*, and view the eight metre high epiphyte wall, covered with ferns, aroids and some orchids here and there. Have a seat and listen to the falling water and the sounds of the frogs.



The Fern room



Alsophila (Cyathia) australis



The last satellite room is the Australian one. Flowering scented Acacias, Eucalypts and scrubs, found in the Mediterranean areas of Australia, are here shown to the public.

The Australia room with Australian native plants being grown under a bank of daylight metal halide lights, which provide the necessary light during winter.



Drosera roseana



Drosera adelae



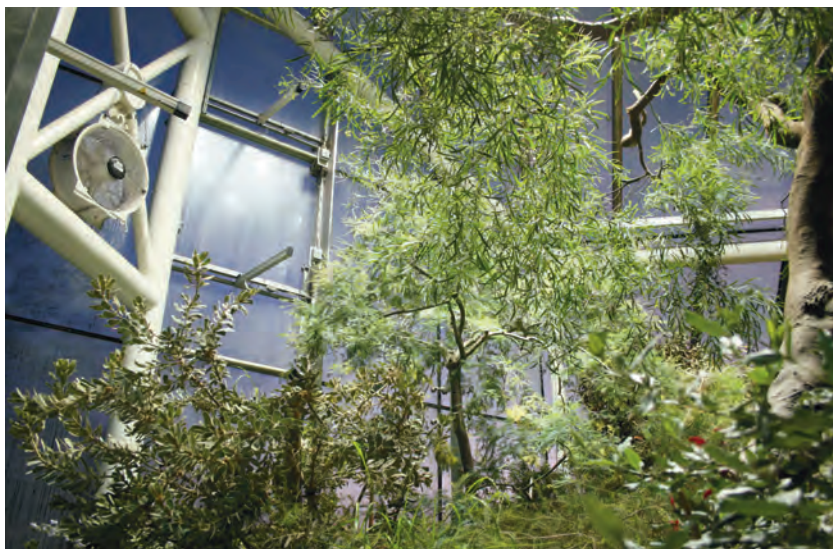
Cephalotus follicularis

Two sections of the Edvard Anderson Conservatory are rented by the Stockholm University. One section shows collections of tropical plants and Palm trees. In the other there are utility plants like Coffee, Cinnamon and Avocado, kept together with a large collection of Cycads. The children's favourite is the collection of carnivorous plants, among them some from Australia, like *Drosera roseana*, *Drosera adelae* and *Cephalotus follicularis*.



Heating and climate

The total area of the Edvard Anderson Conservatory, the nursery included, is 3,000 m². It is heated by two oil boilers of 350 kW each, and a new air/water heat exchanger of 90 kW, which helps us save 50 % of the earlier oil consumption of 45 m³ a year. With a price of \$AU1,236/m³ oil, we save \$23,175 a year with the new exchanger compared with the old one.



One of the fans used to help circulate the air in the Australia room.

The climate of the winter garden is Mediterranean in principle. However, in a glasshouse open to the public, additional facts have to be considered when regulating temperature and humidity. Our visitors expect to see flowering plants all year round. It is therefore not desirable to imitate the hot and very dry summer period characteristic of the Mediterranean climate, as the vegetation would dry out. Also, if the winters were cool and wet, you would be sure to have fungus diseases spreading. It is therefore necessary to keep the climate as dry as possible during that period. The temperature outside may drop as low as -25°C. That causes a lot of unwanted condensation of water on the inside of the glazing if the humidity is high. Making the air circulate by the use of fans helps a little.

Our visitors do not like to feel chilly while they watch the flowers or have a cup of tea or coffee in the glasshouse, but the plants would produce more buds and we would get a more impressive flowering if the temperature were held low during the winter months.

In order not to get the growth etiolated, it would be best to have that low temperature during daytime. To reach a compromise between plants and people, we keep the temperature at +15°C both day and night.

Light

The lack of light is a main problem in the conservatory. Here, in latitude 59° north, Mediterranean plants that naturally grow in full sunshine have to adapt to 20 hours of daylight in summer and as few as 6 hours during the winter months. Though we have many hours of light in the summer, the intensity is not enough. During winter, the sun hardly rises above the top of the trees and in midwinter there are only a few hours of daylight. Winters without snow are exceptionally dark compared with when the snow reflects the light.

The artificial light amounts to 5,000 lux at ground level and 10,000 lux at the treetops. The lamps are 400 W, daylight, metal halides. All together we have 248 lamps of which 27 are situated in the Australian room. The total cost for electricity is more than \$AU154,340 yearly. Each lamp costs \$54 and they need to be replaced every third year. The cost for the electric fittings is \$264 AUD each. To add more lighting is not practical. So many electric fittings would shade a considerable part of the natural lighting, so the cost of installations and electricity would not pay off.



Edvard Anderson conservatory at night resembles a sparkling jewel.



Eucalyptus torquata under artificial lighting

The Australian Room

Beds

The Australian beds are raised, slightly sloped and one metre deep. These ground beds were made 15 years ago, and have not been redone since. The soil consisted of 3 parts clay soil, 1 part cow manure, 1 part peat, 1 part sand and 1 part baked clay pebbles. 1 kg dolomite/m² was added. The pH value is about 6. Before it was brought in, the soil was sterilized at +80°C for 20 minutes, to get rid of unwanted weeds and fungi.

The first plantings

There was not enough time to propagate all plants from seed, as the glasshouse was going to open to the public within a year. Mature plants had to be bought from garden centres in Holland, Italy and Portugal. Small tube plants were bought from Zanthorrea Nursery in Perth WA and cuttings and seeds were requested from Kings Park Botanic Garden. In spring 1995 the room was all planted and ready for opening in June.



The newly planted Australia room, 1995.

Propagation

To secure the stock of plants in the display, it is necessary to have a back up of new plants in the nursery. Cuttings are taken in spring and autumn. They are dipped in rooting powder, before they are put in the striking medium. They are placed in a tray, and then in a box with bottom heat. As soon as you can see the roots coming out of the peat pellets, they are transplanted into larger pots with potting mixture.



Above: Peat pellets with cuttings placed in a tray which provides bottom heat.

Left: A rooted cutting.



Seeds are collected continuously as they ripen and are stored in a refrigerator until they are to be used. Before sowing they are treated as recommended, e.g. treated with hot water, soaked in smoky water, rubbed with emery paper, stratified or even leached in running water to improve germination.

Seeds are sown two in each tube and covered with a layer of coarse sand. The sand makes it possible for light to come through and reach seeds which need light for germination. The pots are then placed in a tray with a cover.

To acquire new species, we send for seeds from the international seed exchange between botanical gardens and sometimes buy seeds from commercial seed companies. We also request seeds from the ASGAP seed bank, which is a great possibility for us to get an extraordinary wide range of seeds.

Propagation and potting mixture

As sowing medium, a mixture of one part of commercial soil (90% peat, 5% sand, 5% clay) with a pH of 6, is mixed with one part of coarse sand and one part of small baked clay pebbles. The mixture is watered and then sterilised in a microwave oven for about ten minutes.

For cuttings we use small peat pots called Jiffy 7. We have found that all cuttings root well in these peat pellets, which have low pH and are free of all pests and fungi. They also minimise the transplant shock and root damage when repotted.

To get good drainage in the pots, one part of the same commercial soil as used for propagation mixture is mixed with one part of coarse sand and gravel and one part of baked clay pebbles in different sizes. This makes a soil mixture that is poor in nutrients. The mixture is watered and sterilised the same way as the propagation mixture.

Watering and Feeding

As the plants grow, they are repotted in larger pots and one teaspoon of fertiliser for Australian natives is added to each pot. The plants remain in the nursery for about two years or until they are large enough to be planted out in the display. During this period, the plants are watered individually by hand when dry and when they



The nursery at the Bergius Botanic Garden.



Banksia blechnifolia growing over a layer of sand and orange gravel.

start to wilt. Some need to be watered every day and some once a week, depending on the weather and the size of the plant and pot. Once a month they get fed with a very low concentration of a liquid fertiliser, Walco, (N51-P10-K43). Plants from the protea family are only given the special fertiliser for Australian natives, added to the potting mixture.

In the display, we now have installed a trickle watering system. This makes it easier to water the raised beds; before the water always flowed off. We still need to use the sprinklers during the warmest period. Once or twice a year the beds are watered with the same fertiliser, Walco, as the pot plants in the nursery.

To make the Australian display room look like real Australian bush land, we cover some parts of the beds with yellow sand and pebbles, and some parts with crushed orange bricks, to get the right feeling. The fallen leaves are not removed, but kept as mulch and to help hide the trickle watering system.

The plants

Most of the specimens planted in 1995 are still alive and growing well. Unfortunately, some of them grow too well and will soon have to be replaced. Some trees reached the roof years ago and need so much heavy pruning that they do not look attractive any longer. It is not easy to keep a 28 year-old *Acacia retinodes* in an eight metre high glasshouse. However, it pleases us with flowers the whole year round.



Above: *Acacia retinodes*, which flowers all year round in the Conservatory.

Left: *A. retrinoides* is clearly outgrowing its space in the glass house.

Our *Banksia ericifolia* is also one of the reliable oldies as some flowers are always coming out. Another favourite is the *Melaleuca cuticularis*, with its smooth bark and abundant flowering. Many of our Australian plants flower during our late autumn and winter, like our *Hakea laurina* which starts to flower in November, one of the darkest months of the year.



Banksia ericifolia



Hakea laurina

One of the more spectacular plants is the *Banksia grandis*, a beautiful specimen with several flowers every year. Our *Banksia blechnifolia* was bought at Zanthorrea Nursery in Perth 1996. It took ten years until it flowered for the first time.



Banksia grandis

When our visitors recollect our Australian room, they often think of the Grass trees. We have two old *Xanthorrhoea preisii*, as well as a young one, propagated from seed in 1994. Sadly an old Grass tree died a couple of years after being planted in 1994, but it is pedagogic to be able



Old and young *Xanthorrhoea preisii*



to show the old trunk and what it looks like inside. It still stands where it once was planted.

Different species of Kangaroo paws are also associated with Australia. A large *Anigozanthos flavidus* is always in flower. The Mangles Kangaroo paws, *Anigozanthos manglesii*, are difficult to grow and are usually short lived. They always get attacks from the ink spot disease.

As undergrowth we use different species and change them during the year. Some are bedded out and treated as annuals. The first years, we only had everlastings, *Helipterum roseum* and *Rhodanthe chlorocephala*, but the varieties increased after we managed to get seeds from the ASGAP seed bank.

Stylidium adnatum is the of the best established and spreads rapidly.



Anigozanthos manglesii



Banksia blechnifolia growing on a carpet of *Stylidium adnatum*

To get the right bushy feeling we allow *Kennedia coccinea*, *Kennedia macrophylla*, *Sollya heterophylla* and *Hardenbergia comptoniana* to climb in trees and bushes.



Everlasting daisies



Ptilotus macrocephalus with *Ptilotus exaltatus* in the background.



Kennedia macrophylla



Quite a lot of plants are kept in pots all the time, and are moved in and out of the nursery. They are used for decoration when in flower, like this enormous *Scaevola ariculata*. A *Grevillea lanigera* has been sold in Sweden as a “flowering Christmas tree” and we use them as Christmas decorations in the conservatory.



Grevillea lanigera Red Salento, sold in Sweden as “the only flowering Christmas tree”.

We were surprised to find a truffle in a pot with a *Calothamnus* from Zanthorrea nursery, Perth. The truffle, *Hymenangium album*, (det. Lars Kers) must have been in the soil when the plant was bought.

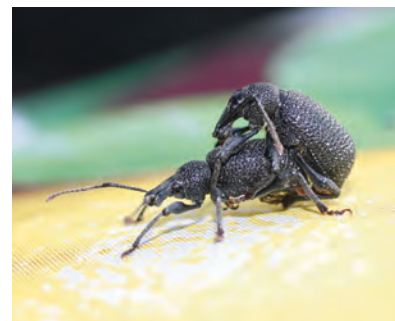


Truffles, *Hymenangium album*, which hitched a free ride to Sweden in a pot plant purchased from Zanthorrea Nursery, Perth, Western Australia.

Pests and Natural Enemies

The Australian plants are generally very healthy. However, with the plants bought from southern Europe, we had some pests coming in. Giant citrus aphids *Ecerua purchase*, caused us a lot of problem and we had to spray several times before we got rid of them.

We also got six different species of Vine weevils *Otiorhynchus armadillo*, *O. armatus* var. *romanus*, *O. salicicola*, *O. sulcatus*, *O. dieckmanni* and *Pantomorus cervinus*, coming in with plants, and they breed two or three generations within a year. Vine weevils are fought with nematodes, when they are larvae and live in the ground. Snails, slugs, centipedes, aphids, spider mites, thrips, moths, sciarid flies, mealy bugs and white flies sometimes occur, but are generally easy to control. At present the most difficult pest to fight is the long tailed mealy bug *Pseudococcus longispinus*.



Vine weevils, *Otiorhynchus armatus* var. *romanus*



The Giant citrus aphid, *Ecerua purchase*

We do not use pesticides or fungicides any longer. They have been replaced by a large amount of biological pest control and several insecticidal soaps. Toads and frogs eat slugs and weevils very efficiently and our Chinese dwarf quails *Excalfactoria chinensis* do a great job catching grubs and snails and whatever is moving. Great tits *Parus major* stay in the glass house during the winter and feed on aphids and larvae.



A Chinese dwarf quail, *Excalfactoria chinensis*





Outdoors

Australian plants are also used outdoors in pots during the summer period. A large *Callistemon citrinus* is kept in a plastic greenhouse during winter and moved out as soon as the weather allows. Stockholm has a cold temperate climate and only the months of June, July and August are frost free. Most Australian plants used outdoors are grown as annuals and planted out in spring, like *Chloris barbata*, *Brachyscome iberdifolia*, *Isotoma axillaris*, *Trachymene caerulea*, *Shoenia cassiniana*, *Rhodanthe chlorocephala* and *Helipterum humboldianum*. Australian plants are also used in mixed borders and flower beds, together with other Mediterranean plants. In a summer with extremely warm and dry weather, even the *Swansonia formosa* will flower in a sunny position.



Callistemon citrinus bush growing happily in a tub.



Trachymene caerulea and *Shoenia cassiniana*



Isotoma axillaries, *Shoenia cassiana* and *Helipterum humboldianum*



Sturt's Desert Pea, *Swansonia formosa*, in the garden



Flowers of *Callistemon citrinus*

Education

We regularly organise guided walks for children, students and adults. One of the major tasks is to teach school children about plant diversity, ecology and botany. During school holidays, children can come with their parents and learn how to sow, take cuttings and plant. They may also take their pot with seed back home with them.



Children being shown how to sow seeds and take cuttings.

School classes and university students can get guided tours by request. They study, e.g. the difference between rainforest and sclerophyllous plants, and the convergence between plants from different continents.

Every January 26th we pay attention to Australia Day and hoist the Australian flag in the Australian room. A view of the Australia room on Australia Day can be seen on the back cover of this journal. In June 2007 the Hon. Greg Hunt MP presented us with a Wollemi pine and in 2008 we were honoured by a visit by Mrs Tamie Fraser, President of the Australian Open Garden Scheme.

The Edvard Anderson conservatory has been a great success. In here, flowering specimens of Australian plants can be seen all the year round. More than 160 Australian species are now in cultivation. The main flowering is in our late winter and early spring when the snow is sparkling outside and makes a fantastic contrast to the colourful flora inside.



Orchids around Hobart

Doug Graddon

Tasmania is home to nearly two hundred species of orchid (Jones et al., 1999). This is about forty-five more than were recorded only twenty years earlier (Curtis, 1979). The difference is due to reassessment of the Tasmanian orchids, recognising that many previously regarded as part of 'complexes' occurring throughout South-eastern Australia were worthy of independent specific status. Perhaps the long isolation of Tasmania from the mainland since the land bridge was swamped at the end of the last ice age has allowed small variations to evolve sufficiently to merit recognition as separate species and modern techniques allow more certain decisions to be taken. In any case, the extensive changes seem to have been widely accepted.

The range of genera found in Tasmania is similar to that found elsewhere in South-east Australia, with one notable exception: in the whole of Tasmania only two species are recorded which are not terrestrial. *Dockrillia striolata*, a lithophyte common in Victoria and New South Wales, occurs in Tasmania, but is limited to coastal areas in the North-east of the island. *Sarcochilus australis*, an epiphyte and occasional lithophyte, is found in the north and along the east coast. Neither of these species extends as far south as Hobart. Orchids in the Hobart area are thus wholly terrestrial, though some are wholly or partly saprophytic, growing on tree roots, leaf litter or fallen wood.

The immediate surroundings of Hobart include a wide range of habitats and rainfall. The top of Mount Wellington is only eight kilometres from the city centre and forms a plateau with about 15 square kilometres above 1000m; the lower slopes of the mountain have a high rainfall (up to 2m/year) and are well wooded. The hills on the east side of the River Derwent are mostly about 200m high and grassy or lightly covered in scrub with a few trees and rainfall may be as low as 0.5m/year. About 12km to the south, near Blackman's Bay, is a large area of low-lying sandy scrubland. All these areas are reserved parkland and readily accessible to the public. There are also many smaller areas of reserved land in more or less undisturbed state, one of the blessings of a city with a small population of about 250,000.

Like other monocotyledons, orchid flowers have three petals and three sepals. However, the reproductive parts, style and stamens, are combined into a 'column' with only two-fold symmetry. The petal opposite the column is usually modified in some way and is known as

the labellum. The dorsal sepal, behind the column is often different from the other two, so that the whole flower usually has two-fold symmetry rather than three-fold. The ovary is inferior.

The only orchids in the Hobart area which have the sepals and petals almost indistinguishable are those of the genus *Thelymitra*. The most common are those with spikes of blue flowers. There are several species difficult to tell apart, distinguished mainly by details of the column. The small rather weak species, only 20-30cm high, *T. pauciflora* is common throughout the area; its small flowers only open in warm sunny weather and it is self-fertile. Other species require fertilisation by insects. The most usually met of these is *T. juncifolia*, usually 30-40cm high with spotted flowers, sometimes almost pink in colour. *T. aristata* is a more robust species, up to 70cm, with striped flowers without spots. Another commonly encountered species is *T. rubra*, a small, rather weak plant usually less than 30cm high with only a few pink-red flowers in the spike. Another local species is *T. cyanea*, a small plant, usually less than 20cm high with a few small, striped, blue flowers, common in wet places at higher altitudes on Mt. Wellington.

One of the earliest spring-flowering orchids is the very common *Glossodia major*, purple in colour with the labellum distinguished by a

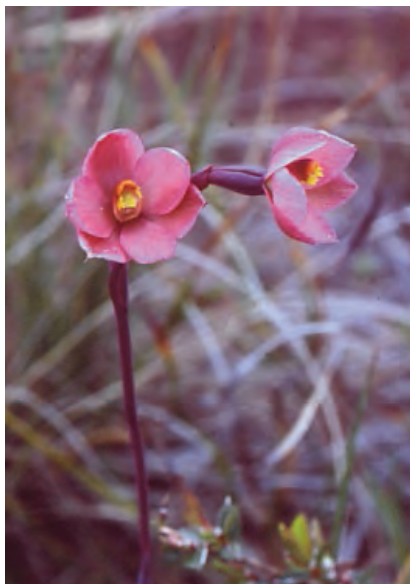


Thelymitra juncifolia



Thelymitra aristata

All photos by Doug Graddon unless otherwise indicated



Thelymitra rubra



Thelymitra cyanea

white bar. Other orchids in which only the labellum is distinct from the other petals and sepals are the Caladenias, in which the labellum is usually distinguished by various arrangements of distinctive calli. One of the commonest species of *Caladenia* is *C. fuscata*. Usually growing in light shade, it is a small plant about 10cm high on a very slender scape with single flowers, dusky pink with a distinctive upright dorsal sepal. This is easily confused with *C. carnea*, which is rather more robust. *C. alata* is another small, wiry species also found in woodland together with *C. fuscata*. The dorsal sepal is bent forward over the column and all the petals and sepals are densely glandular on the back. Another species, often found alongside *C. fuscata*, is *C. cracens*, also pink, rather more robust and with the dorsal sepal hooded over the column. This species was formerly classified with the much more robust *C. alpina* of the Australian alpine region and both were then included in *C. lyallii*, which is now regarded as a New Zealand species. *C. gracilis* forms spectacular displays on the hills east of the Derwent. It is a robust species, up to 40cm high, with up to four almost white flowers. All these species have characteristic distributions of calli on the labellum. Several of the spidery *Caladenias*, with long points on the sepals and petals, occur in the Hobart area, but are not common.

Several species of the genus *Diuris*, characterised by two long, narrow sepals hanging below the labellum, are common in the Hobart area. *D. chryseopsis* is an early flowering, bright yellow species usually only 15-20cm high with broad petals and dorsal sepal all pointing forward. *D. pardina* and *D. sulphurea* are more robust plants, about 40cm high with yellow flowers covered with brown blotches; the petals are widely spread; the dorsal sepal stands above the column; the other, narrow sepals hang below the flower, often crossed. All the *Diuris* species are most commonly found in grassland and sometimes make spectacular displays.

Other orchids commonly found are *Calochilus robertsonii*, the purple bearded orchid, *Caleana major*, the large duck orchid and less common, the much smaller *Caleana minor* and *Eriochilus cucullatus*, with a small erect dorsal sepal and two very large lower sepals. Several species of *Microtis*, with dense spikes of very small, green flowers are found, usually in grassland or light scrub. In forested places several species of low-growing bird orchids, *Chiloglottis*, are common. The most common of these is *C. triceratops*, distinguished by three tall calli near the base of the labellum. In darker, damper places *C. gunnii* occurs, a more robust plant with one very large callus at the base of the labellum and several smaller in a line along its middle.

Also among trees, two species of *Acianthus* are fairly common. *A. caudatus*, the mayfly orchid, usually growing in colonies of many plants, is about 10cm high with a heart-shaped basal leaf and several dark-coloured flowers with very long, pointed sepals. *A. pusillus* is similar, but with paler flowers and much shorter points to the sepals.



Diuris chryseopsis



Diuris pardina



Diuris sulphurea

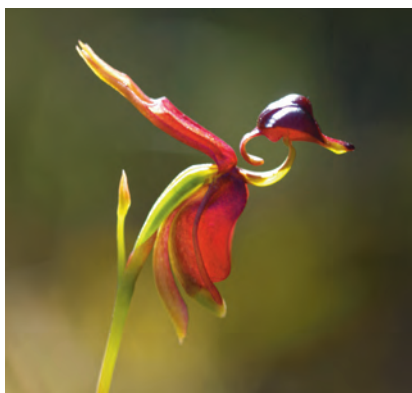




Eriochilus cucullatus



Eriochilus cucullatus Photo: Bruce Cooper



Caleana major Photo: Bruce Cooper



Chiloglottis gunni

The genus *Prasophyllum* has the flowers upside down, with the labellum facing downwards, above the column and with the dorsal sepal below. *P. australe* occurs scattered in heath and moorland. It is a robust species, 30-50cm high with a fairly dense spike of flowers, pale green with brownish stripes and a white labellum, each with the ovary appressed closely to the stem. *P. breviflabre* is not quite so robust and has a sharply reflexed labellum. *P. concinnum* has more widely spaced, brown-purple flowers and a pointed labellum which curves back toward the scape. It is endemic to the south of Tasmania. *P. flavum* has yellow-green flowers

and yellow to brown scape and leaf, clearly saprophytic. *P. alpinum* occurs at higher altitudes on Mt. Wellington and has greenish flowers with broad dorsal sepal and labellum and a flowering spike notably shorter than the cauline leaf. Once included with *Prasophyllum* is the genus *Genoplesium*, looking like miniature species of *Prasophyllum* with tiny flowers. Only *G. archeri* is common in the area.

The main flowering season for orchids near Hobart is from September to Christmas, but a few species begin flowering in winter. Most notable among these are several species of *Pterostylis*, mainly growing in semi-shaded places amongst grass or leaf litter. In *Pterostylis* species the three sepals and two of the petals are completely incorporated in the 'galea', only the three 'points' representing the original three sepals.



Prasophyllum australe

Photos (above) Bruce Cooper, (left) Doug Graddon





Prosopphyllum brevilabre



Prosopphyllum concinnum



Prosopphyllum flavum



Prosopphyllum alpinum

The labellum, usually a slender rod which is just visible in the 'sinus' of the galea, is hinged at its base on a spring and obstructs the entrance of the galea when triggered by an insect, resetting when the insect eventually escapes.

One of the first to flower is *Pterostylis parviflora*, a small (10-15cm high) multi-flowered species with small striped green flowers with short free points, often in facing pairs. Another early flowering species is *P. pedoglossa*, short-stemmed (8-12cm) with single yellowish-green flowers, recognisable by the long upright free points and long, forward-pointing tip on the dorsal sepal. *P. alata* also flowers at this time and can be recognised by the presence of several sheathing stem leaves and a strongly striped, green and white galea with long upright free points and a short forward-pointing tip to the galea, and the very common *P. nutans* with large, nodding green flowers, the tip of the galea pointing downwards between the forward-pointing free points.

Easily recognisable in the Winter-Spring season are the species formerly grouped as *P. longifolia*. These are usually fairly tall (up to 50cm) with long, narrow leaves all the way up the scape and multiple small green flowers with blunt-tipped galea and twinned, quite broad sepals hanging down below it. They are now divided into three separate species, not always easy to tell apart. In the Hobart area the commonest seems to be *P. melagramma*, which can be recognised by the light brown labellum with a darker brown stripe. The sepals and galea often have brownish tips. Another of these species is *P. williamsonii*, distinguished by its



Pterostylis parviflora



Pterostylis melagramma



Pterostylis stenochila



dark brown labellum with a prominent, dark-coloured lump at its base. The third member of this group of species is *P. stenochila*, endemic to Tasmania and distinguished by a dark green labellum.

One of the commonest spring-flowering species is *Pterostylis pedunculata*. This has a short scape (10-15cm) with small flowers, long upright free points and a short-pointed, horizontal tip to the galea, which is red-brown on top. The less common, but rather similar, *P. concinna* can be distinguished from *P. pedunculata* by the lack of red-brown colouring and a notched end to the labellum. Another fairly common spring-flowering species is *P. decurva*, about 20cm high with single light green-brown striped flowers with long upstanding free points and a long-pointed galea, which curves downward to point at the ground. One other spring-flowering species particularly attractive to find is *P. plumosa*, which has an upright green galea, no free points and a long hairy labellum with a dark knob on the end, which hangs out from the sinus. Closely related to this is *P. tasmanica*, which differs in having a shorter labellum with only a small knob on the end.

The only other local genus in which the sepals and petals are united, in this case to form a tube, is *Gastrodia*. Two species occur, *G. sesamoides* and *G. procera*, differing mainly in robustness. The plants are obviously saprophytic with brown stems and many brown tubular flowers, growing among trees or scrub.



Pterostylis pedunculata



Pterostylis decurva



Pterostylis plumosa



Gastrodia sesamoides



Gastrodia procera

Photos: Margaret Bradhurst

References

Jones,D., Wapstra,H., Tonelli,P. and Harris,S., *The Orchids of Tasmania*, Miegunyah Press, 1999

Curtis,W.M., *The Student's Flora of Tasmania*, part 4A, Tasmanian Govt. Printer, 1979



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Queensland Bottle Tree for Cranbourne

John Arnott and Warren Worboys

This article was first published in Naturelink – the Newsletter of the Friends of the Royal Botanic Gardens Cranbourne and is reproduced with the permission of the authors.

Sourcing plant material for Stage Two of the Australian Garden at the Royal Botanic Gardens Cranbourne (RBGC) at Geelong, Victoria is a complex and challenging exercise when you consider that there are over 70,000 plants, (a list 33 A4 pages long!) comprising 88 families, 268 genus and 1012 species. Approximately half of the plants are being grown in house by the RBGC nursery and the balance of the material is being sourced from across the country to add to the new landscape.

There are some wonderful “serendipitous” moments in sourcing such a diversity of material. One particular stroke of good fortune occurred with Warren Worboys whilst he was presenting a talk to the 2008 Annual Seminar of the Royal Horticultural Society of Victoria.

Warren spoke to the group about the progress made with Stage 1 plantings in the Australian Garden and cast an eye to the broad planting concepts and landscape proposals for Stage 2. He spoke of the Weird and Wonderful Garden, which will feature an eclectic mix of unusual and interesting native plants from across Australia, including the Queensland Bottle Tree (*Brachychiton rupestris*) which Warren predicted would be one the feature plants of this precinct.

The Queensland Bottle Tree is a native of the dryer inland regions of southern Queensland. It can grow 10 to 20 metres tall with a spread of five to 15 metres. The tree will grow in a range of soils and has attractive small yellow flowers. The real feature of this species is, however, their massive swollen trunks which invokes their ‘bottle tree’ common name.

During question time Warren was asked if the Gardens wanted seed of the *Brachychiton* and he explained that the intention was to obtain mature specimens so that there would be an instant effect in the landscape. After the talk Warren was approached by Mr Noel Minifie (the man who asked about the seed) with the offer to donate a mature Queensland Bottle Tree to the RBGC. Noel had this plant growing in his front yard but it was starting to threaten the footings of his home and would have to be removed. Warren later inspected the tree and made recommendation that the Gardens transplant the tree, and the planning commenced.

The tree was planted as a seedling in the late 1970s and had been growing slowly and steadily next to the Minifie home in Kialla, near Shepparton, until flood waters from the Goulburn River brought on an extraordinary growth spurt. With the rapid growth, the tree started to develop its characteristic swollen trunk form and to lift the footings of the Minifie’s house. They decided that either their front verandah or their beloved Bottle Tree would have to go.

The Gardens received advice from a specialist advanced tree transplanting company and it was agreed that the task was achievable. Planning continued while waiting until early summer, the most suitable time to transplant the tree.

In August the company took a machine to the site to undertake preliminary root ball preparation by cutting the roots of the tree about one metre out from the trunk, to encourage a thicker root ball close to the trunk and to aid recovery from the transplanting.

Finally, at the beginning of December last year John Arnott, Jesse Dawkins and Warren Worboys went to Kialla to start preparing the tree for transplanting. The following morning the company arrived with a semi trailer with a tractor and skid steer machine on board and soon afterwards a crane truck arrived to do the heavy lift.

The tree was eventually out of the ground and safely loaded on to the semi. Its foliage canopy was so high and wide that it had to be reduced in spread by half so that it could be transported legally on the highways. This involved nearly two hours of carefully pulling in with ropes and nets



The heavy lift with the Bottle Tree finally out of the ground.



The Bottle Tree being placed on the low loader for its trip to Cranbourne

to get the foliage back close the truck's sides without actually cutting off branches unnecessarily. Eventually the tree was on the road en route to Cranbourne.

As you might expect, with the tree removed there was a major hole in the front garden. The Minnies were extraordinarily understanding hosts, especially when a key plant in their garden was removed, the rest of their front yard looked like a construction site and many people were traipsing through their front gate. They were very happy when the site was all cleaned up, the garden reinstated, that there had been no damage to their home in the removal of the tree and to see the tree going to a good home.

At Cranbourne the following morning another crane truck carefully unloaded the tree and the tree was planted into a cone shaped steel basket at the edge of Stage 2 so that it could be easily transported across the construction site and planted in the ground when the new landscape is constructed later this year.

The Garden's management has since laid a temporary dedicated drip irrigation system to the tree and it is still in good condition, showing few signs of leaf drop or damage. The tree can be seen among the Eucalypts beside the entry road, just before the J. A. Dodd site sheds, but it is being held in part of the construction site and is out of bounds for people wanting to go up and touch it with warm greetings and encouragement to grow well.

Flying Foxes driving the Gardens 'batty' The Royal Botanic Gardens, under threat

Mavis Sourry

Mavis is a Volunteer Guide, Botanic Gardens Trust, Sydney and a member of Friends of the Gardens Inc.

How many countries or continents can claim to know exactly where their agriculture began? Sydney, Australia, is unique because land just south of Farm Cove was selected by Governor Arthur Phillip as the site of the first farm within days of the arrival of the First Fleet at Sydney Cove in January 1788. Governor Phillip proclaimed a large area east of Cattle Point (Bennelong Point, site of the Sydney Opera House) to be the first farm mainly for cereal crops and officially designated as the Governor's Domain. A small creek now known as Botanic Gardens Creek influenced the choice of a nearby site as the first farm. Although largely unsuccessful in the intended purpose of providing fresh food for the fledgling colony, the site continued as the Governor's garden.



Royal Botanic Gardens, Sydney Photo: www.rbgsyd.nsw.gov.au

In June 1816 Governor Macquarie (1810–1821) declared the area roughly corresponding to the present Middle Gardens as a Botanic Garden and Charles Fraser was appointed as the first supervisor the following year. The Royal Botanic Gardens Sydney remains notable



for its important collections: the extensive preserved specimens in the Herbarium, including some precious items collected by Sir Joseph Banks and Daniel Solander at Botany Bay in April-May 1770; the comprehensive Herbarium library; and the living collection in the 30 hectare park-like gardens. All are invaluable for continuing scientific and technical research. The living collection contains many rare and unusual plants, some threatened, even extinct, in their native habitats.

The Botanic Gardens also provide pleasure and instruction for the general public who come to enjoy the expansive lawns, the glorious vistas over Sydney Harbour and being invited to 'hug the trees' and 'please walk on the grass'.

Some trees and palms date to 1824 and 1828 and are the result of exploration and collecting expeditions made by Charles Fraser and Allan Cunningham. Some other collectors were Colonel William Paterson, John Carne Bidwill, Ludwig Leichhardt and Thomas Mitchell. The living and preserved collections have continued and been added to under the directorships of Charles Moore and Joseph Maiden and others, to the present day.

The Palm Grove was established by Charles Moore in 1862. It contains many palms, native and exotic, some very rare. Unfortunately the Palm Grove was the roosting place of choice for the Grey-headed Flying Fox whose numbers began increasing dramatically early in the 1990s. The Palm Grove is also the site of 'heritage' trees planted from specimens collected on the Fraser and Cunningham expeditions. Examples are *Waterhousea floribunda*, *Syzygium paniculatum*, *Flindersia xanthoxyla*, *Araucaria cunninghamii* and several *Agathis* species. These are all 'heritage' because of age, significance and rarity



Palm Grove, Royal Botanic Gardens, Sydney
Photo: www.rbgsyd.nsw.gov.au



A Grey-headed Flying Fox in the Royal Botanic Gardens, Sydney
Photo: Peter Martin

Of more than 300 trees in this area the activity of the flying foxes has caused the death of 18 that had to be removed. At least 135 more have sustained serious damage to part or all of their canopies. As the damaged trees have been removed, the flying foxes have expanded their camp by moving outwards. Thus palms, some very rare, as well as the understorey plants are subject to sun damage, in addition to bat guano. A sad example is the loss of wild-sourced aroids collected in Malaysia and New Guinea.

The bat camp expansion now affects other significant areas: the Australian rainforest beds and eastwards to the trees sheltering the extensive Begonia collection, with consequent loss of many plants. A beautiful, mature Tree Waratah, *Alloxylon flammeum*, is so damaged it may not survive. All paths and garden beds in the central area are disfigured and unpleasantly smelly from the bat droppings.

Yet my sympathies are with the flying foxes. Their habitat loss is significant and continuing. However, their rightful place is in open forest, woodland and mangroves, where they pollinate while consuming their preferred diet of blossoms, nectar and native fruits. It is ironic that as more trees are removed because they have died prematurely due to the roosting habits of a large population of the Grey-headed Flying Fox in The Gardens, the bats must move on anyway.



The following photographs by Jaime Plaza give some indication of the extensive damage caused to the trees by the Grey-headed Flying Fox colony in the Royal Botanic Gardens, Sydney.



The NSW Government gave permission for relocation on 4 August 2009 but the Commonwealth Government considers the GHFF at greater threat and have so far refused permission. But a great scientific institution, the first in Australia, also needs protection. A 150 year old tree cannot soon be replaced and what of plants already extinct in their own habitats?

Botanic gardens worldwide continue to be a resource for the future, especially in these times of climate uncertainty.

David Bidwell, Senior Arborist, Royal Botanic Gardens, Sydney, has compiled the following list of trees whose loss is attributed to the activities of the flying foxes. All trees occurred within the area occupied by flying foxes.

Agatha laurifolia, *Agonis flexuosa*, *Aphananthe philippinensis*, *Archontophoenix cunninghamiana*, *Arenga pinnata*, *Butia capitata*, *Caryota urens*, *Cedrela mexicana*, *Chionanthus retusus*, *Diospyros digyna*, *Elaeocarpus kirtonii*, *Erythroxylum argentinum*, *Eucalyptus robusta*, *Hovenia dulcis*, *Howea forsteriana*, *Laurus nobilis*, *Livistona australis*, *Magnolia liliiflora*, *Magnolia x soulangeana*, *Myrceugenia lanceolata*, *Myrrhinum atropurpureum*, *Planchonella australis*, *Polyscias elegans*, *Pyrus calleryana*, *Syagrus romanzoffianum*, *Trithrinax*

The following trees are most unlikely to recover even if relocation goes ahead (this is considered a 'guesstimate').

Agathis macrophylla, *Davidsonia pruriens*, *Metasequoia glyptostroboides*, *Phoebe nanmu*, *Podocarpus totara*, *Syzygium paniculatum*, *Triptodendron filicifolia*, *Waterhousea floribunda*.

Note: The opinions expressed in the article are the opinions of the author, and do not necessarily reflect the views of the Botanic Gardens Trust.

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How we produced an edition of *Australian Plants*

Bob Ross

Bob has been an active member of the Australian Plants Society for over 40 years and is currently the newsletter editor for the South East Group of APS, NSW.

It all started on 29 February 2008 with an email from Cas Liber of the *Australian Plants* magazine editorial team, which read:

"Bob, I was trying to get in contact with you about the possibility of the SE group doing a whole edition of Australian Plants with the luxury of colour images etc. It works out at 29 A5 pages of text, and 16 pages of colour images. Any time limit is fine, just wanted to set the thing in motion. (signed) Cas"

Our Group committee said "Yes" to the idea of producing a whole *Australian Plants* magazine on the native plants of our part of NSW. I agreed to edit it since I was already editing our local newsletter. I must admit I didn't know how to edit a magazine but I thought I would have help from our many talented members. (I did get a lot of help!)

Over the next eight months we asked our members if any were happy to write an article for a "South-East NSW" edition. By November 2008 we had lined up 12 possible authors and a four-person editorial committee.

The editorial committee decided that the magazine should:

- (a) focus on the region covered by our SE NSW group, which extends from just north of Batemans Bay 250 km south to the border with Victoria and from the ocean on the East to the top of the river catchments that feed into the coastal area.
- (b) Include a section in each article that connects the subject matter of the article to practical aspects of growing Australian plants. John Knight, the manager of the Eurobodalla Regional Botanic Gardens, was a member of our committee and he convinced us that growing natives was the first objective of the APS and therefore each article should include this.
- (c) Describe native plant communities in the SE Region in the first article, including a map of the region. This article would provide a 'lead in' to the other articles about growing native plants.

- (d) Include colour photos for each article (if suitable photos were available) and put the photos as close as possible to the relevant text.

Next we managed to find eight authors who were willing to write articles

- (i) on an agreed subject
- (ii) of an agreed number of words (500 words x number of pages) and
- (iii) finish the first draft by January

At this stage I started to relax and think that this editing business wasn't so bad after all. I didn't know that the really hard part was still ahead.

By Christmas the articles started to trickle in and by the end of January we had most of them on hand and were ready to start editing. I was fortunate because two of our editorial committee were experienced on writing technical literature. Jackie Miles, a consultant botanist, not only wrote two of the articles but also put a lot of effort into reviewing other articles. Margaret Lynch also wrote an article and helped with the editing.

Over the next three months we contacted John Aitken, a member of the *Australian Plants* editorial committee. Cas Liber provided us with a sample page in Word format from the magazine with all the formatting provided and we made a mock-up and sent it to John as a Microsoft Word file for more reviewing and editing.

The next stage was photographs. We had to collect high resolution photos for each article. Some fidelity in photos is lost during the printing process so the photos needed to be high quality digital photos. Jackie came to the rescue for several articles, using photos from her extensive photo library. For one article we went out and took photos and for another article the author mailed a CD of photos after losing the battle with computer software that didn't want to email high resolution photos.



Front cover of the South East Group's September 2008 issue of *Australian Plants*

By May we had reached the stage of doing draft layouts. John informed us that the guidelines had changed and that we could now distribute the colour photos through the magazine, putting photos next to relevant text rather than grouping colour photos on separate pages as in previous editions of *Australian Plants*.

It was a big relief when John sent the final mock-up of the magazine to Lachlan McLaine who did the layout of the magazine. Several weeks later Lachlan emailed a low resolution 'pdf' file of the final draft layout (including photos) for all 46 pages and we made our final comments.

It was approximately 18 months after Cas first approached us that we received the finished journal in the mail. We were thrilled to receive our issue of *Australian Plants* and felt a great sense of achievement and pride to see our efforts come to fruition.

I'm sure that future productions of the magazine will be much easier now that everyone has learned from the experience. You might like to also give it a try. We think it is well worth the effort!

Editor's comment

Congratulations to the South East Group, APS NSW, on their wonderful efforts in producing an excellent issue of *Australian Plants*. The enthusiasm and commitment of the Group to promote its District and the growing of Australian plants is a great credit to all involved.

I hope that South East's venture will be an inspiration to other Groups and Regions to produce an issue of *Australian Plants*. If your Group or Region is interested please contact:

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Eurobodalla Regional Botanic Gardens
The back cover of the S.E. edition of *Australian Plants*

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