

## EARLY RECORDS OF PROPAGATION TECHNIQUES FOR AUSTRALIAN NATIVE PLANTS

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In recent years improved selections and a few hybrids of Australian native plants have appeared in the nursery trade as well as an increasing number of species. However, these are still very few compared with the enormous number of native species with ornamental value.

Many apparently little known species are being grown only by specialist growers such as members of The Society For Growing Australian Plants. This same Society has been and is very active in all states in furthering an interest in use of indigenous plants in parks and gardens.

One of the more obvious results of this interest is the Canberra Botanic Gardens which is, I believe, the only botanic gardens in the world devoted exclusively to its continent's indigenous flora. I should mention also Maranoa Gardens and the extensive use of natives in airport and freeway plantings in Melbourne, the specialist gardens such as Stony Range, Kuring-gai Wildflower Gardens, and Bankstown Wildflower Reserve in Sydney and nearer at hand, the plans for extensive use of native plants in the development of the Brisbane airport.

There would appear to more interest now in cultivation of Australian plants than ever before, so it is interesting therefore, to look at the record and see just what has happened in times past.

The oldest publication about the cultivation of Australian plants that I have been able to locate is titled "*A Specimen of the Botany of New Holland*" and it is quite astounding to realize that it was published in 1793. In his preface the author, James Edward Smith says, "The present work must be considered only as what it pretends to be, a specimen of the riches of this mine of botanical novelty". The book contains 16 beautiful paintings by James Sowerby. Two of these are *Styphelia tubiflora*, and *Goodenia* (now *Scaevola*) *ramosissima*.

Curtis' Botanical Magazine commenced publication in 1787. Its correct title is "*The Botanical Magazine of Flower Garden Display*". Under the title it says, "in which the most ornamental foreign plants cultivated in the open ground, the

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greenhouse and the stove are accurately represented in their natural colour, to which are added their Names, Class, Order, Genus and Specific Characters according to the celebrated Linnaeus, their places of Growth and times of flowering, together with the most approved method of culture”.

Curtis' Botanical Magazine was not confined to Australian plants of course, and the first Australian plant was included in Volume 4, Plate 110. It was *Mimosa verticillata* “flowering in 1790 . . . introduced from New South Wales to the Royal Botanic Gardens by Sir Joseph Banks”. Next in Volume 6, Plate 260, published in 1794, was “*Metrosideros citrina*” or, as we know it, *Callistemon citrinus*.

“*Flora Australasica*” by Robert Sweet was published in 1827-28. The full and somewhat wordy title is “*Flora Australasica, or A Selection of Handsome or Curious Plants Native of New Holland and the South Sea Islands*”.

The illustrations by E.D. Smith are entirely from specimens in cultivation in England. Mr. Sweet's book contains plates to 56 species and along with other information, “a full account of the best method of cultivation and propagation”. I will quote a sample from this remarkable book: “*Correa pulchella* . . . Seeds of this handsome species of *Correa* were collect by William Baxter, the indefatigable collector of F. Henschman Esq. at Kangaroo Island on the south coast of New Holland; from those were raised young plants in 1824 at the nursery of Mr. T. Mackay at Clapton where they began flowering for the first time in February last; and plants of it are now for sale at his establishment where many other new or rare plants from New Holland have flowers this season and others are continually coming into bloom.”

A quote from Mr. Sweet's dissertation on *Epacris impressa* will illustrate the type of cultural information that he detailed. “The plants of this genus succeed well in a light sandy peat soil; or when grown large a small proportion of light sandy loam may be added to it. When young, they require to be in small pots and to be shifted into larger ones as they increase in size; the pots should be well drained with potsherds broken small as the roots are fond of running amongst them and the earth will not become sodden which it is otherwise very apt to do; this injures the plants very much; another thing which often proves fatal to the plants of this genus is their being placed in a situation where the sun shines full on them, when set out in the open air in summer; their roots always grow around the pot on the inside and they are so very small that the sun shining against the pot scorches them and entirely destroys them and it is a chance if the plants ever recover. Young cuttings planted

under bell glasses in sand root readily; the autumn is the best season for putting them in."

Mrs. Loudon's comprehensive volumes "*The Ladies Flower Garden*" were published between 1840 and 1843 in five parts, one on Ornamental Bulbs, one on Ornamental Annuals, two on Ornamental Perennials and the last on Hardy Greenhouse Plants. It was by no means confined to Australian plants, but if you have the time to read through the text, a large number are included in each of the sections.

There are many other fascinating publications too that contain items about the culture of Australian plants: Some are of enormous length such as "*The Gardener — an Illustrated Weekly Journal of Gardening in all its Branches.*" It extends from June 1872 to January 1902.

By the 1880's it would probably be fairly safe to say that practically every Australian plant with some ornamental potential had been tried, and when "*The Illustrated Dictionary of Gardening,*" appeared during the 1880's it listed, with cultural details, well over 1200 species of Australian plants as well as some 60 other genera without delineating the species because they were considered "lacking popularity or virtue". It had, in fact, sorted out over 1200 species of the best of the Australian plants.

This monumental publication "*The Illustrated Dictionary of Gardening — a Practical and Scientific Encyclopaedia of Horticulture for Gardeners and Botanists*" was published in four volumes, between 1884 and 1889. A Century Supplement followed later in 1900.

I never cease to be astounded every time I leaf through the pages of this magnificent publication at the exhaustive list of what we would call little known Australian plants for which cultural details are given. Some of the unusual plants listed include *Pachynema* (from Northern Territory), *Amorphophallus* (from Northern Australia), *Fieldia* (a relative of gloxinia from our high border rainforests), *Myrmecodia* (one of our tropical Ant House plants), and *Cephalotus* (one of our pitcher plants).

Other tropical Australian plants detailed include *Cerbera* (the "true" native Frangipanni), *Cochlospermum*, *Dolichandrone*, *Pandanus aquaticus* and *Faradaya splendida*.

The surprises include *Decaspermum*, *Trochocarpa*, *Helmholtzia* (now *Orthothylax*), *Medichosma*, *Eupomatia* — the list is seemingly endless. It includes some plants that I thought nobody had noticed or grown except me.

*Rhododendron lochae*, our only Australian rhododendron, was drawn to our attention in the December 1961 issue of Au-

stralian Plants, "Romance and the Rhododendron"; but it was in cultivation in 1887.

*Orthosiphon stamineus* (now *O. aristatus*) was released in 1974 by Queensland nurserymen with a successful publicity campaign, "The Cat's Whiskers"; it was well known in 1869 as "The Cat's Whiskers".

I have been very proud of a few plants of the lovely pink *Podolepis gracilis* that I have grown over the last 2-3 years. Few people here know it. However, the Dictionary of Gardening in 1857 rates it as an outstanding annual and Mrs. Loudon illustrates and commends it in her 1840 book on Ornamental Annuals. She says "the seed may be purchased in any seed shop".

Australian ferns are well covered in these early writings as well as very detailed methods of successfully raising them from spores.

Grafted plants of a *Brachychiton* have been available here in a small way for some years, as well as a grafted selection of *Ceratopetalum*. A number of other native species have been grafted within such genera as *Banksia* and *Eucalyptus*.

Certainly grafting and budding offer interesting possibilities in overcoming problems such as root rot susceptibility and propagation of outstanding forms. However, apart from fruit trees, roses and, in the southern states, a few conifers and deciduous plants, very little of this skill is practiced here.

No doubt it could be argued that present day labor costs prohibit such a labor intensive, high unit cost method of propagation. However in England at the present time, the greatest importance is placed on highly selected forms and the majority of trees and many shrubs are grafted.

Grafting of Australian plants was practiced quite extensively during the early part of the 19th century, particularly in regard to *Correa*, *Boronia*, *Crowea* and *Eriostemon*. All these genera were grafted onto roots of *Correa*, mostly *C. alba*. The Dictionary of Gardening said in 1885 "by employing this mode of propagation the better kinds grow more freely and useful sized specimens are produced in less time than by use of cuttings". *Pittosporum* was among other genera propagated by grafting.

Let us then look at some of the other notes on propagation. For instance, under *Trichinium* (which we now know as *Ptilotus*) the following, "Propagation is readily effected by means of the thick roots which should be cut into pieces about 1 inch long and inserted in sand in bottom heat".

The propagation instructions given in The Illustrated Dictionary of Gardening were fairly standardized and somewhat

repetitive but I will quote a couple of examples. "Anthocercis . . . cuttings strike freely in sand under a bell glass with mild bottom heat. So soon as they have well rooted, pot off into very small pots in two-thirds good loam and one of peat."

"*Banksia* . . . cuttings are generally supposed to be difficult to root but this is not the case if properly managed. Let them be well-ripened before they are taken off; then cut them at a joint and place them in pots of sand, without shortening any of the leaves, except on the part that is planted in the sand where they should be taken off quite close. The less depth they are planted in the pots the better so long as they stand firm when the sand is well closed around them. Place them under hand glasses in the propagation house but do not plunge them in heat. Take the glasses off frequently to give them air and dry them or they will probably damp off. When rooted, transfer to small pots."

The main difference between the propagation instructions given for one genus and that given for another is in the state of maturity of the wood for cuttings, for example:- well-ripened, half-ripened or young shoots. You will also notice that bottom heat is recommended for some and warned against for others, and those of you who have experimented with bottom heat on cuttings of native plants will have verified these varying responses.

The Dictionary of Gardening 1885-89 marks some 270 odd species of the New Holland plants from its extensive listing of over 1200 species, as being "plants that are especially good or distinct". I wonder how many of these are being grown today.

Our *Doryanthes* were both highly regarded and described as "a genus of extremely beautiful amaryllids".

The Cape York and Torres Straits Ginger Lily or Rain Lily, *Curcuma australasica*, was also regarded as "especially good" also our black Arum, *Typhonium brownii*, as well as our two *Bowenia*, *B. spectabiles* and *B. serrulata*.

During the last century when the emphasis was on displays of showy flowering plants in pots, the Australian plants such as *Correa*, *Eriostemon*, *Boronia*, *Epacris* and *Pimelea* were among the most popular and useful.

I am astounded by the list of hybrids and selections of *Correa*, *Epacris* and *Swainsona galegifolia* that were grown so long ago.

The Dictionary of Gardening says of *Epacris*: "These are amongst the most useful of winter flowering plants either as decorative subjects or for cut flowers. They are as a rule more easily propagated and grown than Heaths and the flowers last longer in a cut state. . . The species of *Epacris* have produced

a large quantity of beautiful garden forms that are in most cases superior to the types from which they have originated.”

Following are a few of the names from an 1880 list of 31 garden cultivars: “Ardentissima, Eclipse, Fireball, Ignea, Lucifer, Sunset, The Bride, Vesta and Vesuvius”. I wonder where these plants are now.

The type of gardening with which our plants became involved in the greenhouses and hot houses of England was quite different from the way we garden and plants were carefully trained to fulfill particular purposes. Some were very successful for training into columns or pillars and the best of these included *Abutilon*, several of the *Acacias*, our *Hardenbergias* and *Kennedias* and many of our pea-flowered shrubs, over twenty genera of which contained highly recommended species.

The following quote about *Chorizema* will illustrate the high esteem in which these plants were held before 1888. “They are mostly trained on globe or other trellises with excellent effect, the whole trellis being lighted up with the brilliant beauty of their flowers slightly toned down by the pleasing forms and refreshing variations of the leaves. They are admirably adapted for clothing dwarf columns or pillars and covering dwarf walls. They also form fine loose bushes if allowed to grow freely and produce a number of shoots, the outer ones hanging over and partly hiding the pots. . . They seldom however look better than when placed in 8 or 10 inch pots clothing a globular trellis.”

Highly regarded Australian climbing plants included *Hardenbergia*, *Kennedya*, *Tecoma australia* and *T. jasminoides* (now of course both *Pandorea*), *Millettia* and one of the *Passiflora*.

In recent years we are seeing attempts by nurserymen to popularize the idea of potted flowers in place of bunched cut flowers. A few of our plants were highly valued in a similar way in the 19th century because of their ability to flower prolifically while still small cutting-grown pot specimens. These plants included *Backhousia myrtifolia*, *Busaria spinosa* (“a very pretty object when covered all over with its elegant white blossoms”) and a small number of our *Acacias*.

Our *Blandfordias* were praised and recommended in the highest terms: “A very beautiful genus of greenhouse bulbous plants”. I couldn’t agree more but how many people are growing them.

Mrs. Loudon calls *Calostemma luteum* and *C. purpurem* “very pretty plants”.

The Dictionary of Gardening also highly recommends both our species of *Eurycles* as handsome bulbous plants. The ac-

cepted common name of *Eurycles cunninghamii* as long ago as 1885 was incidentally, "Brisbane Lily".

In the 1890's Guilfoyle published "*Australian Plants Suitable for Gardens, Parks, Timber Reserves, Etc.*" He lists 3268 species and varieties and suggests suitable cultural uses. The book apparently had little effect in furthering the use of our plants at that time.

During the early 1900's the interest in culture of Australian plants dwindled, much like a tap running out of water. Even the Century Supplement to, *The Dictionary of Gardening*, notes that many genera and species are "probably not now in cultivation".

L.H. Bailey in "*The Standard Cyclopedia of Horticulture*" in 1913 makes mention of some Australian species as "popular in the early part of the 19th century — largely replaced by quick growing soft-wooded plants". This refers to the development of plants such as dahlia and chrysanthemum. Perhaps the decline in popularity was also partly at the whim of fashion.

Whatever the cause of the decline, it's worth reflecting that all this high developed culture of Australian plants was achieved without the sophisticated equipment such as misting units, automatic humidity and light control, growth promoting and regulating chemicals, technical knowledge of potting mixes, fertilizers, pest and disease control and sterilants, etc., that are taken for granted today.

## QUESTIONS AND ANSWERS

SHEILA THOMPSON: The trade is criticized for not growing more of these plants but do you have any suggestions for obtaining seeds. Even if the Society For Growing Australian Plants has seed it is not readily available to the trade.

DAVE HOCKING: There is a lack of liaison between S.G.A.P. and the trade and if this continues the current interest in growing our native flora will be just another passing fashion. S.G.A.P. is seeking government assistance to collect seed and to make it available to the trade. I have investigated the possibility of a business to collect and sell seed but consider it to be non-viable at the present time.

BEN SWANE: There are restrictions against the growing of many native species — those that are totally protected. Acres of these plants are bulldozed and buried but we are not allowed to grow them.

DAVE HOCKING: Some existing legislation and misguided conservation attitudes are quite detrimental. Many species will be maintained only by getting them into the trade.

MARGARET McKAY: Flora legislation is currently being rewritten so now is the time to put forward ideas on this matter. This Society should take up the issue.

## **ELECTRIC SOIL AND HOT-HOUSE HEATING**

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The electric heating of seed and cutting beds and of hot-houses has resulted in a marked improvement in plant production and quality.

With tomato seeds the heating of seed beds has reduced the time between seeding and planting by five weeks. Capsicums, which are normally difficult to raise during the winter, sold four to five weeks before seedlings planted from unheated beds. Croton, hibiscus, camellia, macadamia, celery, and passion fruit have been produced with great success, being struck and grown during the winter and sold in early summer. The grower can now compete on a market where it was not possible to do so before.

The use of a 32-volt system enables low cost, easily replaceable galvanized iron wire elements to be used. These can be installed by the grower and adapted to suit his particular conditions and application.

### **BED CONSTRUCTION**

The following descriptions apply to seed beds and hot-house installations known to be successful. However changes in detail could readily be incorporated to suit existing installations and to cater for special plant requirements.

**Exterior Seed Beds:** Prepare a 6 inch deep bed of the area required above a layer of plastic sheeting, perforated to permit good drainage. The bottom two inches should be of screenings or sandy loam on which the element is run. The top four inches should be of soil or sand depending on the plants to be grown. (Fig. 1)