



# Garden Cuttings

a monthly newsletter for the discerning gardener

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Managing Editor: TIM NORTH

Production Editor: KEVA NORTH

Editorial Office: C/o P.O. Box 279, EDGECLIFF, N.S.W. 2027 - Tel: (02) 326-1519

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## Plants - Places & People

One fact has emerged very early from the correspondence we have received, that there is a large, and largely unsatisfied, demand among keen gardeners for what may be described, rather loosely, as 'unusual' plants, unusual in the sense that they are not normally found in commercial nurseries and garden centres.

In the United Kingdom there are quite a number of small, privately owned specialist nurseries with all sorts of 'unusual' plants to offer. Beth Chatto's marvellous nursery near Colchester in Essex is a supreme example. She issues a sixty-four page catalogue! But where are the counterparts in Australia? Do they exist? One or two certainly do, but clearly gardeners who wish to acquire plants a little out of the general run of mass produced garden centre lines face a problem. We will endeavour to track down sources of supply, either within the trade or from private gardens, and are making a start this month with a 'Plants Wanted' column.

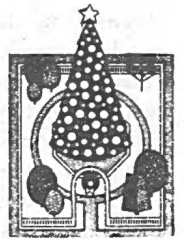
Perhaps not all those who are looking for unusual plants are aware of one of the benefits to be derived from membership of the Royal Horticultural Society of England, namely the right, as an overseas member, to receive up to fifty packets of seeds each year from the Society's gardens at Wisley. A separate note on this appears in this issue.

On a quite different theme, we are featuring this month, two separate and necessary brief accounts of two noteworthy land reclamation projects. One was completed in Vienna, several years ago, and involved transforming a former gigantic rubbish tip into a fine public park. The other, much nearer home, is taking place at this moment on the foreshore of Botany Bay. It is indeed encouraging to find that such far-sighted and imaginative reconstructions, as opposed to destruction, of our natural environment can still take place. We believe that, so far as the Botany Bay project is concerned, the Maritime Services Board of N.S.W. and everyone else who is, or has been connected with this work, deserve our thanks, and our congratulations. We hope to bring further news of this when it is completed.

Now it's time to say 'Happy Christmas' to all those reading this newsletter, and to thank you for your support so far. We'll be back in January 1982, and have some especially interesting features to come.

TIM NORTH

## The traditions of Christmas



The tradition of decorating a tree at Christmas goes back even to the pre-Christian era. In the Germano-Celtic Yuletide rites, which celebrated the winter solstice, evergreen trees were symbolic of eternal life; Yule logs, Yule cakes, gifts and greetings also played a part in these pagan rites.

When St. Boniface completed the Christianization of Germany in the 8th century A.D. he dedicated a fir tree to the Holy Child. Because it so happened that the Nativity of Christ coincided with the pagan agricultural and solar observancies of mid-winter the tradition of the tree was perpetuated.

The Christmas tree of modern times, however, really dates from the medieval German mystery plays. In these plays a tree (the Paradisebaum or Tree of Paradise) was used to symbolize the Garden of Eden: so the Germans used to set up a decorated tree, either at the entrances to their homes or inside, on the 24th December, the religious feast day of Adam and Eve. When the mystery plays were eventually suppressed the tradition of decorating a tree with cakes and fruit, and later with candles, continued and spread to most of the countries of Northern Europe. Prince Albert, the German husband of Queen Victoria, is credited with introducing the Christmas tree into England, and German immigrants introduced it to the U.S. where it was adopted with enthusiasm. The trees most commonly used were firs, either the Balsam Fir (*Abies balsamea*) or the Douglas Fir (*Pseudotsuga menziesii*).

Mistletoe is also traditionally associated with Christmas, but its religious symbolism dates back to the time of the British Druids, who believed it had miraculous powers: it was supposed to be a cure for sterility and a remedy for poisoning. The Romans held it to be a token of peace, and believed that when enemies met under it they discarded their arms and declared a truce. From this grew the custom of kissing under the mistletoe.

Holly, another traditional Christmas decoration was also endowed with unusual powers. According to one legend Christ's crown of thorns was made of holly.

These traditions handed down over many centuries are now an integral part of our celebrations of Christmas. Let us hope they continue to be for many years to come.

## Flowers and fruit - too few or too many?

Flowering trees that produce too few or too many flowers may need help, according to Dr. Sydnol, of the Ohio Agricultural Research and Development Centre.

Too few flowers may be due to excessive shade from surrounding trees, so pruning of these trees in order to admit more light may help. A more common reason, however, is excessive nitrogenous fertilizing of the lawn underneath the trees. Phosphorus is essential for flower production and is best incorporated into the soil in holes made with an augur. Use a slow-release phosphatic fertilizer such as Mag-amp or K-mag.

On the other hand a tree that flowers far more heavily than usual may be in trouble. Flowering plants respond to a life-threatening stress by increasing flower production so as to produce seeds to reproduce themselves. The stress could be caused by borers, fungus diseases such as canker, improper feeding, inadequate water or other cultural factors, or mechanical injury. Maintaining the vigour of the tree is the best preventative against troubles of this kind.

Fruiting trees respond in the same way. They need to be planted in full sun, with good air circulation around them, and as soon as they have a framework large enough to carry fruit, should be given a high-phosphate fertilizer once a year, preferably in summer. The following additional tip for increasing the quantity of fruit comes from an American fruit-growers journal, the North American Pomona:- rapid growing upright branches should be pulled down until their tips are level with the point at which they come out of the tree, if necessary the branches can be held down with plastic bottles filled with water tied to them; this can be done after the first year and must be done within ten days of blossoms opening, or alternatively, before the first buds for the following year are formed in winter or early spring.

### Contents

Plants, Places and People .....	Page 17
The Traditions of Christmas ....	Page 17
Flowers & Fruit - too few or too many ...	Page 18
Book Review .....	Page 18
Amaryllis .....	Page 19
The Royal Horticultural Society .....	Page 19
The Port Botany Open Space Project .....	Page 20
Garden Gear .....	Page 22
Aerosols for the Home Gardener .....	Page 22
Rubbish Tip reclamation .....	Page 23
Grafting Native plants .....	Page 23
A novel way of reproducing .....	Page 23
Mycorrhizal fungi .....	Page 23
The Pyramid Appeal Art Union Winners .....	Page 23
Quick Tips .....	Page 24
Quote of the month .....	Page 24

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## BOOK REVIEW: 'The Gardens of Edna Walling'

by Peter Watts

Not one name in the history of garden design in Australia stands out as that of Edna Walling. She introduced, to quote from this book 'a totally new concept' into the art, and insofar as a national style of garden design has evolved, the credit for this belongs to her. One cannot help but compare her with Gertrude Jekyll, more than fifty years her senior, and certainly there are many similarities in their styles, and Edna Walling clearly derived many of her ideas from Jekyll's work. But the comparison must not be taken too far, for the two were quite dissimilar in their personalities. Gertrude Jekyll was artistic, literary, refined; Edna Walling was uncompromising, demanding, sometimes eccentric, considered by some to be aggressively masculine. She loved building with her own hands more than anything else, but she was a skilful and perceptive horticulturist, and at times a brilliant designer.

Peter Watts in his preface, says that this was not really the book he wanted to write: given the time he would have written a full length biography. But what he has written is a gem. He paints a clear picture of what this remarkable woman was really like and how she worked; and he speaks with authority and discernment of the elements of her style, and the influence this has had. He is well qualified to do this: an architect by training, he took a post-graduate diploma in landscape architecture at the Royal Melbourne Institute of Technology, and more recently undertook a two year survey of the historic gardens of Victoria on behalf of the National Trust and the State Government. He is now Director of the Historic Houses Trust of N.S.W. and honorary secretary of the Australian Garden History Society.

Joan Law Smith contributes a beautifully written forward of great sensitivity. Mark Strizic's coloured photographs of some of Edna Walling's extant gardens are superb, and the book is also illustrated with reproductions - for the first time in colour - of many of her remarkably lucid water colour plans, complete with detailed planting notes.

This is indeed a delightful book, and will appeal not only to those who are interested in the history of garden design in Australia, but also to all those who derive pleasure from beautiful gardens.

'The Gardens of Edna Walling' is published by the National Trust of Australia (Victoria) Women's Committee at a recommended retail price of \$19.95 plus \$2.00 for postage. Profits from the sale of the book will go to the National Trust. This book is available from National Trust shops.

### Plants wanted

Anyone having plants of the following is invited to write to:

Mrs. Ann Gordon,  
Box 129, Irymple,  
Victoria, 3498.

Ruta graveolens - 'Jackman's Blue'  
Salvia officinalis - 'Tricolor'

# Amaryllis

Louis XIII of France once composed a gavotte which he called 'Amaryllis', because, he said, these flowers reminded him of dignified ladies courtseying. In less complimentary fashion they have been christened 'Naked Ladies', because of their habit of sending up long 'naked' flower stems after all the foliage has died away.

It is generally believed that there is only species in the genus, *Amaryllis belladonna*, but in its native South Africa it produces different varietal forms, and also hybridizes readily with certain other genera of the Amaryllidaceae, particularly *Brunsvigia* and *Crinum*. A further complication is its ability to produce large quantities of parthenogenetic seed - that is seed produced by spontaneous growth of the female germ cell without fertilization by the male organs: this results, in the case of hybrids, in a perpetuation of the maternal line.

Many of these Amaryllis hybrids have been produced in Australia, notably the so-called 'multiflora' hybrids, and the climate of the temperate eastern states seems to be especially favourable.

The best known of the early hybrids was the so-called 'Kew Belladonna', or *A. x parkeri*. It was given to Kew Gardens in 1889 by a Miss Arbuckle, of Stanwell House, Richmond, near London. Miss Arbuckle had acquired this house from Sir Henry Parker, who had been Premier of New South Wales from 1856 to 1857. This particular hybrid, however, had been shown to the Royal Horticultural Society fourteen years earlier by Sir Henry's gardener, Mr. Boivell. It was then described as a seedling raised in Australia by Lady Parker from *A. belladonna* and *Brunsvigia josephinae*. However, it is likely that this cross was first made, not by Lady Parker, but by Mr. Bidwell, the Director of the Botanic Gardens in Sydney. It has also been attributed to Mr. Bradley, a Sydney nurseryman. Mr. Bidwell, writing in the English 'Gardeners' Chronicle' in 1850 describes how Dean Herbert, in 1843, gave him some bulbs raised from '*A. blanda x A. josephinae*' (sic). *A. blanda* had been collected by Banks at the Cape of Good Hope, and had flowered at Chelsea as early as 1754, after which it seems to have disappeared for a time; both Dean Herbert and Elwes believed it to be a separate species. Elwes had also collected a tall, early-flowering form of Amaryllis from an undisclosed source, which he called *A. elata*.

John Baptist was another Sydney nurseryman who, around the middle of the nineteenth century, was hybridizing Amaryllis and *Brunsvigia*. One hybrid he produced he called *B. x multiflora*, but it was questioned at the time whether this was, in fact, a hybrid, as it displayed no marked *Brunsvigia* characteristics, nor was a pronounced *Brunsvigia* throwback reported.

Going back to Mr. Bidwell, we know that he raised a large number of seedlings, but it is not clear whether he used the *A. belladonna* type to produce *parkeri*, or whether he used *blanda* or *elata*; it may also be that *parkeri* contains something of both *Brunsvigia josephinae* and *B. x multiflora*. It is known, however, that a chance pollination of *A. x parkeri* with *A. x multiflora* (another of Mr. Bidwell's hybrids) resulted in the first white Amaryllis, which was called 'Hathor'. It seems that this cross broke down a number of genetic barriers, because it was followed by a whole range of hybrids, from broad-petalled types not unlike some of the *Hippeastrums* to some very unusual *Brunsvigia* types - the *Brunsvigia* characteristics, however, being almost wholly recessive.

At Kew the *A. belladonna* and *B. josephinae* cross was repeated and in 1909 Mr. van Tubergen described the reverse cross. In 1911 Sanders and Son of St. Albans showed '*Brunsdonna Sanderae alba*', which received an Award of Merit, and Mr. Lionel de Rothschild also received an Award of Merit with *A. x parkeri alba*.

As already mentioned, Australia is the home of the multiflora hybrids, the direct descendants of Bidwell's plants. *A. x Glory* is one of the best of these, a very large plant with thirty or more blooms on each of its umbels: some seedlings produce flowers with a ruffled edge. *A. x multiflora alba* is the sole source of white forms, the lack of pigmentation being recessive.

It is clear that, under favourable climatic conditions, as exist in South Africa and the temperate eastern part of Australia, *A. belladonna* is inclined to produce varietal forms, and *blanda* is probably the best of these. Many crosses have no doubt occurred naturally, though many too are the result of deliberate hybridization. Particularly unusual hybrids result when *B. josephinae* is used as the male parent and *A. belladonna* as the female - this may be due to partial parthenogenesis. The late Sir Frederick Stern once described a hybrid *B. josephinae* he had seen in Adelaide: the bulb, he said, was 6-8 ins. in diameter and weighed nearly 10 lbs: the leaves were larger than those of Amaryllis, and the blooms double the size of the type, and of a deep apricot-pink colour. Apparently it was self-sterile. Sir Frederick also described a wine-red *Brunsvigia* he saw in Melbourne.

We would welcome information on any unusual Amaryllis or *Brunsvigia* types readers may have growing in their gardens.

## The Royal Horticultural Society

The Royal Horticultural Society of England is one of the oldest and most prestigious horticultural societies in the world. Membership is open to all keen gardeners wherever they may live.

Membership entitles one to -

- free admission to all the Society's shows at Vincent Square, London, and to the Chelsea Show, held in the last week of May each year (2 tickets).
- free admission for up to three people to the Society's gardens at Wisley, in Surrey.
- a copy each month of the Society's journal 'The Garden', which contains many authoritative and interesting articles on plants and gardens.

For overseas members, however, one of the most important entitlements is that of receiving, free of charge each year, up to fifty packets of seeds from Wisley Gardens. These can be selected from a list which is sent to all overseas members at the end of each year. Some seeds are available only in very small quantities, so there is no guarantee of receiving the whole of one's first choice. To give some idea of the variety of seeds offered the last list issued included seeds of 1,236 species; there were, for example, 15 species of *Allium*, 18 species of *Campanula*, 14 of *Iris*, 19 of *Primula* and no fewer than 123 *Rhododendron* species.

These seeds are normally distributed in March or April. The annual subscription covering these entitlements is £14 (about \$23.00) per year, and cheques on Australian banks in Australian currency are accepted. Further details can be obtained from - The Secretary, The Royal Horticultural Society, Vincent Square, London, SW1P 2PE, England.

# The Port Botany open space project

The Maritime Services Board of New South Wales, in its initial planning of the Port Botany Development in 1975, adopted a policy that significant areas of the foreshore to be reclaimed should be set aside for development as a public open space. The reasoning behind this policy was that this open space would provide a buffer between the new port areas and the developed residential zone, and would soften the appearance of what would otherwise be purely functional port facilities. It would also afford some compensation for the changes in the former environment that the port development would bring. Furthermore, there was a relative sparsity of open green spaces in the area, due in part to urban and industrial development, and in part to the denudation of the natural environment by the severe sea coast conditions.

The alignment of the proposed foreshore roadway was fixed at some considerable distance from the former northern foreshore of Botany Bay, so as to enclose a fairly large area for development as a public space. Botany Municipal Council stipulated that a continuous mound, not less than 4-5 metres in height, should be formed north of the roadway to screen the port area from the new parkland and from the residential area: covered with grass and vegetation, this mound would reduce the noise from traffic using the roadway. Using sand dredged from the Bay during the construction of the new container berths, the area along the foreshore was reclaimed and the mound was roughly formed. The Department of Main Roads then constructed the foreshore road.

There was thus created, between the road and the existing residential area, a space some 2.5km long by an average 200 metres wide. With the addition of the contiguous existing areas of Sir Joseph Banks Park, the Banksmeadow Golf course and the former Esplanade Reserve, this offered an eventual total of 46.3 hectares of public open space.

The Maritime Services Board then retained Bruce Mackenzie and Associates, the Sydney based firm of consulting landscape architects, to prepare a design for the landscaping of the new parkland area.

The design that was decided on was based on a simulation of the natural bayshore environment of an earlier age - the scene, in fact, that Captain Cook might have encountered. The various parts of this design included a grassed sand dune system, a chain of ponds, lagoons and reedbeds, native heath shrubbery and woodland and paperbark swamps.

The sand dune system in this design was, in fact, rather larger than that which might have formed naturally, but its exaggerated size would provide a strong enclosure for the parkland, sheltering it from the southerly winds that sweep across the bay.

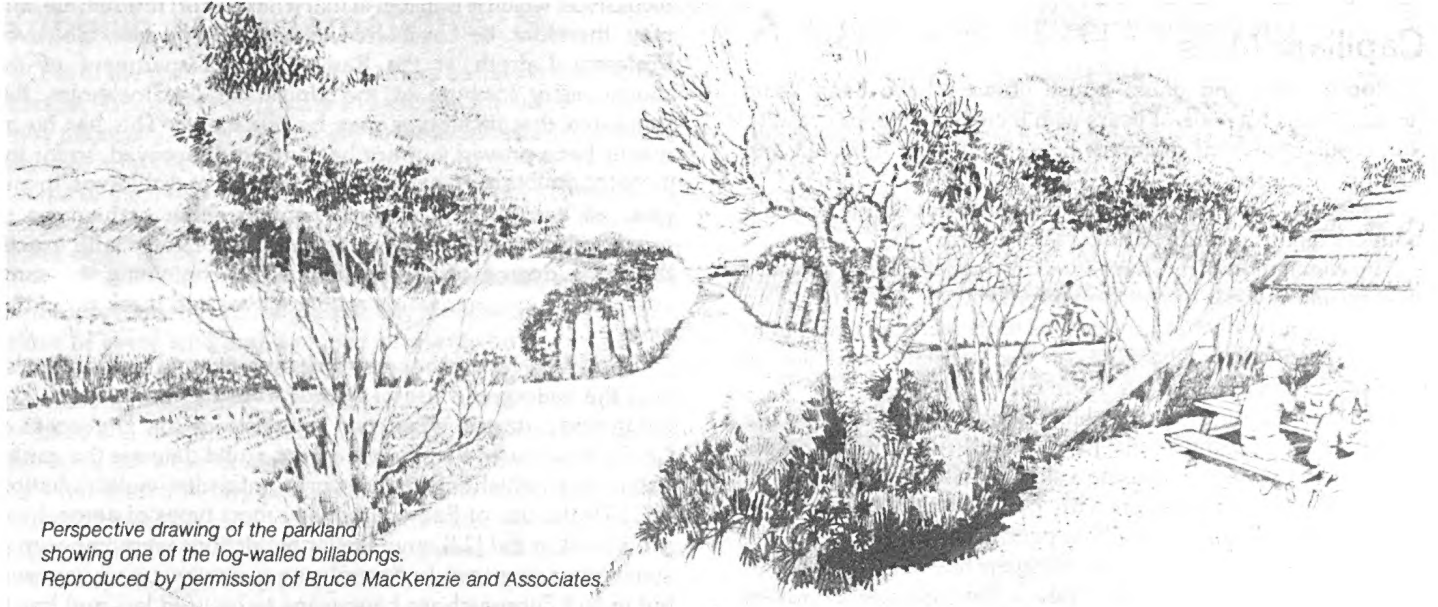
The parkland itself was designed to provide carparks and path systems, picnic and recreational areas, ponds for paddling in, and reedbeds and swamps to attract water birds. It would also include such novel features as a 4km long cycle-way, meandering around the dunes and hollows, timber structures utilizing heavy poles and beams, to provide observation decks gaining panoramas of the Bay and port areas, log-walled billabongs and passages through the dune system, a children's adventure land, a boardwalk elevated on piles just clear of the water surface in an area of paperbark and reed swampland, and a whole section given over to a look of wild, unspoilt nature.

The first stage of the development, which was basically an earth-moving project, involved the reshaping of the sand-fill reclamation to form dune-shaped ridges and undulations, as well as flat areas for the future parkland, and the excavation below the natural watertable to form the chain of ponds. This work was performed by Leighton Contractors and was completed early in 1980. The Soil Conservation Service of New South Wales was then engaged to plant Spinifex and Marram Grass on the seaward side of the main dune bank.



*A view of part of the parkland under construction.*

*Photograph by David Whitworth of Whitworth-Laurie P/L*



Perspective drawing of the parkland showing one of the log-walled billabongs. Reproduced by permission of Bruce MacKenzie and Associates.

The contract for the landscaping of the 32.4 hectare park, worth 2.6 million dollars, is the largest landscaping contract ever awarded in Australia. It was given to the Sydney firm of landscape contractors Whitworth-Laurie Pty. Ltd. This work, which was started about eleven months ago, is scheduled to be completed in early 1982. After that there will be a two year maintenance period, during which parts of the park will progressively be opened to the public, with the entire area being open early in 1984.

This landscaping has involved covering the areas to be planted with 15cm of soil and humus - a total volume of 40,000 cu.m. of material - and rotavating this in; the construction of the various bridges, billabongs etc; the installation of a permanent automatic watering system for some grassed areas and of a complex irrigation system for hand watering of all tree and shrub areas during the maintenance period.

Plant groupings have been carefully worked out to accord with the varying land profiles - for example, low profile dune, taller profile dune, low profile heath, taller profile heath, upper canopy drier zone and upper canopy moister zone, and humid forest mixture. In addition differing grass mixtures have been specified for different areas. Over fifty species of native shrubs and trees will be represented, the most important ones being *Leptospermum laevigatum* (12700 plants), *Melaleuca armillaris*

(10600 plants), *Banksia integrifolia* (2670 plants), *Acacia sophorae* (5400 plants), and *Angophora costata* (2475 plants). Three *Casuarina* species, *C. distyla*, *C. glauca* and *C. littoralis*, between them account for 4500 plants. Eight *Eucalyptus* species (mainly *E. botryoides*) are included, and five *Acacia* species. Less common plants include *Acacia brownii*, and *A. ulicifolia*, *Leptospermum rotundifolium* and *Melaleuca nodosa*.

In all some 60,000 tube sized plants will be used plus about 8,000 aquatics. In addition to this 28,000 sq.m. will be direct seeded with seeds of similar species. The process that has been developed for this involves covering the seed with a 1cm thick layer of humus and spraying this area with Curasol, a plastic emulsion which has the effect of stabilizing the surface, but which breaks down after quite a short period of time.

All the plants for this project are now being grown under contract by Tharwa Propagation Nursery, of Terry Hills. Planting is expected to start in the very near future.

On completion of the project it is expected that the land will be transferred to the Department of Lands, who will place it under the care of Botany Municipal Council.

This is a bold and imaginative plan for the public utilization of an area which otherwise would have remained a barren wind-swept and thoroughly degraded length of foreshore, with the new port facilities as the only dominant feature.



Another view of the work under construction. Photograph by David Whitworth.

# GARDEN GEAR

## Capillary Mats

House plant and green house growers have been using capillary mats for several years with increasingly better results. Numerous absorbent materials have been used from felt and fake fur to carpeting.

Fibreglass is one material with an added advantage in that it 'bounces' light upwards to help plant growth.

The elimination of moisture stress through the use of capillary mats results in faster growth and improved plant quality: it also stimulates root growth, with vigorous roots reaching right out to the pot wall, which, because of the constant moisture, is prevented from becoming hot and dry.

Capillary watering is preferable to wick watering because the mat also adds humidity to the growing area. Algal growth on the mats can be prevented by using a slow-release fertilizer, such as Osmocote. Plants that require a dry period should, of course, be removed from the mat during that period, and in cool weather it may be necessary to discontinue using the mat to avoid too high humidity. It is essential that pots have a flat base, with no raised edges or ridges.

Colan Products Pty. Ltd., of Guildford N.S.W., market a capillary matting made of a chemically bonded, non-woven, natural fibre. This matting is about 1.5cm thick and holds about 7 litres of water per square metre. A sheet of black polythene under the matting ensures maximum water retention. This material is available in a special home gardener one square metre pack which includes the black polythene and which sells for about \$5.00 per pack.

Erica Vale Australia Pty. Ltd., of Jannali, N.S.W. market an English made capillary mat called a 'Plant Caretaker', made of fibre, and measuring 60cm x 45cm. It too, comes with a sheet of black polythene and sells for about \$5.00.

Capillary mats are one answer to the problem of what to do with pot plants while you go on holiday.

## Aerosols for the home gardener

The main advantage of the aerosol is its convenience. The product comes ready to use, there is no need for mixing and nothing to clean up. No extra attachments are needed to apply it, and as the aerosol can is effectively sealed there is no contamination of the product, which leads to a longer shelf life. Aerosols are especially convenient to people who live in units or who have tiny gardens, since there is very little wasting of the product.

But this does not mean that aerosol sprays can be used indiscriminately or carelessly. Most aerosol insecticidal sprays are based on relatively harmless pyrethrins or pyrethroids which have a very low residual effect. Some, however, particularly some of those which are used against crawling insects like cockroaches, and which, therefore, are likely to be used more in the house than in the garden, contain carbamates or organo-phosphorus compounds. These are 'anti-cholinesterase' compounds - that is they inhibit the production of cholinesterase, which is an enzyme essential for the transmission of nerve impulses. Although they are used in household and garden sprays only in very small quantities, well below what has been accepted as permissible limits, they can be absorbed through the skin and are in fact, more toxic when absorbed or inhaled than when swallowed. The greatest danger lies in low-level exposure over a long period.

One of these organo-phosphorus compounds used is dichlorvos, which is unusual in that it has a short residual life, and may, therefore, be considered to be relatively safe. However, Professor Lofroth at the Radiobiology Department of the Biochemistry Institute at the University of Stockholm, has suggested that dichlorvos may be mutagenic. This has by no means been proved, but nor has it been disapproved, so for the moment doubts must exist about the safety of dichlorvos. In any case, all aerosol sprays which contain either carbamates or organo-phosphorus compounds should be treated with exactly the same degree of care as any spray containing the same compounds, in other words rubber gloves and mask should be worn.

Back in 1974 another controversy broke out over aerosols - over the widespread use of fluorocarbons as propellants. The controversy started when two scientists at the University of California showed that fluorocarbons could damage the earth's ozone layer, which shields us from harmful ultra-violet radiation. In 1979 the use of fluorocarbons in most types of aerosol was prohibited in the U.S. and similar restrictions were imposed in some other countries. In Australia no restrictions were imposed, but in fact fluorocarbons have come to be used less and less in aerosols. Whether or not they do harm the ozone layer is still unclear and there is much conflicting evidence on the subject. The U.S. National Academy of Science, for example, has calculated that the ozone layer will be reduced by 16% over the next twenty years, and have recommended even stricter measures over fluorocarbons, while N.A.S.A. claim that the ozone layer has actually increased. The balance of scientific opinion at present seems to be that while fluorocarbons *may* be harmful in the long term, no harm will be done by waiting for a few more years while more evidence is collected.

Unfortunately, the main alternative to fluorocarbons as an aerosol propellant, that is the hydrocarbons such as butane, are highly inflammable, which is another reason for using them carefully.

These are some of the aerosol products now available for garden use:- Hortico 'Leaf Shine' and Lane 'Leaf Gloss' make leaves of indoor plants shine; the spray doesn't clog leaf pores or interfere with the growth of the plant. Clean the leaves with a damp cloth before spraying and use only on hard-leaved plants.

Samuel Taylor 'Leaf Plus' is a balanced foliar fertilizer in a water-based system, which allows an even distribution of nutrients over the exposed parts of the plant. 'Leaf Plus' should be used regularly and at the same time as you water your plants. Mortein 'House and Garden' is a water-based insecticide with a wide range of pest-control applications. Other insecticides are Lane 'House Plant Spray Insecticide' and Rentokil 'For Home and Garden', both based on pyrethroids and natural pyrethrins. Regular spraying (about every four or five days) is recommended. Lane 'Spot Weeder' can be used outdoors on small weeds. The spray can be directed accurately onto the weed and so is ideal for getting at isolated weeds in lawns, paths, near fences and in rockeries. Rentokil 'Snail Shooter' can be sprayed direct onto the plant rather than on the ground, because most snails do not come down to feed on ordinary bait until the plant has been eaten. This snail killer is harmless to pets.

Lane 'Spider Killer' kills all spiders, including funnel webs and redbacks. Lane 'Clear White Oil Garden Insecticide' is a convenient way to control most scale insects, as well as white fly, citrus thrips, mealy bugs and aphids.

Hortico 'Stop Rot' pruning spray protects grafts and pruning cuts. It provides a watertight seal which prevents the entry of disease organisms and insects.

## Rubbish tip reclamation

One of the great problems of an urban society is the disposal of refuse. Giant rubbish tips are to be found on the perimeter of every major city, but what happens to these tips when finally they can take no more rubbish?

One of the most notable achievements in modern times is the reclamation of the 250 acre Donau Park in Vienna. Once the centre of an island in the Danube, it was a real river forest. All traces of the forest have long since disappeared, and over a period of years it became a gigantic city rubbish tip, covered with refuse of every kind and a myriad of shanty huts.

Reclaiming this area involved the massive application of horticultural measures. 560,000 cubic metres of specially enriched soil together with 26,000 cubic metres of leaf mould and compost were brought in. Two million flowering shrubs, eight hundred and fifty thousand trees, one and a half million tulips and three thousand kg. of daffodil bulbs were planted - as well as many other bulbs, including eighteen thousand iris. As well as this vast planting, playgrounds, sports grounds, amusement centres and other installations were provided.

More recently, other areas on the outskirts of Vienna have been reclaimed and turned into attractive municipal parks. Characteristics of these areas are extremely close planting of shrubs - much closer than would normally be advocated in this country, and the skilful association of flowering trees and shrubs. One particularly effective combination is Silver Birch with flowering cherries.

Vienna is not alone in its record of reclaiming rubbish tips. For example, the South Coast Botanic Gardens in Pales Verdes, California, is built on one, and now boasts an internationally known collection of sub-tropical plants.

Is it too much to expect that one day all our municipal rubbish tips will become parks - or botanic gardens?

## Grafting native plants

The University of New England recently held two Seminars on Grafting Native Plants as part of its Ecofest activities. The Seminars were conducted by Don Burke who has spent some years grafting a large number of *Grevilleas* as well as *Brachychitons*, *Hakeas*, *Agonis* and other genera. Recent work on cutting grafts was highlighted and students practiced this promising method.

This method of grafting involves joining two pieces of plant material together and striking the result as a cutting. It is cheap, easy and fast.

This is probably the first really commercial method of grafting and it has already been used to graft *Prostanthera* spp onto *Westringia* and various *Grevilleas* onto one another.

A cutting-graft costs about twice as much as a cutting to strike, but thereafter its cost is the same. That is, the wholesale price of say a grafted Mint Bush in an 'advanced' container would be about \$3.00 as against \$2.60 for a cutting grown plant. Many previously hard-to-grow natives will probably become available in the future, grafted by this method.

Don Burke has successfully grown 'impossible' plants such as *Grevillea dryandrii* by grafting them onto Silky Oaks (*G. dryandrii* has 0.5m or 18" long red, pink or white flower spikes carried above the foliage).

## A novel way of reproducing

It is known that cytokinins, which are growth-regulating substances, produce 'Keikis' or plantlets when applied to dormant buds on certain types of orchids as well as other tropical plants. *Phalaenopsis*, which form numerous dormant buds on flower spikes, respond especially well, and the technique has been described in the American Orchid Society Bulletin: the bract around the bud is carefully cut with a sharp sterilized knife, then removed with tweezers; a small amount of the cytokinin preparation is then applied with a flat toothpick to the bud and the tissue immediately around it. A 'Keiki' will normally be produced on each bud treated in this way: it can be separated and potted up when it has three or four roots about 1.5cm long. It is recommended that the plant receives a high nitrogen fertilizer while 'Keikis' are forming.

Bob Kundtz, of the Florida Cypress Gardens in the U.S., however, has developed a slightly different technique. He reports that soaking pandanus, bromeliads and ferns in a solution of one birth control pill in one quart of water makes them sprout new plantlets complete with root systems. He believes the oestrogen in the pills is responsible, and is now testing it on fruit trees and vegetables to see if it will give increased yields.

## Mycorrhizal fungi

Mycorrhizae live in a symbiotic - that is mutually beneficial - partnership on plant roots. In return for certain photosynthetic products they send out hyphal strands into the soil which act like an extended root system.

According to Dr. Fred T. Davies jnr. of Texas A. & M. University, these mycorrhizal fungi 'reduce transplant shock and increase plant growth through improved water retention, more efficient use of low nutrient levels, better disease resistance, increased plant growth regulator production, and enhanced growth of woody cuttings'. One American company is now producing mycorrhizal inoculum for experimental purposes, with a view to selecting high performance strains and re-evaluating fertilizing, watering and pest control practices, because the use of mycorrhizae makes possible greater conservation of these materials.

Until soil inoculation is a practical proposition for home gardeners, mycorrhizal activity can be encouraged by adding organic matter to the soil, and mulching to prevent high soil temperatures which are harmful to them. When putting in new plants it's a good idea to mix in some soil from an area where you have similar plants growing to assure a supply of mycorrhizae.

## The great pyramid appeal art union

Prizes in the Art Union (see Vol. 1 - page 4) have now been drawn. The winners are:- 1st: (return trip for 2 to Egypt) to Mrs. Schicht of Normanhurst — 2nd: (return trip for 2 to Mexico) to W. Marks of Kings Cross — 3rd: (return trip to Thailand) to Mr. Barrington of Bellevue Hill.

Though the Art Union has closed, the appeal for funds to build the two new pyramid glass houses still has a long way to go before the target of \$1.2 million dollars is reached. Donations may be sent to the Great Pyramid Appeal, Mrs. Macquarie's Road, Sydney, 2000 - (02) 27 4347.

## Quick tips

Luffa sponges make good nozzles for gently watering garden beds. Cut off one end of a sponge, insert the hose end about half way into it and secure with string or a rubber band.

(from the U.S. publication 'Organic Gardening')

Foam rubber carpet underlay cut into small squares and placed around young cabbage plants will give 100% control of the cabbage root fly.

(from the U.K. National Vegetable Research Station)

Incorporate shredded garlic plants in the compost heap. Ground on which the resultant compost is applied will be free of nematodes.

(from Mr. M. Morrison of Dubbo, N.S.W.)

## Quote of the month

(from a Chinese Proverb)

If you want to be happy for an hour, get drunk.

If you want to be happy for three days, get married.

If you want to be happy for eight days, kill your pig and eat it.

If you want to be happy for ever, make a garden.

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