



Gardenwise

THE NPARKS NEWSLETTER ISSUE #3 MAR 91 ISSN 0129-1688



DIRECTOR'S MESSAGE

Fledglings seldom look beautiful. At best, the soft down of rudimentary feathers barely concealing bone and sinew on the gawky newcomer only gives hint of its future glory.

The National Parks Board is not without its fledgling problems. In the initial stages, the work required to rejuvenate the island's most venerable green estates will disturb the calm state Singaporeans are accustomed to enjoying in their national parks. The intake of new staff to enable the Board to operate autonomously is proceeding at a faster rate than the provision of space to accommodate them. Construction delays due to undisciplined contractors aggravate the situation. Ad hoc arrangements create logistical problems. The seemingly interminable round of clearances that have to be sought in order for development plans to proceed provide object lessons in the cultivation of patience and equanimity.

Adverse impact upon our visitors and guests to the Gardens looms ahead. In the "looks" department, the earth works at the Gardens' Bukit Timah core will remain unsightly for a spell. Prior to realignment of Cluny Road, bulldozers and trucks will be invading our Dalvey valley. Even greater chaos will reign once work commences in the regions of Palm Valley, the EJH Corner House and the proposed new additions to the Gardens--the new Orchid Garden Centre, Wellspring, and Rain Forest Cascade. Before dismay and distress overwhelm us, we must consider the rewards that are forthcoming from enduring such travail. After all, the perfection of the egg must be shattered to allow the fledgling to issue forth.

Additional staff will enable us to proceed with the many programmes that distinguish a botanic garden from a park. The mountain of raw earth being brought into the chronically marshy area in front of the Institute of Education will be used to transform that land into a plant resource centre. Here we shall grow the plants that service the national parks and that support our educational programmes in horticultural practices. Realignment of Cluny Road will join the two halves of the Gardens which have been sundered by busy traffic. The development of a new display garden devoted to the horticulture of orchids will enhance the reputation of the Singapore Botanic Gardens as the premier institution in Asia for the exposition of the orchid. The renovation of EJH Corner House, in a joint venture with the private sector, will bring into the Gardens a restaurant of quality that will capitalize on the garden ambience.

The three other projects in Phase I of the Gardens' redevelopment will provide much needed amenity improvements. Palm Valley will be reconfigured to fully define the valley while allowing for a more systematic and aesthetic display of the important palm collection. The Rain Forest Cascade will serve as a scenic backdrop for rainforest understorey plant collections, and the new Wellspring will become the central gathering plaza for visitors.

Readers of **GARDENWISE** may look to the newsletter as a "family album" documenting the progress of our growth. Upcoming issues will announce exciting plans as they hatch. As the pin feathers on the fledgling National Parks transform into gorgeous plumage, we invite you to share in the process and join us in flight.

Kiat W. Tan

DR TAN WEE KIAT
Executive Director
National Parks Board

Wild
Orchids



Orchidologist Jim Comber

IN SOUTHEAST ASIA

A lecture presented by Jim Comber at the National Parks Board Logo Launch

synopsis by Lim Kar Yee

Orchids are unique from other plants in their vegetative habits and in their flower construction. The majority found in the forests of South-East Asia are epiphytes growing on tree branches.

As orchids evolved through the past thousands of years, almost all became insect pollinated. Flowers that attract insects also attract man. The continued existence of orchids depends less on nature and more on the people who have the power to alter their habitat and the means to preserve them from extinction.

In the past, much of South-East Asia was covered with primary forests with rich reserves of orchids. Logging in the forests was scarce. Shipments of many thousands of orchid plants took place regularly without thought to decline in supply. They were mainly shipped by commercial collectors and botanists. The commercial collectors employed the local people to collect large quantities of wild orchid plants, hence reducing the population of saleable species. To botanists, on the other hand, we are indebted for carefully collecting, naming and preserving these plants at herbaria attached to botanical institutions, such as Kew, Singapore, Leiden, Bogor and others.

In Peninsular Malaysia, large areas of untouched forest still remain at both high and low elevation. Across the Straits of Malacca, many Sumatran orchids still benefit from inaccessibility, especially those on high mountains. In Borneo many of the higher mountains are covered with original forest and a majority of unnamed orchids awaits visits by taxonomists. Although many similar orchid plants have been discovered in Borneo, the Philippines still has the highest proportion of endemism in our region. Helen Valmayor listed 944 species in her book (1984); however, it is likely that many no longer exist due to the loss of forest to grassland or scrub. Encroachment by village people in Java has led to the loss of many orchid habitats. Thailand, in spite of commercial logging, should be congratulated in establishing and carefully maintaining several important national parks, all of which are very rich in wild orchids.

Now forests are slowly diminishing due to an increase in logging activities. As a result, many of the wild orchids are doomed to die on the spot. The greatest threat to orchids therefore is man's influence on the environment. People need to be made aware of the consequences of their actions on the environment through the support of government bodies, schools and communities. It has often been suggested that endangered orchids should be rescued from their natural habitats and kept alive in Botanic Gardens or moved to another part of the forest, as was the initiative taken in Sabah. This type of positive approach is preferable to making rules and lists of "don'ts" which cannot be enforced properly anyway.

Finally, we should instill in the younger generation a love of nature and, in particular, a love of orchids. ■

A NEW LEAF FOR NEW NATIONAL PARKS

THE NATIONAL PARKS BOARD LAUNCHES ITS LOGO

The houselights dim.

*The expectant audience of 150
guests falls silent.*

*At the touch of a button, the
curtain opens to reveal the new
National Parks Board logo.*



On the afternoon of Friday, 23 November 1990, Mr Lee Yiok Seng, Senior Parliamentary Secretary (National Development), launched the National Parks Board logo at the Omni Marco Polo Hotel, San Marco Room.

Crisp and curvaceous, the two-colour logo is a stylized representation of the letter "N", suggestive of a new leaf and placed above the words "National Parks" coloured in cerulean blue. The central line of the leaf motif curves gracefully skyward to a point, symbolizing the plant's reach for the sun's energy in its growing processes.

The young green leaf, symbol of all that is new and fresh, symbol of potential and hope for the future, speaks to the guardianship role of the newly formed National Parks Board and its mission to develop, protect, and promote the national parks for Singapore's future generations. Blue was chosen for the lettering because of its traditional association with scientific research and with the tranquility of sky and water, a fitting context for the leaf.

The original design on which the eye catching logo was developed is the work of Mr Lionel Low Wai Chin. The designer submitted his first-prize-winning entry in the NPARKS logo competition sponsored by BP Singapore. As grand prize winner, Mr Low received \$5,000. Four meritorious awards were presented at the logo launch as well.

The judges selected Mr Low's design based on the Board's

requirements for a distinct, recognizable, memorable and aesthetically pleasing logo which would reflect the unique qualities and visual identities of the three national parks, Singapore Botanic Gardens, Fort Canning Park and the Nature Reserves. The leaf refers both to the natural assets of the national parks and to the larger trust assumed by the new National Park Board as care taker of Singapore's natural, historical and cultural heritage.



The curtain is drawn on the new NPARKS logo.

Following the prize presentation and corporate identity launch on Friday afternoon, SPS Mr Lee Yiok Seng officially launched *Birds In Our Midst*, the new book by well-known nature photojournalist Mr Chew Yen Fook. With a foreword by Mr Dhanabalan, Minister for National Development, *Birds In Our Midst* reflects the author's fine eye and passion for bird-watching --one of Singapore's most popular

wildlife activities. The book is sponsored by BP Singapore. Mr Chew is giving a percentage of the book sales to the National Parks Board for its nature reserves programmes.

The afternoon's events culminated in a slide-talk by orchid specialist Mr Jim Comber. (See previous page) A long-time resident and collector in the region, Mr Comber presented his research on "Wild Orchids in South-East Asia: Past, Present, and Future." At the conclusion of the lecture, Mr Syed Yusof Alsagoff, President of the Orchid Society of South-East Asia (OSSEA), presented Mr Comber with the prestigious Fellowship Gold Medal given by OSSEA for distinguished achievements in the field of orchidology.

The logo competition was organised in August-September, 1990 by BP Singapore to identify the National Parks Board corporate identity. ■



NPARKS Chairman Tan Keong Choon presents plaque of appreciation to Mr Lee Yiok Seng.

RESEARCH NOTES

ANGSANA WILT

A NEW LOOK AT AN OLD PROBLEM

It is always depressing to see a large and supposedly healthy tree suddenly become infected with a disease and to be powerless to stop its progress. Yet this is exactly what is happening to some of the Angsana (*Pterocarpus indicus*) around Singapore. Mature Angsana trees are showing signs of disease and dying within as short a period as 5 weeks.

It is not a new disease. Angsana wilt was recorded as far back as 1875 in Malacca where the disease had wiped out an entire avenue of trees along the seafront. Former Singapore Botanic Gardens Botanist C. X. Furtado, writing in the *Journal of the Malayan Branch of the Royal Asiatic Society*, Volume XIII in 1935, traced the history of the disease in the early part of the century beginning with the scourge in Malacca:

"The next record was in 1906 when it was observed in Penang, where during the following four or five years it did considerable damage to the Angsana avenues. In December 1910 a number of trees died at Tapah. In 1912 the trees began to die simultaneously in Taiping, Kuala Kubu, and Kuala Lumpur. It appeared in Pulau Brani (now known as Sentosa Island) in 1914 and from there it seems to have jumped to Connaught Drive. Next from Connaught Drive it appeared half a mile away at Dhoby Ghaut and then one quarter of a mile further on in the Government House Grounds (now the Istana). The avenues were immediately cut in the hope of restricting the disease, but in vain. The disease marched on inwards and at the end of May 1919 some trees at the end of an avenue at Tanglin Barracks began to show the symptoms. Four months afterwards the disease had advanced considerably along the avenue, but not successively taking toll of every tree, for occasionally one tree was omitted, but so many trees were affected that it was deemed necessary to cut the avenue down.

But the measure was not effective in arresting the disease for by the end of the year 1922 the disease had removed all the Angsana trees from the Tanglin Barracks grounds, except three which are isolated."

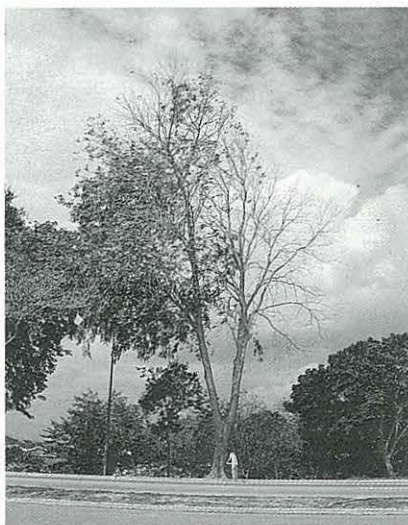


Fig 2 - An Angsana tree infected with Angsana wilt. The disease has already killed one of the two main branches; the second branch is showing the early signs of infection.

Since 1935 a number of epidemics have occurred resulting in the deaths and the removal of mature avenues of trees. We currently appear to be in the midst of a further outbreak. During the July 1989 to June 1990 period, 259 trees were removed as a consequence of this disease by the Parks and Recreation Department's Maintenance Division. These were mainly confined to the west and south west areas of Lim Chu Kang, Chua Chu Kang, Woodlands, Jalan Ahmad Ibrahim, and Alexandra Park. (Fig 1)

The first symptom of the disease is a yellowing of the leaves on one branch. The leaves soon wither and fall leaving a crown with one bare branch. (Fig 2) Successive branches soon follow until the whole crown is bare. Accompanied with the death of the branches is a browning of the vascular tissue, just underneath the bark, at the base of the tree. Cutting the bark readily reveals the transition between the healthy white tissue and the brown infected tissue. (Fig 3) From the first signs of yellowing until the tree is completely dead can be as short as 5 weeks. The disease appears to be most active during the rainy season between October and January.

There have been many suggestions as to the cause of this disease, from wood rotting bracket fungi, to small leaf sucking bugs.

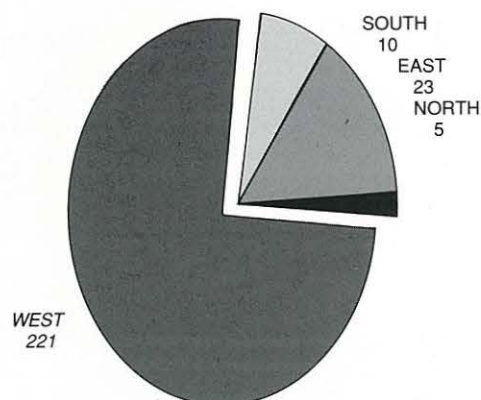


Fig 1 - The distribution of Angsana trees, removed because of Angsana wilt, during the August 1989 - July 1990 period.

However, we are now reasonably confident that the cause of the disease is a fungus called *Fusarium solani* that lives in the soil. This fungus is easily isolated from the infected tissue, although as yet we have not managed to infect young Angsana with isolates of this fungus.

The search for a control to stop the insidious progress of the Angsana wilt is an important research project for us at the Singapore Botanic Gardens. We are currently developing a method to inoculate young plants, so that we can screen a large number of different types of Angsana to find trees which do not succumb to the disease. Once such resistant trees are identified, they will be rapidly cloned to replace those Angsana currently growing, thus preventing any further spread of the disease. ■



Fig 3 - Chopping back the bark reveals the demarcation between the healthy white tissue and the brown, infected dead area. Within the dead area can be seen the white pockets of the *Fusarium solani* fungus and the holes made by the *Ambrosia* beetles. These beetles bore into the dead wood soon after infection, and the resulting layers of fine white wood dust on the bark of an Angsana is a sure sign of infection.

BRANCHING OUT

INDOOR PLANT CARE

Part 2

CHOOSING PLANTS

In Singapore you can easily find nurseries selling potted plants, soil, chemicals, pots and gardening tools. The more established nurseries have experienced sales staff to advise you on the choice of plants and provide tips on how to care for them.

When you visit a plant nursery, notice where the plants are placed. Are they grown under shade or exposed to full sun? Some plants need full sunlight while others prefer the cooler spots with less intense light. Choose the shade-loving plants for your balcony, patio or window vicinity that does not receive sun during most of the day.

There are many foliage plants to choose from with interesting leaf shapes and colour. Easy to grow are the Boston Fern (*Nephrolepis exaltata*), the Maidenhair Fern (*Adiantum cuneatum*), and the

Chinese Evergreen (*Aglaonema Silver Queen*). For something taller, you can choose from the Weeping Fig (*Ficus retusa*), Japanese Bamboo (*Dracaena surculosa*) and the Yellow Cane (*Chrysalandocarpus lutescens*).

Whatever your choice, you should always be influenced by the kind of environment that you can offer. How is the light condition? Chances are that if the plant appears willowy with no burst of new leaves it is suffering from poor light condition, unless of course it has been over watered and under-fed.

Secondly, bring home plants which are healthy and pest-free. You might very gently examine the underside of a few leaves for specks which may be either white in colour (signs of scale infestation), or orange (mites may be present). However most established nurseries offer good and healthy specimens. With experience you will be able to spot a healthy plant.

Thirdly, examine the soil of the plant. Is the plant grown in ordinary black soil, burnt earth (which is orange in colour), peat mix or leca? This will determine how you should maintain the plant. Except for those grown in leca, plants should be grown in pots with drainage holes at the bottom to drain off excess water after watering. Plants

should be grown in soil which is clean, moisture-retentive yet well-drained. This property allows a balance of air and water for the roots which is so vital to plant health.

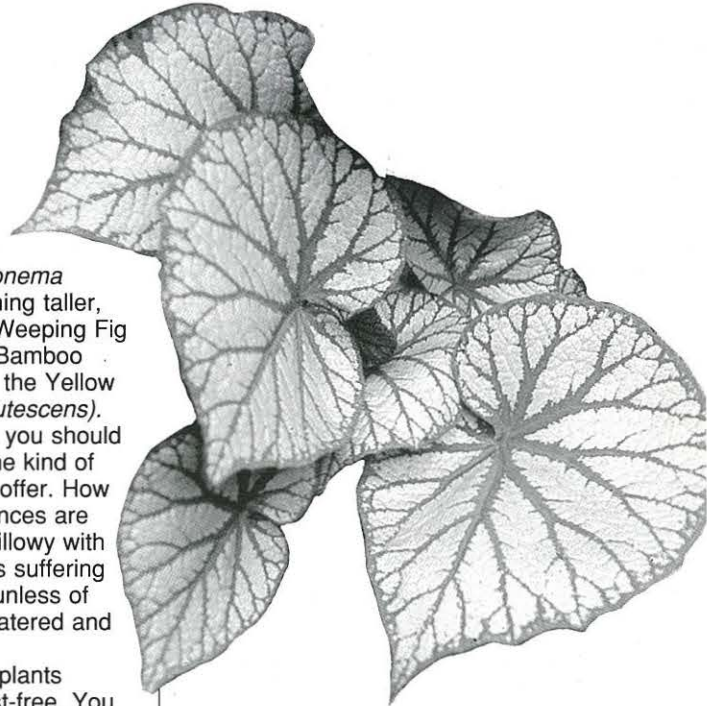
Leca, which stands for "light expanded clay aggregate", is a brown and porous soilless aggregate used in hydroculture pots. It is clean and porous, excellent for root proliferation and

anchorage, permitting nutrients in solution to be absorbed by the feeding roots. The hydroculture system is the housewives' answer to clean gardening as no soil is used. The choice of plants for leca pots is among those which do not mind getting their feet wet. Aroids like the Philodendron, Money Plant (*Scindapsus aureus*), and the Swiss Cheese (*Monstera deliciosa*) are suitable. Other plants are the Creeping Fig (*Ficus pumila*), Peperomia and the 'Iron Tree' (*Dracaena fragrans*).

Plants which are imported from other countries are often grown in peat, a black and fibrous organic material which is moisture-retentive and light. You may wish to repot these plants in a good soil mix.

Knowledge of the form and habit of the plant is essential. While some plants are handsome and tall, others ramble and tumble down, readily sending out new shoots which may require constant pruning. Some plants are annuals, like the Marigold and Cockscomb, which last only for a short growing season. Many are perennial and will not die unless infected by disease. Because of their form, texture and colour, plants are excellent for screening and for softening harsh walls, and they bring endless pleasure to the homes of discerning occupants.

Happy gardening! ■



RAFFLESIA IN BLOOM

On a recent collecting trip to Sabah, Ali Ibrahim, Assistant Research Officer/Herbarium, has a personal encounter with this most mysterious of plant phenomena which he describes here in vivid detail.

So seldom do we meet the flower of *Rafflesia* that it seems a once-in-a-lifetime dream. When I first set eyes on the flower of *Rafflesia keithii* in Sabah I thought I must have been dreaming. At first sight of this beautiful but bizarre "figment of the imagination", I nearly lost my senses. In a trigger-happy spree to capture this rare moment, one and a half rolls of Fujichrome were shot without mercy.

We were in Trus Mardi Forest Reserve, Tambunan during the month of August 1990. While botanising and taking photographs, we came upon a nondescript black mass of dead and decomposed plant matter. On closer examination, I could make out the outline of five joined but dried, overlapping bracts. Only then did the magic word come to mind. Ping! **RAFFLESIA!**

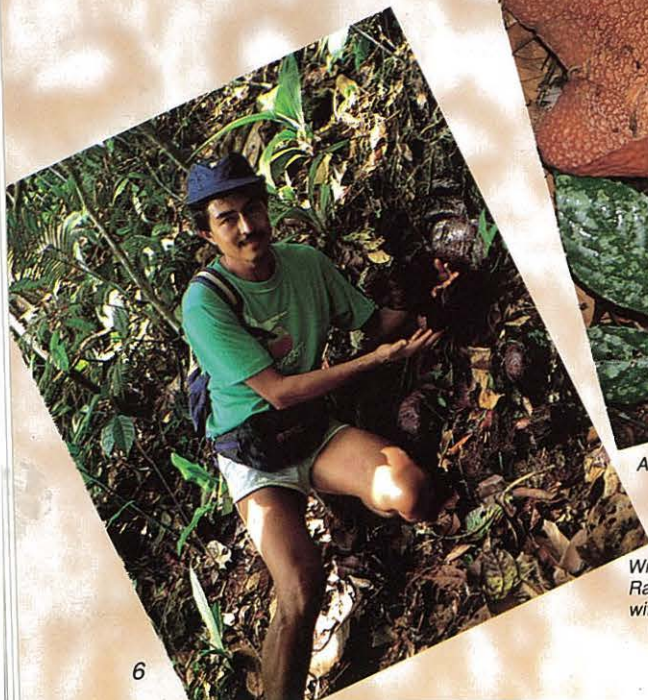
Next we discovered a population of some 20 flower buds of various sizes and shapes, some like tennis balls and others like cabbage heads. The buds that grew out of the ground were attached to the roots of trailing vines (*Tetrastigma* sp.) which had climbed on trees and intermingled their foliage with the tree canopy. The long and knotty lianes must have been very old, we thought, to have attained diameters of 20 cm.

The buds of *Rafflesia* were in assorted sizes. Some smaller ones of 7 cm had pale creamy blotches over their brown layered coats. The majority of buds including those up to 16 cm in diameter had purplish-brown colouration. The buds that were rotted were probably the aborted ones or the chewed victims of predators, such as small rodents or insects scouring for food. No blooms were spotted except for a few more rotted flowers without any central cores. They were either male flowers or unfertilised female flowers, which will not develop into fruits.

"Buds, buds everywhere but not a flower in bloom!"

Our hopes of ever seeing the flower, however, were not to be totally shattered. When we got out of the forest to the nearby timber company's hut, a Dusun worker by the name of Adin told us of his recent encounter with a flowering specimen which he called "Bunga Pakma". He agreed to show us the location.

In addition to "Bunga Pakma", there is an amazing repertoire of common names for *Rafflesia*. "Kerubut", "Devil's Betel-Box", "Sun Toadstool", "Yak-yak" and "Stinking Corpse Lily" are some of the more colourful. In one Malay pantun (poem), the flower is said to open literally with a bang, or



Another angle of *Rafflesia keithii*

Writer holding flower bracts of *Rafflesia*. Notice floor littered with buds.



Warty surfaces of lobes & dippled underside above flower

"Bunga Pakma kembang berdentum". In accordance with the doctrine of signatures, such wonderful flowers must obviously have wonderful medicinal as well as magical properties. The swelling buds are associated with human pregnancy.

A bud extract is prescribed for women after childbirth to shrink the womb and restore the figure. The plant is also an ingredient in traditional jamu or herbal cures. It has been recorded as a love potion and may even contain rejuvenation properties.

With our guide Adin in the lead, we crossed the river adjacent to our campsite and continued 35 minutes of laboured, steep climbing before reaching the location of *Rafflesia keithii*. The effort was worth it, although the day's walk was taking its toll on our aching knees. Wading in waist-deep swift icy river waters had frozen our legs and our tired muscles

were in no condition for a rigorous vertical climb.

At last, in a deep shaded area of the forest on an inclined terrain, we saw the object of our search beside a small clump of tall trees. The flower looked so unreal. I touched it and felt the strange texture of its cold and unresponding surface. Then, all at once, the dream was made real.

With all my senses on alert, I brought my nose to the orifice of the flower. I could just decipher the smell similar to a few week's standing water in a used flower vase. The horrible stench! The cold and warty touch of the flower's surface gave me the goose-bumps.

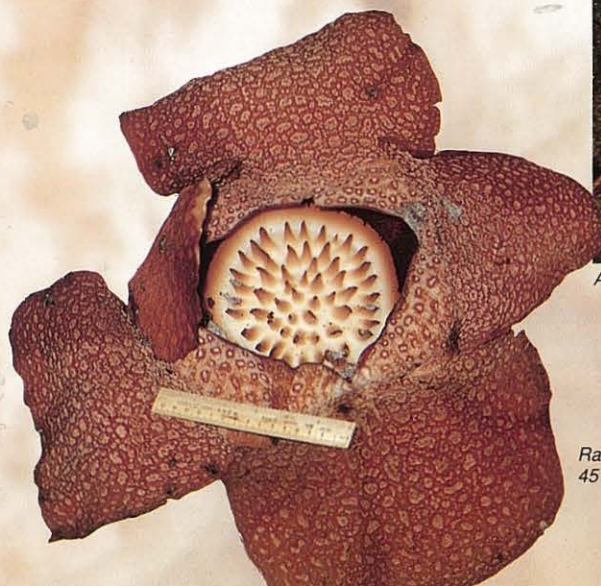
Without actually tasting the flower or hearing the sound it produces upon opening, I can say simply that I experienced the dream of a lifetime in a quiet way. ■



Adin (the Dusun guide) beside the *Rafflesia*.



A bud of *Rafflesia* attached to the root of *Tetrastigma* vine.



Rafflesia keithii measuring 45 cm across.

NATIONAL PARKS BOARD CALENDAR OF GARDENING COURSES

March through June 1991

Venue: The School of Ornamental Horticulture

MARCH

Friday 1 & 8
5.30 pm - 7.30 pm
Fee : \$20.00

Plant Clinic

by Dr Pim Sanderson,
Consultant, Plant Health Unit,
National Parks Board.

Participants are invited to bring their infected plants for diagnosis and advice. This clinic gives a general overview of common plant pests and diseases and the guidelines for identification and control.

Saturday 2
9.00 am - 10.00 am
Fee : \$5.00

Educational Tour: Bonsai

by Mrs Jennifer Ng,
Assistant Director/Education,
and Mr Lee Wui Hiang,
Singapore Bonsai Society.

This tour will explore a variety of different styles and the local species most commonly used in the growing of bonsai.

Tuesday 5, 12 & 19
5.30 pm - 7.30 pm
Fee : \$30.00
(plus \$10.00 materials charge)

Growing Plants From Seed

by Mrs Jennifer Ng,
Assistant Director/Education,
National Parks Board.

Learn how to successfully germinate seeds, and to transplant, stake, prune and nurture seedlings to flowering size.



Wednesday 6, 13 & 20
5.30 pm - 7.30 pm
Fee : \$30.00
(plus \$10.00 materials charge)

Basic Bonsai

by Mr Lee Wui Hiang,
Singapore Bonsai Society.

This course in bonsai appreciation will demonstrate pruning, wiring and potting techniques. Soil and wire will be provided, and bonsai pots will be available at cost.

Saturday 9
9.00 am - 10.00 am
Fee : \$5.00

Educational Tour: Demonstration Garden

by Mrs Jennifer Ng,
Assistant Director/Education,
and Ms Lee Guek Choon,
Project Officer,
Planning and Development,
National Parks Board.

Ideas for the balcony, patio, and outdoor garden are presented at the 979 sq m Demonstration Garden. Suitable for those planning to improve their gardens.

Thursday 14
5.30 pm - 7.30 pm
Fee : \$10.00
(plus \$10.00 materials charge)

The African Violet

by Mdm Ohn Set,
Research Officer,
Plant Resources,
National Parks Board.

This popular flowering plant is suitable for growing indoors and is easily propagated. Learn tips on the proper soil mix, light requirements and general care of this plant.

Friday 15 & 22
5.30 pm - 7.30 pm
Fee : \$20.00

Plant Clinic

by Dr Pim Sanderson,
Consultant, Plant Health Unit,
National Parks Board.

Participants are invited to bring their infected plants for diagnosis and advice. This clinic gives a general overview of common plant pests and diseases and the guidelines for identification and control.

Saturday 16
9.00 am - 11.00 am
Fee : \$10.00
(plus \$10.00 materials charge)

Garden In A Bottle:
Workshop for School Children
by Mrs Jennifer Ng,
Assistant Director/Education,
National Parks Board.

Children aged 7 to 11 will learn how to select plants, create and care for a bottle garden.

Thursday 21
5.30 pm - 7.30 pm
Fee : \$10.00
(plus \$10.00 materials charge)

The African Violet

by Mdm Ohn Set,
Research Officer,
Plant Resources,
National Parks Board.

This flowering plant suitable for growing indoors is easily propagated. Learn tips on the proper soil mix, light requirements and general care of this popular plant.

APRIL

Tuesday 2, 9 & 23
5.30 pm - 7.30 pm
Fee : \$30.00
(plus \$10.00 materials charge)

Growing Orchids (Conducted in Mandarin)

by Mr Hang Choon Kiat and
Mr Tan Kok Wee,
Nanyang Orchid Association.

The course includes an introduction to orchids, propagation of orchids, and planting and managing orchids.

Thursday 4
5.30 pm - 7.30 pm
Fee : \$10.00

Growing Plants in Hydroculture

by Miss Teresa Tan,
Horticulturist, Luwasa System.

Learn how to transfer suitable plants from soil to hydroculture and how to care for and maintain them through this modern system of plant cultivation. The Luwasa system, one of several methods of hydroculture, uses LECA (light, expanded clay aggregate).

Saturday 6
9.00 am - 10.00 am
Fee : \$5.00

Educational Tour: Bougainvillea

by Mrs Jennifer Ng,
Assistant Director/Education,
National Parks Board.

Demonstrations will be given on pruning and grafting a wide variety of different Bougainvillea.

Friday 12 & 19
5.30 pm - 7.30 pm
Fee : \$20.00

Plant Clinic

by Dr Pim Sanderson,
Consultant, Plant Health Unit
National Parks Board.
Participants are invited to bring their infected plants for diagnosis and advice. This clinic gives a general overview of common plant pests and diseases and the guidelines for identification and control.

MAY

Friday 3 & 10
5.30 pm - 7.30 pm
Fee : \$20.00

Plant Clinic

by Dr Pim Sanderson,
Consultant, Plant Health Unit,
National Parks Board.

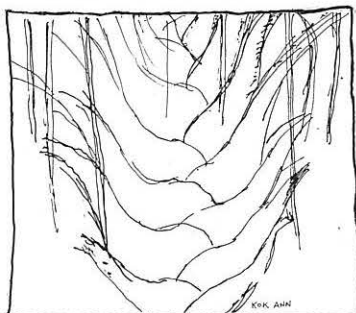
Participants are invited to bring their infected plants for diagnosis and advice. This clinic gives a general overview of common plant pests and diseases and the guidelines for identification and control.

Saturday 4
9.00 am - 10.00 am
Fee : \$5.00

Heritage Tour of Singapore Botanic Gardens

by Mrs Bonnie Tinsley,
Assistant Director/Public Affairs,
National Parks Board.

The 131-year-old national park is the birthplace of Southeast Asia's rubber and orchid industries. Tour the major landmarks and heritage collections, with an emphasis on native and useful plants.



JUNE

Saturday 1
9.00 am - 10.00 am
Fee : \$5.00

Educational Tour: Edible Palms

by Mrs Jennifer Ng,
Assistant Director/Education,
National Parks Board.

Introduce a new ingredient in meal-planning for the family. The tour will identify a variety of palms which yield food. Participants will see a number of palm products and sample palm cuisine.



Tuesday 4, 11 & 18
5.30 pm - 7.30 pm
Fee : \$30.00
(plus \$10.00 materials charge)

Growing Orchids

by Mr Harold Johnson,
Committee Member,
Orchid Society of South East Asia.

As a hobby, growing orchids is no more mysterious than growing any other perennial flowering plant. This introduction will answer the basic questions for beginners in this most fascinating pastime.

Thursday 6, 13 & 20
5.30 pm - 7.30 pm
Fee : \$30.00
(plus \$10.00 materials charge)

Indoor Plant Care

by Mrs Jennifer Ng,
Assistant Director/Education,
National Parks Board.

To get the best from your indoor plants, you must give the best. The course includes choosing plants suitable for your home environment, repotting them, proper fertilising and general upkeep.

Friday 7 & 14
5.30 pm - 7.30 pm
Fee : \$20.00

Plant Clinic

by Dr Pim Sanderson,
Consultant, Plant Health Unit,
National Parks Board.

Participants are invited to bring their infected plants for diagnosis and advice. This clinic gives a general overview of common plant pests and diseases and the guidelines for identification and control.

Friday 21 & 28
5.30 pm - 7.30 pm
Fee : \$20.00

Plant Clinic

by Dr Pim Sanderson,
Consultant, Plant Health Unit,
National Parks Board.

Participants are invited to bring their infected plants for diagnosis and advice. This clinic gives a general overview of common plant pests and diseases and the guidelines for identification and control.

NATIONAL PARKS BOARD BASIC GARDENING COURSES FOR HOBBYISTS

REGISTRATION FORM

Please complete the form with the following information:

Course title	Commencing date	Fee
_____	_____	\$ _____
_____	_____	\$ _____
_____	_____	\$ _____
_____	_____	\$ _____
Name: Mr/Mrs/Miss _____	Address : _____	

Occupation : _____	Tel No: _____ (Off) _____ (Res)	
Signature : _____		Date: _____

Please send the completed registration form along with your cheque made out to "EXECUTIVE DIRECTOR, NATIONAL PARKS BOARD" in the amount of \$ _____ to NPARKS, Singapore Botanic Gardens, Cluny Road, Singapore 1025. Admission to the courses will be on a "first-come-first-serve" basis. All enquiries should be directed to Mrs Jennifer Ng, Assistant Director/Education, Tel 4709918. **N.B.** Please note that registration for the course does not necessarily mean confirmation. Please call Mrs Ng if you have not been notified by us on course confirmation or changes.

News of recent plant events at the Gardens

WHAT'S BLOOMING

Lodoicea maldivica (Double Coconut, Coco-de-Mer)

The Singapore Botanic Gardens is very fortunate in having a pair of Coco-de-mer growing at the Gardens. They began fruiting and flowering during the Gardens' 130th Anniversary and have been a great source of interest to visitors ever since.



Fruit of the male *Lodoicea maldivica*

One of the most famous palms in the world, the Double Coconut or Coco-de-mer is not even a distant relative of the common coconut (*Cocos nucifera*). The palm received its name because of its immense fruits resembling pairs of coconut joined in Siamese-twin fashion. It was named in honour of Louis XI of France, (lat. "Lodoicus") and incorrectly assigned to the Maldives as place of origin.

The Coco-de-mer is endemic only to Praslin, Curiense and the Little Round Island, off the coast of Praslin in the Seychelles. The palm became restricted to these islands because the fresh and viable nuts do not float on water and cannot be carried away by the sea.

Belonging to the family *Borassidaeae*, a sub-family of the *Palmae*, the Coco-de-mer is dioecious, therefore having "male" and "female" trees with staminate and pistillate flowers. The male inflorescence is a large catkin about 3 to 4 feet long and 3 to 4 inches thick bearing numerous small yellow flowers with pandan fragrance.

It is an extremely slow-growing palm producing only one huge palmate leaf with a span of 20 feet and four flowering shoots in a year. The palm does not start bearing before it is 25 years old and takes one hundred years



Male inflorescence of *Lodoicea maldivica*

to reach its full size of about 100 feet. The nut takes seven years to mature. The huge heart-shaped fruits are shaped like the female pelvis and weigh 20 to 40 lbs, the largest and heaviest seed of the vegetable kingdom.

At the immature stage, the nut contains a white sweetish jelly, considered a dessert delicacy, and at the mature stage the nuts are purchased as curios in the Seychelles. The leaves are used as materials for hats, mats, and basket-making and the shells are used for bowls, plates and other utensils. The sale of nuts to tourists is also an important source of revenue on the Islands.

Even though their seeds have been scattered widely by the oceans, they do not germinate on foreign shores. A few specimens can be found growing in the world's botanical institutions. One of these very rare trees in our possession is located in Palm Valley and another near the Office complex on Lawn K.

Let's keep our fingers crossed and look forward to the harvest--in seven years time! ■

PUBLICATIONS FOR SALE AT THE GARDENS OFFICE

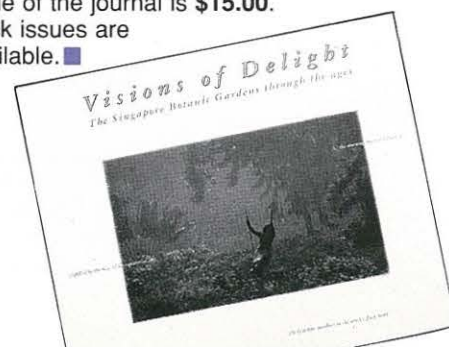
A *Pictorial Guide to The Singapore Botanic Gardens* captures favourite plants and landmarks in the Gardens. The *Guide* walks you through the Gardens with the aid of well-defined maps and full colour photographs. Share the 96-page booklet with visitors to Singapore. **Cost \$12.00**

Visions of Delight: The Singapore Botanic Gardens through the ages presents in word and picture an

historical record of the Gardens through 130 years of development. Beautifully executed and readable, the commemorative volume is popular as a souvenir of the Gardens. **Cost \$20.00** in softbound and **\$25.00** in hardbound copy.

The Gardens Bulletin, Singapore, now in its 42nd Volume, continues to broadcast original research and reviews of progress in the fields of botany, horticulture and allied subjects

after nearly a century's contribution to tropical plant knowledge. The current issue of the journal is **\$15.00**. Back issues are available. ■





ALL THE TIME IN THE WORLD

*It takes all the time in the world
to enter the water and the wind wholly,
to let fall the imaginary boundaries,
and return to the source and the destination.*

*It takes infinite patience to be the forest,
to cry with the chickadees and crawl with the ants,
to stalk with the cat, and forage with the bear,
to let the slow, timeless sap flow through your branches,
and feel roots and tubers pierce you like a lover...*

*Nothing begins or ends here: there is only the circle
widening, calling back its own.
When you walk the path, you must be the path.
Do not be proud. Even the centipede knows this.*

*Everything that you touch changes
and changing, changes you.
Everything you think fills the air with its smell.*

*As you build your tipi or your city,
remember that knowledge and skills cannot save you.*

*When night falls, you must be the night.
When day breaks, you too must be broken.*

*Anthony Manousos,
Friends Journal,
July 1987*

To fully experience the forest at Bukit Timah Hill and all its wonders, one must go there expecting to spend "all the time in the world." It is through patient meandering and examining of leaf, fruit and insect that one comes to know and appreciate the beauty of the wilderness. The forest and attention to its details has the power to transform for a time our ordinary lives and lift us to a height beyond ourselves. As we come to realize and respect its beauty, we also become more sensitive to its importance and the urgency of preserving the last pieces of our wilderness.

A reminder here that as you follow the paths through the forest, be sure to look for the interpretive plaques that describe characteristics and uses of the forest trees. These 25 plaques were installed at Bukit Timah Nature Reserve last November, thanks to the kind sponsorship of Hongkong Bank.

CALENDAR OF EVENTS

of interest to Singapore's botanical/horticultural community.

LOCAL EVENTS

March 3

Nanyang Orchid Association

Bi-monthly meeting and orchid exhibition,
2.30 pm, CF 93, Seletar East Farmway 2,
Pompodour Nursery, Singapore 2879
For enquiries, call Mr Soo Chee Tel: 4532137

March 5

Singapore Flower Club

Downward Crescent for Beginners,
9.30 am - 11.30 am
Vibrant Hogarth for Intermediates,
10.00 am - 11.30 am
Shapely Curves for Advanced,
10.00 am - 11.30 am
Hollandse Club, 22 Camden Park,
Adam Road, Singapore 1128
For enquiries, call Mrs Patricia Sabapathy
Tel: 2884429

March 12

Singapore Flower Club

Hogarth for Beginners,
9.30 am - 11.30 am
Table Centre for Intermediates,
10.00 am - 11.30 am
Buffet Table Arrangement:
Fruit and Vegetables for Advanced,
10.00 am - 11.30 am
Hollandse Club

March 16

Nanyang Orchid Association Orchid Exhibition

4.00 pm - 9.30 pm
Marina Mandarin

March 17 - 18

Nanyang Orchid Association Orchid Exhibition

10.30 pm - 9.30 pm
Marina Mandarin

March 17

Singapore Bonsai Society

Demonstration: Making a Big Stump into a Bonsai
2.00 pm - 4.00 pm
30 Harvey Ave, Singapore 1648
For enquiries, call Singapore Bonsai Society
Tel: 5450324

March 19

Singapore Flower Club

Table Centre for Beginners,
9.30 am - 11.30 am
Basket Arrangement for Intermediates,
10.00 am - 11.30 am
Cascade for Advanced,
10.00 am - 11.30 am
Hollandse Club

March 20

Ikebana International

Ohara School Demonstration and monthly
meeting, 10.00 am - 12.00 am
Open to members and guests
All enquiries welcome
Write: Membership Chairman
Tanglin P.O. Box 26, Singapore 9124

April 9

Malayan Nature Society

Talk by Lady Peng McNeice
"Beautiful British Colombia".
7.00 pm - 8.00 pm
Ang Mo Kio Library

April 23

Malayan Nature Society

Talk by Woon Swee Huat
"Trekking Expedition in Sikkim",
6.00 pm - 7.30 pm
School of Ornamental Horticulture
Workshop Studio
Singapore Botanic Gardens (SBG)

May 7

Malayan Nature Society

Talk by Tay Eng Pin
"In Search of Kangaroo Paws",
7.00 pm - 8.00 pm
Ang Mo Kio Library

May 12

Singapore Bonsai Society

Taking Photos of Exhibits
2.00 pm - 4.00 pm
30 Harvey Ave, Singapore 1648

May 21

Malayan Nature Society

Talk by Kang Nee
"General Biology of Mynas".
6.00 pm - 7.00 pm
School of Ornamental Horticulture (SBG)

June 4

Malayan Nature Society

Talk by Hsuan Keng
"Chinese Painting of Plants",
7.00 pm - 8.00 pm
Ang Mo Kio Library

June 9

Singapore Bonsai Society

Practical Activity on How to Judge a Bonsai
2.00 pm - 4.00 pm
30 Harvey Avenue, Singapore 1648

June 18

Malayan Nature Society

Talk by Wee Yeow Chin
"Usage and Origin of Medicinal Plants"
7.00 pm - 8.00 pm
School of Ornamental Horticulture (SBG)

July 14

Singapore Bonsai Society

Miniscale Exhibition,
2.00 pm - 4.00 pm
30 Harvey Ave, Singapore 1648

Aug 30-Sept 1

Singapore Bonsai Society

Exhibition at Conference Hall,
2.00 pm - 4.00 pm

Nov 17

Singapore Bonsai Society

Talk on Chemicals and Pest Control
2.00 pm - 4.00 pm
30 Harvey Ave, Singapore 1648

INTERNATIONAL EVENTS

April 2-5

Fungal Cell Biology: Cytology and Ultrastructure Portsmouth Polytechnic, UK

For more information write to:
Dr S T Moss, School of Biological Sciences,
King Henry Building, Portsmouth PO1 2DY

May 5-8

Biology and Conservation of Epiphytes Symposium

The Marie Selby Botanical Gardens
Sarasota, Florida 34236
For more information write to:
Orchid Society of South East Asia (OSSEA)
Robinson Road P.O. Box 2363,
Singapore 9043

May 13-15

Regional Conference on Medicinal Products from Tropical Rainforests

Forest Research Institute Malaysia
Kuala Lumpur, Malaysia
For Registration (US \$100.00 before
31 March)
Write to: The Executive Secretary
Malaysian Institute of Chemistry
Taman Tun Dr. Ismail
60000 Kuala Lumpur, Malaysia

June 2-6

International Conference on Sweet Potato Technology for the 21st Century

Montgomery, Alabama, USA
For more information write to:
Dr Conrad K Bonsi, Program Chair,
George Washington Carver Agricultural
Experimental Station, Tuskegee University,
Tuskegee AL 36088

June 7-10

Tropical Queensland Orchid Council

International Conference and Show
H.R.O.S. P.O. Box 109, Ingham 4850
For more information write to OSSEA

June 12-14

Association for Biology Laboratory Education University of Wyoming, USA

For more information write to:
Jon Glase, Section of Neurobiology and
Behaviour,
1130 Stockton Hall, Cornell University,
Ithaca, NY 14853

July 14-19

Sixth International Symposium on Iron Nutrition and Interactions in Plants

Eccles Convention Center
Utah State University, Logan, USA
For more information write to:
Prof Gene W Miller, Biology Department,
Utah State University, Logan, UT 84322-
5305

July 28 - August 1

American Society of Plant Physiologists Albuquerque, New Mexico, USA

For more information write to:
ASPP, 15501 Monona Drive,
Rockville, MD 20855

July 15 - August 15

International Workshop on Plant Cell Transformation Techniques

New Delhi, India
For more information write to:
Mr G Chatterjee, ICGB, NII Campus
Shahid Jeet Singh Marg, New Delhi 110067,
India

Sept 16-21

12th Australia Orchid Conference

Ascot Racecourse
Perth, Australia
For more information write to: OSSEA

Jan 20-26 1992

Fourth Asian Pacific Orchid Conference

c/o Office of the President, Maejo Institute of
Agricultural Technology (MIAT)
Maejo, Chiang Mai 50290 THAILAND
Fax: (6653) 244861-2

Line drawings by Ching Kok Ann.

Photos by Ching Kok Ann, Ali Ibrahim, Jun-Ichi Inada, Jennifer Ng, Pim Sanderson, and Tay Eng Pin. Photos of the Double Coconut courtesy of Lady Peng McNeice.

Editorial staff: Bonnie Tinsley, editor; Lim Kar Yee and Sufiah Mohd Salleh, editorial assistants.