



Gardenwise

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The Singapore Institute of Architecture recently announced the results of their Newsletter Architectural Survey which have special pertinence to NParks. The objective of the survey was to achieve an understanding of what architects themselves regard as good architecture. In the category for Parks and Gardens of Singapore, Singapore Botanic Gardens was the "runaway" winner. Our other National Park, Fort Canning Park, was runner-up in this category. NParks' staff were not surprised at the results. Naturally they are biased. But in the Garden City of Singapore, well-known for its abundance of beautiful parks and gardens, this endorsement from the association of professional architects is particularly gratifying.

by counting the number of people entering the park. It has to be gauged from the response of national and international professional groups who base their assessments upon universally perceived standards of excellence for parks and gardens.

This recognition of the quality of the Singapore Botanic Gardens is for its body of work since the founding of the Gardens in 1859. The aesthetic value of the Gardens is nurtured not only by the cumulative effort expended on its physical care and development, but also by the level of expertise that has been brought into play. Such expertise in turn is derived from education, research and an appreciation for the fundamental principles of conservation. These aspects have been incorporated in the mission of the National Parks Board, which states that the National Parks and Nature Reserves are developed, managed and promoted as valuable resources for conservation, recreation, education and research.

Executive Director's Message



Such accolades for our two national parks focus upon the most obvious role of NParks, namely that of developing our national parks to serve as prime amenities for recreation. It is very difficult, in performing this task, to ascertain whether we have attained a satisfactory level of excellence. What are the measures in evaluating the quality of gardens and parks? Success of park development in catering to the needs of the public may be equated with how popular and well supported by the public the amenity is. Measurement of the success in securing a standard of professional excellence and quality for garden and park development and management, however, cannot merely be done

More than two million people visit the Singapore Botanic Gardens annually. This attests to the popularity of the Gardens as an amenity. Now, thanks to the Singapore Institute of Architects, we also have a measurement of the aesthetic quality achieved by the National Parks of Singapore.

Dr Tan Wee Kiat
Executive Director

The Bandstand is one of the Gardens' notable landmarks, lending a touch of old-world elegance.

On the cover, the New Guinea Creeper (*Mucuna bennettii*) at the Gardens' Plant House blooms in time for the festive season.

Restoring a Fort Canning Monument

Walking down Dobbie Rise at Fort Canning Park, visitors will not fail to notice the former Singapore Command and Staff College (SCSC) Building. Formerly the Headquarters of the British Far East Command, it became the premier training institution of the Singapore Armed Forces in 1970 until it was vacated in 1975. Now standing vacant and still with its grand facade accentuated by branches of the large old trees nearby, the building has been unused for 20 years. However, it will once again see a new lease of life when renovations are completed in 1997.

Constructed in 1926, the SCSC Building used to house the office of Lt-General Percival, General Officer Commanding of Singapore. A narrow flight of steps leads from the grounds of the building to Dobbie Rise above, the probable route used by the General to reach his underground bunkers across the road.

It is not clear if the SCSC Building was used at all by the Japanese after the British surrender in 1942. Following the Japanese occupation, it was occupied in turn by the British Army, the 4th Malaysian Infantry Brigade (when Singapore was part of the Federation of Malaysian States), and the Singapore Armed Forces (SAF) in 1966. Officially opened by the then Prime Minister, Mr Lee Kuan Yew, in February 1970, it became the premier training institution of the SAF, the Singapore Command and Staff College.

The SCSC Building has remained largely unoccupied since the College moved to

new premises in 1975. It became the property of the National Parks Board (NParks) when the Board was formed in 1990.

As part of a larger plan to revitalise Fort Canning Park, the building and surrounding site was put up for lease by tender in October 1993. From the seven bids received, the tender was awarded to Alliance Technology and Development (ATD) in May 1994. The company submitted the highest bid with rental totalling \$51.4 million over the 21-year lease term. ATD also came up with the best concept for opening up the area to both locals and tourists, as well as integrating both commercial and historical aspects of the building and park.

When the renovations are completed, the building will house a town and recreational club, public galleries, restaurants, entertainment outlets and function rooms for weddings and conferences. Relevant aspects of Fort Canning's history will be on display at the ground floor foyer. The immediate site will be re-landscaped to integrate it with the surrounding greenery and contours of the park, with additional car parking facilities provided. Visitors can expect to enjoy these and other facilities which will enhance the experience of Fort Canning Park once they are completed and open to the public in 1997.

Koh Poo Kiong
Manager / Fort Canning Park



The former Singapore Command and Staff College, fronted by a landscaped terrace, will be transformed into a commercial and recreational centre.

Dinosaurs Invade the Botanic Gardens!



Voila! The bark of the Tembusu tree is captured in a few deft strokes!

Right, candied "eggs" in the Monkey Pot complete the Gardens' adventure.

Below, Dr Leong Chee Chiew addressing the PAP children: "This is your day in the Gardens."



Dinosaurs have invaded the Botanic Gardens! Not hungry carnivores on the prowl for child-sized snacks but the kind that are content with imparting their knowledge of the Gardens to young aspiring botanists. Sara, the bubble-gum-pink 'Botanicosaurus', her family, and friends are fleshed out in NParks' first publication for young children, *Sara, the Forgetful Dinosaur*.

Aimed at pre-school and early-school-aged children to encourage them to acquire an interest in plantlife, *Sara* incorporates interactive activities such as drawing, colouring and identification of the plants around Lawn E. Through *Sara*, NParks hopes that children will be encouraged to actively use the resources of Singapore Botanic Gardens for nature education and recreation.

Sara was first conceived four years ago for the Children's Safari. Since that time, there has been enough encouraging feedback gained from teachers and children to support the production of a book. The authors, Ms Jacintha Rama, Ms Nura Karim and Dr Chin See Chung, were responsible for bringing Sara into being in the form of an educational story.

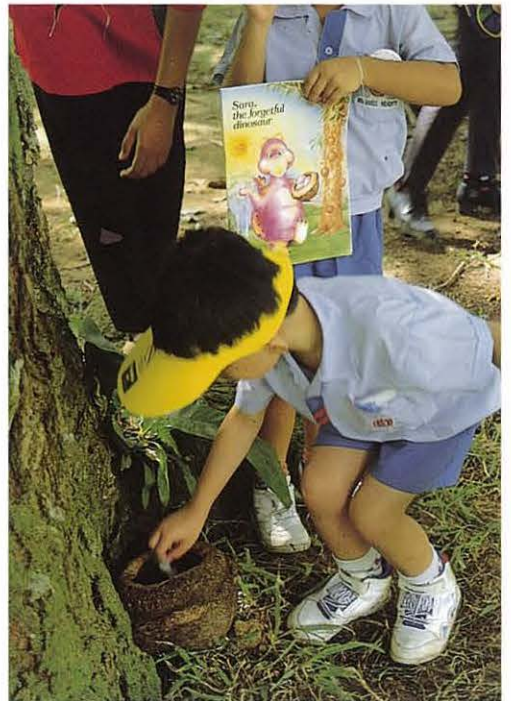
Sara was finally launched on the 2nd of July which, in spite of the rainy weather, saw a balmy sunny morning. To celebrate the occasion, 140 children and teachers from the PAP Community Foundation Braddell Heights

Education Centres joined the guests and NParks' staff at the Gardens' Lawn E where the book launch ceremony was held.

After the opening speeches, the children, bedecked with gaily-coloured balloons and caps, were brought around to the various trees found in and around Lawn E as featured in *Sara*. Armed with a booklet and a box of crayons each, they were kept engaged with colouring and drawing activities as they followed the adventures through the eyes of Sara. The staff of NParks were also deployed to the various stations to assist the teachers.

As in the story, the adventure ended with the children hunting high and low around the monkey-pot tree for Sara's lost 'dinosaur eggs'. To the children's delight, these turned out to be miniature chocolate eggs. To further sweeten the treat, each child received a Sara badge and a sticker from OshKosh B'Gosh, who was the sponsor for the book and launch.

Ms Amarjit Kaur and Miss Chung Yuet Yoon, two teachers from the Educational Centres, felt that the book was certainly a novel way for young children to learn more about plants. With children becoming more

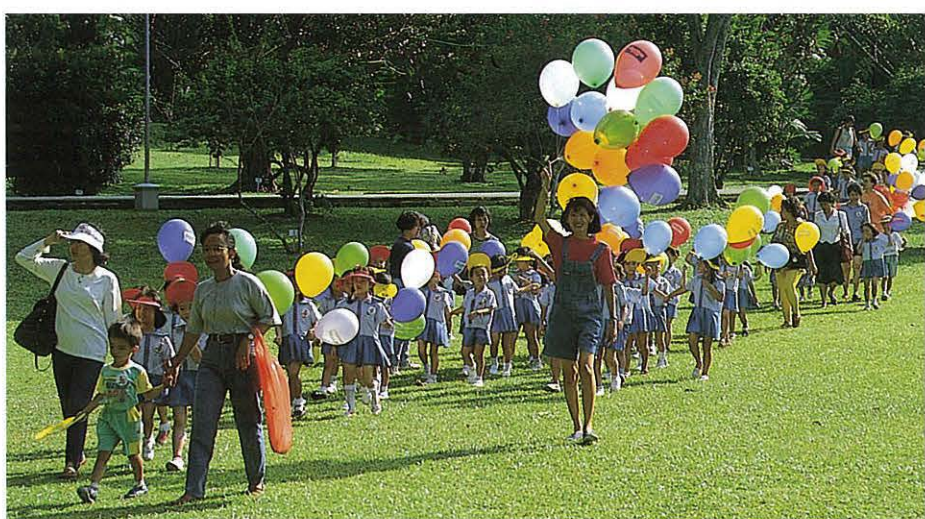


sophisticated these days, they are not content to sit and listen to stories being told. An interactive activity book like *Sara* would definitely make the Gardens' plant resources more accessible to young, inquisitive minds.

"Instead of just looking at plants in their books, children are now able to actually see, smell and feel the plants," added Ms Kaur.

Since its launch, the book has proven to be so popular that initial stocks were exhausted in three months. The second print is now available at the Singapore Botanic Gardens.

James Teng
Public Affairs Officer



Led by NParks' staff, the balloon parade troops across Lawn E.

In 1925, Chasen listed a total of 62 species of wild land mammals that were found in Singapore. However, most of these species recorded are presently either rare or extinct. Faced with an ever-shrinking habitat and continual disturbance, the specialised forest-dependent mammals have not been able to adapt quickly to the changes. In addition, some species were hunted to extinction, for example the Barking Deer (*Muntiacus muntjak peninsulæ*) and the tiger, believed to be extinct by 1932.

To manage the animals and the Reserves properly, there is a need to find out the population, distribution and habitat requirements of these animals. The Nature Reserves and Conservation Division of the National Parks Board is presently carrying out a 5-year Biological Survey of the Nature Reserves now in its second year.

Mammals are shy creatures and will seldom exhibit themselves. Their low population density also poses a problem for the survey team. Hence, spotting them in the

The Plantain Squirrel (*Callosciurus notatus singaporensis*), commonly found in gardens and parks, and the Slender Squirrel (*Sundasciurus tenuis*) can also be spotted, but with some difficulty as they are not gregarious creatures. However, their presence can be detected through their high-pitched calls, which can often be mistaken for that of birds.

Since most of the species are active only at night or dusk, we have to employ trapping and spotlighting methods for night transects. The first method, using normal rat traps, is suitable for smaller ground mammals like rats, squirrels and treeshrews. In this way, the Singapore Rat (*Rattus annandalei*), the Common Treeshrew (*Tupaia ferruginea*) and even a young Spiny Rat, thought to be extinct in Singapore, have been caught. The Red Spiny Rat (*Maxomys surifer leonis*), first discovered in Changi in 1908 and last recorded at the Bukit Timah Nature Reserve in 1985, was also captured during this survey. This has given us hope that the survey will yield some interesting results.

Below, Singapore Rat (*Rattus annandalei*)

Animals Abound in Nature Reserves

dense vegetation does take patience and experience. For these faunal surveys, we employ several methods to account for these species. One such method is the day transect which records all diurnal species encountered on specific routes. The species are sometimes easy to locate if their habitats are known.

The most visible species is the Long-tailed Macaque (*Macaca fascicularis*), frequently seen around the reservoirs. Although they feed on the fruits found in the forest, they often supplement their diet by foraging in the dustbins for leftovers deposited by the picnickers. Macaques can also be found in smaller groups inside the forest. They are quite vocal when feeding and are therefore easily spotted during the day, especially around fruiting trees.





Top, carefully removing a bat from a mistnet

Right, Trefoil Horseshoe Bat (*Rhinolophus trifolius*)

Of the species of mammals recorded by Chasen, 26 of them are bats. In order to study them, a combination of methods to capture them are employed: use of mist nets and harp traps, location of roost sites, sighting of bats in flight, and call identification of insectivorous bats using ultrasonic bat detectors.

The most common bat trapped in the Reserves so far is the Common Fruit Bat (*Cynopterus brachyotis*). These insectivorous bats are difficult to trap because they depend on echolocation to detect insects and any obstacles that lie in their flight path. To improve our chances of trapping them, we have to decide how best to arrange the mist nets. Once the bats are caught, they are identified and a recording is made of their echolocation calls. These recordings will be used for matching the sounds amplified by our ultrasonic detectors. So far, we have encountered these interesting species: the Cave Fruit Bat (*Eonycteris spelea*), which was reported to be only present in Bukit Timah Nature Reserve and the Trefoil Horseshoe Bat (*Rhinolophus trifolius*), which has not been recorded since 1924. However, the capture of the Hollow-faced Bat (*Nycteris tragata*) represents a new record as it has not been recorded in Singapore before!

To locate larger mammals, the spotlighting method is more effective. We shine our torchlights at trees and bushes and the animals reveal their presence by the red gleam of reflected light from their eyes.

One of the mammals spotted using this method is the arboreal Culo or Flying Lemur (*Cynocephalus variegatus*). Nocturnal animals with the ability to glide among the trees like flying squirrels, culos have a membrane of furry skin which extends from the throat to the back, including the four

limbs and the tail. This 'sail' enables them to glide from tree to tree. Solitary individuals are seen occasionally in the Nature Reserves, but these are few and far between. However, a family group, composed of a male, female and young, has been spotted feeding off a *Eugenia grandis* tree in the MacRitchie area. Subsequently, quite a few have been spotted around the area. This is indeed a good sign — the culos are doing well in the Reserves.

One of the highlights of the survey was seeing the elusive Pangolin or Scaly Anteater (*Manis javanica*). Believe it or not, they still exist in Singapore! The survey team had the good fortune to sight this rare animal twice, once around MacRitchie Reservoir while they were spotlighting for large mammals and another at Mandai searching for mistnets at midnight. Both the pangolin and the volunteers were stunned at seeing one



another. Unfortunately, in both instances, the animal scrambled away before the volunteers could react.

Word has gone around the volunteers — "If you want to see a pangolin, come and join us on the Saturday overnight survey and be sure to keep awake until midnight." Volunteers may be lucky enough to spot the Cream-coloured Giant Squirrel (*Ratufa affinis affinis*). This squirrel is one of the rarest animals in the world; it is reported that only one pair is left in Singapore!

Sharon Chan
Research Assistant /
Nature Reserves & Conservation Division

What makes a park a botanic garden was the jumping-off point of the first of four lectures by Prof He Shan-An, the Director of the Institute of Botany, Nanjing Botanical Garden, and his wife, Prof Gu Ying. The lectures at Ridley Hall were well attended by staff as well as interested members of the public. The couple, accompanied by Assoc. Prof He Lin, were here in June on a 6-day stopover from Seripong after attending a conference organised by the International Association of Botanic Gardens (IABG, Asian Division).

In his first lecture, Prof He emphasized the role of botanic gardens as institutions for conservation. As the Director of the Jiangsu Provincial Key Lab for Plant *Ex-Situ* Conservation, he spoke on the virtues of *ex-situ* conservation, pointing out that 71% of the 389 endangered species listed by IABG could be found in 38 botanic gardens in China. In addition, botanic gardens should also find new uses for plants. A picture of stir-fried *Orychophragmus violaceus*, a common weed in some parts of China, was appetizing proof that weeds could very well be the vegetables of the future. Wild weeds grow more vigorously and are naturally resistant to pests and diseases, thus reducing the need for artificial fertilisers and insecticides.

However, culinary functions aside, the traditional role of botanic gardens is to conserve medicinal plants as well. The increased interest in botanical pharmacology speaks of a need for proper research and literature on medicinal plants, Prof He stressed. Presently, many herbs used by Chinese medicinal halls are a potpourri of several species.

Some herbs are in such great demand that they fetch a high price on the black market. So sought after is the bark of *Eucommia ulmoides*, for example, that peasants have gone to great lengths to protect the trees growing on their property. Chaining family dogs to them and building houses around these trees, however, cannot deter craftier plant thieves.

Even a lowly common weed can be a cure for an affliction, Prof He asserted, citing his own personal testimony. When pressed for the name of this miraculous plant that cured his cold sores, he declined to elaborate with a twinkle in his eye, only to reveal that it was "a herbaceous plant".

Rubus, the genus of gooseberries and blackberries, has long been a source for Chinese herbal medicine, according to Prof Gu Ying in her lecture on *Rubus* germplasm research. Due to the commercial value of *Rubus* as a fruit and source of juice, the West is slowly acknowledging the value of Chinese *Rubus* breeding methods. For purposes of

research in Nanjing Botanical Garden, Prof Gu said that it would therefore be desirable that a complete *Rubus* gene pool be established there. However, it is her concern that some rare or mountainous species may find it difficult to establish themselves.

In his last lecture, Prof He brought his audience on a "vacation" via a slide presentation to the various Botanic Gardens in

Researchers

from China Share Work

China. Highlighting the scenic spots of about 20 botanical gardens, he took the audience from the boulder-strewn gully of Xiamen Horticultural Landscape Botanical Garden to the "Cherry Valley Natural Reserve" in Beijing Botanical Garden. Because the different gardens reflected the local vegetation and culture, they each took on a different character and atmosphere. A few of the gardens, landscaped with lush vegetation and pristine lakes, were indeed a feast for the eyes. However, there are fewer botanic gardens in the North-Western regions due to desert environment and rapid urban development, Prof He pointed out. Therefore, the main task at hand is to introduce more plants such as poplar trees to improve the environment.

It was heartening to hear that botanic gardens were increasingly interested in ornamental plants over the last few years. In the past, economic plants were given greater emphasis as ornamental plants were considered "bourgeois", he mentioned, to the laughter of the audience. Certain gardens now specialise in various aspects of horticulture, such as bonsai and tulip production.

In ending his lecture, Prof He appealed for all living items to be treated with equal importance as herbarium specimens. The Nanjing Botanic Gardens invested four years of hard work categorising all its living items which numbered about 3000. In order that such extensive projects receive attention, proper support should come from government bodies as well as the local community so that plant conservation can be emphasized.

Members of the audience, engrossed by the subjects discussed and charmed by the natural beauty of China's landscapes, stayed on after the lecture to glean more information from our guests.

James Teng
Public Affairs Officer



Our visitors from 1, Prof Gu Ying, Prof He Shan-An and Assoc Prof He Lin.

SPOTLIGHT ON NPARKS' CHAIRMAN OF THE BOARD

INTERVIEW WITH TAN KEONG CHOON: SINGAPORE'S GARDENER

"My dream is to build Singapore into an international orchid centre."



Chairman Tan Keong Choon

The labels associated with his achievements are many — rubber magnate, inventor, property developer, chairman of boards, self-made man, Singapore pioneer. Each title in itself is notable, but concentrated together in one man, they are formidable. Like the proverbial "man for all seasons", this 76-year-old is credited with a consistent history of major contributions to the building of his chosen nation-state. His achievements in business are well-known, but how many of us know about Mr Tan's contributions to the softer side of Singapore? To education, to community service, to nature?

Commerce

In the world of commerce where he first made his mark, Mr Tan is best known as the Managing Director of Tropical Produce Co, Pte Ltd which he founded in 1947 before the age of 30. This company grew out of the small import-export company he started when just a young man fresh from Xiamen (Amoy) University, where he was a student of history. Over the next 40 years, Mr Tan has been instrumental in promoting Singapore and the region as a world rubber trading centre.

Although the letters SMR and SSR may be familiar enough to stock-market watchers, few know their source. Thirty years ago, at a time when disputes were fierce over the quality of rubber being bought and sold by sight inspection, Mr Tan introduced to the world market a laboratory-tested, technically specified form of rubber with very minimal impurity known as Standard Malaysian Rubber (SMR) and Specified Singapore Rubber (SSR). Thereafter this product became a world standard for grading rubber. In addition to these world-wide stamps of approval, he invented a high-speed, 40-horsepower rubber cutting machine with a cutting capacity of 40-60 tonnes of rubber per day. These machines are still in use today.

Shipping

In the world of shipping, Mr Tan applied his problem-solving skills to breaking the regional monopoly held by the Far Eastern Freight Conference (FEFC) for over a century. With the help of government, he was instrumental in uniting Asean shippers against the FEFC by forming with other businessmen the Singapore National Shippers Council and later the Federation of Asean National Shipper's Council.

Education

Mr Tan is especially proud of his contributions to education. In the family tradition (his philanthropist father and uncle gave generous support to education both in Singapore and their native Fujian province), he went to work to raise funds to set up Maris Stella High School at Mount Vernon Road in the '60s and '70s. He has served also as Chairman of the Management Committees of both the Chinese High School and Hwa Chong Junior College, and he was awarded the government's Public Service Star in 1978 after a year serving as Chairman of the Science Centre Board, a role he assumed to further his commitment to promoting greater interest in science education.

Community Service

In terms of community service, Mr Tan has the distinction of being the longest serving president of the Singapore Chinese Chamber of Commerce and Industry (SCCCI), carrying four full terms. However, it was during his junior years in the Chamber that his idea of a "Garden City" for Singapore caught fire.

"I remember in 1969," he says, "the government assigned the Chinese Chamber of Commerce the task of making Singapore 'clean and green'. The Chinese Chamber of Commerce assigned the job to me.

"Publicity was very important. I requested the government to give us full support through the vehicles of promotion, without which the project would be useless. We urged SBC, the newspapers and community centres to cooperate with us. I organised committee members and visited each community centre urging them to make Singapore a 'Garden City'.

"We printed over 100,000 competition forms encouraging people to participate and qualify for prizes by cleaning their homes and decorating them with potted plants. From shops, factories, housing units and kampongs we received over 50,000 entries.

"Gradually, over the years, the government has done a lot of development and a lot of tree-planting to beautify Singapore. What we did was the first start to make Singapore a Garden City. Now I am very glad to see that Singapore has really become a Garden City."

Singapore's Gardener

If we were to add one more title to the list Mr Tan has accumulated over a long and fruitful life, "Singapore's Gardener" would be most apt. A widely travelled man, Mr Tan says he indulges in collecting art and antiques and — fortunately for NParks — cultivars which are introduced for trial in the National Parks. Many of these plants have established themselves and now enrich the living collections. Through his travels, he also collects impressions of the world's gardens and public parks and proposes ways in which the innovative elsewhere may be applied in the Singapore context.

Mr Tan's association with Singapore's natural and cultural heritage actually goes back many years. Having given valuable service to the Nature Reserves Board as Chairman (1983-1990) by steering it from an honorary advisory panel to a management-oriented organisation with manpower and financial resources, he was naturally the most appropriate candidate to chair the new National Parks Board when it was formed in June of 1990. Dedicated as he is to promoting and preserving the last refuge of Singapore's native flora and fauna, he has fought a number of board-room battles to prevent encroachment on Nature Reserves land.

Vision for NParks

Rather than basking in the glory of past achievements, however, Mr Tan prefers to concentrate on "the here and now". At present, his vision for the National Parks and Singapore commands his attention.

"This is my vision. Not only a commercial town, a tourist centre, entrepot and trade centre, but also the world's orchid centre. It has nothing to do with money-making as the chief objective, but we will attract money indirectly with the tourists who come. They will appreciate the unique achievement.

"Singapore Botanic Gardens is a very historical garden. Our orchids have many advantages. We have a long history of growing orchids. My dream is to build Singapore into an international orchid centre. We have the climate and the technical know-how. This should not be difficult for us. Singapore is the first port in the world, but it took us about one century to achieve the status. International orchid centre should not take so long to achieve.

"National' is too narrow. What we want is an *international* orchid centre. Of course, we will need cool houses in the future to house more temperate-climate plants. But cool houses are easier to build and maintain than the greenhouses required to grow our tropical orchids in cold climates where the temperature must be raised by 30 to 40 degrees. Here we only have to cool down by 10 degrees."

Advice to the young

And what advice would Mr Tan have for the younger generation? Believing in the power of education to inculcate an appreciation of the arts and to build character, Mr Tan does not hesitate to emphasise the importance of moral education.

"In our oriental culture," he says, "we learn the importance of repaying our debts to society and the nation. In other countries, people grow up thinking the government owes them.

"I've seen many cases where the younger generation took advantage of the government's support. The people in Singapore are very hard-working. I believe moral education is very important and applies to everyone. We should not depend on other people's charity. Make yourself someone who will be in a position to help others."

Bonnie Tinsley

Assistant Director / Public Affairs

The National Parks Board is well into its fifth year and a new Board. We are indeed pleased to welcome four new Board Members. They bring with them diverse expertise and experience that will enable us to better manage and promote the Board's assets and activities.

Auditing Practices Committee in the Institute of Certified Public Accountants of Singapore. He is a board member of Mass Rapid Transit Corporation, Construction Industry Development Board and Tan Tock Seng Hospital Pte Ltd.

Mr Ren Matsui is the Principal of Ren Matsui Landscape Design which he established in Singapore in 1991. He has a long history of landscaping experience in Japan and Singapore where he worked for the Housing Development Board and the Parks and Recreation Department during the '80s. He is also the President of the Singapore Institute of Landscape Architects and is presently sitting on the Singapore Landscape Design Panel, as well as two Sentosa Landscape committees.

President of the National Association of Travel Agents, Singapore (NATAS), Mr Robert Khoo Boo Hor is also serving as Director of two travel companies, Universal Travel and Winland Travel. He is also a Board Member of the Singapore Tourist Promotion Board, as well as the Singapore Science Centre.

To our retiring Board Members, Lady Yuen-Peng McNeice, Mr Leslie Choudhury, Mr Bernard Harrison and Mr Ng Kiat Chong, we offer our gratitude for having contributed so much and rendered valuable assistance during their terms with us.

Welcoming Our New Board Members

Mr Pek Hock Thiam has recently assumed the post of Deputy Secretary (Management), Ministry of Foreign Affairs. Prior to this appointment, Mr Pek served in the Ministries of Finance and Communications & Information, Sentosa Development Corporation, and the Singapore Tourist Promotion Board as its Executive Director. Currently, he holds several directorships and board memberships in a wide range of key industries in Singapore. He was awarded the Public Administration Medal (Silver) in 1982.

Mr Michael Lim Choo San is the Managing Partner of Price Waterhouse Singapore. He has been with the firm for well over 20 years. Currently, he chairs the



Mr Pek



Mr Lim



Mr Matsui



Mr Khoo

spotlight on staff

A very warm and hearty welcome to all of our new staff! They have kindly volunteered to give a brief bit about themselves and as you can see, it's a very interesting lot of people we have here!

A self-confessed waterbug, our Assistant Director for Nature Conservation,

Chua Sek Chuan, has a passion for things marine and loves all outdoor sports, especially those in the big blue. In fact, he is involved in the coral relocation programme organised by the Marine Conservation Group, Nature Society of Singapore. This is definitely more enjoyable than cleaning aquariums, which was what he did for his first job.

It will come as no surprise then to know that he has an MA in Marine Affairs from the U of Miami. His role now in NParks is to create and implement conservation strategies as well as represent the Board for any international and regional conservation matters. Other mental diversions include the ravings of Mozart and Mojo Nixon as well as the writings of Henry David Thoreau.

Our Financial Controller, **Mdm Ingrid The**, keeps law and order in the accounts and is challenged by looking for better ways to get those numbers crunched and satisfy the auditors. Describing herself as a quiet person, she likes to get her job done cleanly and crisply.

However, her quietness belies her adventurous globe-trotting spirit. Not for her the common packaged tours. She has seen the ups and downs of travel, from scaling the sheer altitudes of Mt. Ophir, to being stuck in a bat cave in Taman Negara to taking that cold dip in the Dead Sea. Here in Singapore, more commonplace activities like swimming, sewing and cycling around Pasir Ris Park occupy her leisure time.

Our Public Affairs Department has certainly expanded, adding on **Yvonne Francis** and **James Teng** as Public Affairs Officers and **Haslin Bte Salleh** as Executive Assistant.

Yvonne says she's a Gemini and she can prove it. The serious side of her led her to do honours in Philosophy. Also, her two dogs and two horses (as well as three pots of plants in the office) speaks for her love for creatures of nature.

On the other hand, she is addicted to speed and has been in high-energy sports since she was eight. An avid sprinter and equestrian, she keeps her adrenaline going through competitions. Fortunately, her sporty side does not stand in the way of her favourite dish, chicken rice.

When doing neither of these, she dotes on Larry, her husband of 5 years and her 3-year-old son, Li.

For Haslin, she did a spot of relief teaching before working at MPH as a management assistant. Her need for variety called, and she gave herself a year's break to help out in her brother's business. During this period, she had the occasion to travel and work in other industries. This, according to her, really opened her eyes to the world.

Back at home, she is her nieces' and nephews' all-time favourite auntie because she plies them with goodies. Collecting T-shirts is one of her more unusual passions and she has enough to open a shop. She says she's shy but just wait till you see her at a football match.



This is probably a direct consequence of being raised in a football-mad family.

James worked for the Reef Ecology Study Team in NUS during his varsity holidays. This led to a dive trip where he had the rare pleasure (and a cardiac seizure!) of seeing a 16-foot-long whale shark with a gaping maw sailing past him. After that, he did something with fewer surprises, like a study in marine mycology.

He enjoys travelling tremendously, having been to New Zealand and Nepal and dreams of writing his own travel guide. This has also led to a strange fixation with pine cones and cacti. Always on the lookout for new eating places, he'll appreciate any off-the-cuff recommendations. As such, he jogs and swims whenever the occasion demands.

Another good thing that comes in threes : the Planning and Development Division has added on **Jeyan s/o Mani** and **Tan Siew Tin** as Project Officers, and **Teo Chan Seng** as Clerk-of-Works. No doubt, the many ongoing development projects in and around NParks will benefit from their expertise.

For example, Jeyan is a graduate in Architectural Studies from NUS. Hence, his previous experience with computer-aided design systems and a good understanding of form, space and order will definitely come in handy. His own dream house will be one that is built on a colonial theme using lots of timber.

As a die-hard movie buff, he watches an average of three films a month and enjoys all sci-fi genres like the "Star Wars Trilogy" and "Aliens". Other than that, he claims that his sole hobby now, as one who is newly married, is to take care of his wife.

To further improve herself, Siew Tin, having first obtained her Diploma in Building, is now pursuing another diploma, this time in Landscaping at the School of Horticulture.

"Take a bough, everyone!" **Front row from 1**, Yvonne Francis, Ingrid The, Haslin bte Salleh; **back row from 1**, Chua Sek Chuan, Sandra Yeoh, Claudia Schneider, James Teng.



"Having a ball," front row from l, Tan Teng Teng and Tan Siew Tin; back row from l, Jeyan s/o Mani, Teo Chan Seng, Joseph Lai, R Puspanathan.

With her work and the ongoing course, she finds that she has very little time for extra activities. But as and when she can, she heads for the great outdoors for climbing and camping on Mt. Ophir and all that fishing, canoeing and hiking on Pulau Tioman. When time and money are once again within her reach, New Zealand and the United Kingdom will top her travel list.

There is nothing like experience, many would say. So, a good long experience in the construction and hard landscape industries are a bonus that adds value to Chan Seng's position.

A simple person with simple wants, he will take his time over a full mug of coffee as he loves to talk to people. With his menagerie of singing birds and a spot of gardening, his happiness is complete. Anyone who shares his fondness for old Chinese sentimental songs made popular by songstresses Ge Lan and Chou Hsien are most welcome to indulge in a bit of nostalgia with him.

All visitors to the Singapore Botanic Gardens are now in good hands with **Sandra Yeoh**, our Assistant Manager / Visitor Services, to take care of them. The job is right up her alley as she previously managed a retail outlet which gave her great sales and service experience.

An easy-going person, she caught the travelling bug on a trip to Europe this year. It was there that she learnt the fine arts of wine tasting in France and beer guzzling in Germany. Back in NUS, she had fun organising camps and programmes and recalled the time her hostel won the tug-of-war event. She will always look back with fondness on the free and independent life (read that as "waking up late") of a hostelite.

A major in English Literature and History, **Tan Teng Teng** is no armchair person. Mad as a hatter and extremely energetic to boot is how she describes herself. She used to write freelance travel articles for the *Sunday Times*. Having travelled to other countries, she has been deeply impressed by the charity of the local people. Though materially poor, they are much more generous in spirit and in heart.

Now, as an Assistant Manager for Fort Canning Park, she keeps herself busy looking after the park and hopes that some unusual relics (dinosaur remains?) will be dug up that will increase FCP's visitorship. Use a chilli to woo her, so she says, or any hot spicy dish will do. Otherwise, a bit of carpentry or a game of squash will suffice to gain her interest.

As an Assistant Technician for our Technical and Logistical Services Branch, **R Puspanathan** (call him Nathan) was an artisan here before his conversion to this position. Now, he overlooks and supervises any building maintenance work. No doubt, his twelve years as a supervisor in the Public Works Department will serve him well.

A married man and a home-body too, he describes himself as someone who is friendly to everybody and always ready with a smile. Soccer was a game he enjoyed playing back at PWD against the Ministry's other departments and stat boards, and he is proud to say that his team was twice champion. As for the food aspect, he proudly gives his mother's chicken curry the highest stamp of culinary approval.

At the Nature Reserves, we are glad to have **Joseph Lai** as our Assistant Management Officer. Having worked previously in a Japanese company for 8 years, he was impressed with the efficiency of their workstyle.

His admiration for Mother Theresa led him to Calcutta where he spent some time helping the locals there. Describing himself as a philosophical person, he has this advice to impart. "I believe that life should be fully experienced. It is something I don't want to waste; one shouldn't be afraid to live." Joseph has learnt to capture some of life's experiences in the Nature Reserves through painting, using oil pastels. Perhaps they'll adorn the walls of the Visitor Centre at Bukit Timah one day?

Armed with a Master's Degree in Horticulture, **Claudia Schneider** hails from a village near Hamburg, Germany. Practical sessions have taken her to places in South America where she experienced the world's highest waterfalls - The Angel Falls. Feeling she needed some overseas work experience,

Research Notes:

Angsana Wilt Project

Laundry Solution Solves Lightning Puzzle

A good bulk of research is devoted to finding solutions to puzzling problems. Some solutions can only be derived through sheer hard work. Others, however, are found in the most simple and unexpected places. We have had such a simple example which contributed to one of the major successes in the Angsana Wilt Project.

On many occasions when we returned from inspecting infected Angsana trees around Singapore, we were faced with the difficult task of removing the blood-red sap which had stained our clothes. We knew from the experience of having to discard many blouses and shirts that once the stained garment had been washed and ironed — that stain was permanent.

While discussing this problem in the laboratory one day, one of the members of the research team said, "Oh, removing the stain is easy. If you wash the stain in cold water, it comes out readily!". This simple solution solved our laundry problem.

Several months later, we noticed that the majority of the Angsana wilt cases under investigation were also associated with what we suspected then to be lightning damage. However, whether or not an Angsana tree was struck by lightning was, in some cases, not readily obvious. Thus, we needed a way to demonstrate that lightning damage had indeed occurred.

Remember the earlier comment regarding how easy it was to remove the Angsana stains with cold water? Yet if you failed to do this and heated the garment up, the stain was no longer water-soluble.



Similarly, we immersed pieces of bark taken from healthy and lightning-damaged Angsana trees in water. Sure enough, the water in which healthy bark was soaked turned blood red within a few minutes, whereas the water from the lightning-damaged bark remained a bright amber colour. A few tests confirmed that the resins from the Angsana tree changed from being water-soluble to water-insoluble at about 150°C. Thus, a simple domestic remedy has provided the basis for an easy and effective way of proving lightning damage in Angsana trees.

With increasing temperatures, the red sap from Angsana bark decreases in water solubility (dark red to amber solutions). Thus, high temperatures caused by lightning damage would render the sap water-insoluble.

With the use of this test, we were able to establish one of our major findings of this research project. Over 80% of the Angsana trees that exhibited Angsana wilt symptoms had been struck by lightning. This fact would strongly suggest that lightning, which is a very common natural phenomenon in Singapore, is the major precursor to the Angsana wilt disease.

Dr Frank Sanderson
Plant Health Specialist

she went to another exotic place - Singapore! - to be an intern with NParks.

Do not mess with this woman; she has a blue belt in judo and is adept at tennis. However, her hands are also good for the delicate art of handicraft, when she is not spilling people or hitting balls. Claudia has since returned to Germany, but she will always remember her attachments here with much fondness.

We are also equally glad that not one, but two, of our staff were presented with awards during the National Day Presentations. **Mr Yeong Yee Shyong**, our Manager for Technical and Logistical Services, was

presented with the Public Efficiency Award. Having started with the Parks and Recreation Department in 1980, Mr Yeong was transferred to Singapore Botanic Gardens, where he was made an Estate Management Officer before being promoted to Manager. **Mr Kamsari bin Rohani**, Artisan Grade II, was presented with the Long Service Award for his 30 years of service in the Botanic Gardens. He was employed in 1964 and has risen from a nursery hand to an artisan position.

Congratulations to you both for your fine and dedicated service to NParks!

James Teng
Public Affairs Officer



What's Blooming:

Arundina graminifolia

Arundina graminifolia, a native terrestrial orchid, is found in almost all parts of Malaya, in the lowlands as well as the mountains. It is always in open sunny places, never in the shade of the forests. It frequently grows in rocky areas by streams.

The flowers of *Arundina* are shaped much as in *Cattleya*, except that the lateral sepals behind the lip are close to each other. Petals and sepals are white or pale rosy mauve. The lip usually has a bright rosy-purple end; the throat is paler, veined in purple, with a yellow patch in the middle. The flowers are quite large with petals approximately 5 cm by 2.8 cm. The stems are slender and close together; the leaves are narrow and grassy.



It is quite easy to grow arundinas in the garden. They are best in beds grown in mass, as an individual plant or two hardly makes a handsome display. The planting beds require good drainage, and the topsoil should have plenty of compost mixed with it. The plants should not be buried too deeply; the base of the stems should be only just below the surface of the soil. If new plants are top-heavy, they must be propped up. When they are planted too deeply in an effort to make them stand firm, the growing points will be smothered, eventually killing the plants.

When a stem has finished flowering, it produces side-shoots below the inflorescence. Some of these may flower but often quite poorly, and it is better to cut the stems right back unless they are needed for propagation. For this reason, the side-shoots should be allowed to grow until they have produced a firm swelling (like a little pseudobulb) at the base. Once removed, they should be placed in a pot of sand in a cool sheltered place where they will root.

Arundinas need a sunny place. If they are growing well, they will flower throughout the year. Each flower lasts about three days, which is not long enough for the cut-flower industry but sufficient for home-grown cut flowers. They are most attractive for this purpose. Arundinas can be found in the Marsh Garden, a short distance from the gate of Singapore Botanic Gardens nearest Holland Road.

Andrea Kee
Assistant Manager / Horticulture

Top, a bed of these *Arundina* is found at the Marsh Garden.

Right, blooms of *Arundina graminifolia* resemble those of *Cattleya*.

Branching Out: Strawberries in the tropics?

Anyone who loves strawberries (*Fragaria x ananassa*, family Rosaceae) will tell you that it is the ruby-red colour and flavour that are most tempting. Of course, everyone knows that strawberries are temperate plants, out of reach of the tropical grower. Over the years, however, new cultivars have performed very well in tropical cool places such as the Cameron Highlands in Malaysia. Some of these cultivars will adapt themselves to Singapore's warm and humid climate, showing good vegetative growth.

The strawberry plant is easy to grow, spreading rapidly through runners, or stolons. Its dark green leaves are trifoliate and toothed. Occasionally, its flowers appear, each with five white petals and a stigma surrounded by many yellow stamens. Although the flower is self-fertile, hand-pollination is required to ensure the formation of fruit. The fruits ripen prematurely, however, before they can attain maximum size. This is probably due to the tropical climate to which the plant is not accustomed.

The plants thrive in mild sunlight and are best grown in pots or troughs on balconies, or in well-drained garden beds and borders. They should be watered daily as they tend to wilt in dry conditions. A well-drained soil high in organic content will boost growth. Thus, regular feeding, especially after flowering, will ensure good formation of the fruits.

Like most foliage plants, strawberries are susceptible to small insect pests like red spider mites and soil mealy bugs. Therefore, try to minimise the use of chemicals as you would probably want to pluck and eat the strawberries. If any of the plants are infected, discard them and propagate new ones from healthy stolons. If you must spray, then use the least toxic of insecticides like mineral oil (White Summer Oil or Albolineum) which contains 99% petroleum oil. Changing the soil



will improve growth and get rid of soil mealy bug problems.

So the next time you are up in the Highlands, don't forget to pick up some strawberry plants.

Garden with delight!

Jennifer Ng
Assistant Director / Education

Fruits ripen earlier in a tropical climate.

Above, strawberry plants can also be grown in hydroculture pots using nutrient solutions and light expanded clay aggregate (LECA) pellets.

Announcement Page

National Orchid Garden Named

The public response to NParks' contest to name the new orchid garden presently under development at Singapore Botanic Gardens was very enthusiastic. Of the 500 entry forms submitted, offering a wide-ranging selection of possible names, the overwhelming first choice was the "National Orchid Garden".

The name most appropriate to the Gardens' mission and stature, it reflects the importance to Singapore of the world's largest display garden for orchids, featuring orchids developed since the 1920s for Singapore's orchid industry, as well as VIP orchids named after state visitors and other famous visiting dignitaries.

The flower of *Vanda Miss Joaquim* on the logo of the National Orchid Garden.



As there were 3 submissions of the same name, according to the rules of the competition, the first place winner was drawn by ballot and the prize monies were awarded as follows:

First Prize (\$3,000) to Guy Basil De Souza, aged 15, Student; Second Prize (\$1,000) to Muhammad Idris Bin Maon, aged 27, Interior Draughtsman; and Third Prize (\$500) to Khamis Bin Sidon, aged 64, Retiree. In view of the many interesting names submitted, the judges voted to give special recognition to the other worthy submissions in the form of merit awards. The six merit award winners chosen to receive \$100 each were as follows: Mdm Lee Ger Cheng, Ms Tan Chor Hiong, Ms Maya Teckwani, Mr Banakhani Anwar Khan, Ms Dalilah Bet Md Ibrahim and Mr Yeong Soon Fah.

The prize monies and specially-crafted orchid medallions the winners received during the awards ceremony were sponsored by Royal Selangor (S) Pte Ltd. NTUC Income printed the entry forms, and the magazine *NTUC Lifestyle* provided advertising support. We extend our sincere thanks to our sponsors.

The National Orchid Garden will open in late 1995. Watch for it!

A Charitable Cause

NParks has mounted a donation box in the form of a tree trunk inside the resthouse at the Orchid Enclosure of the Gardens. The Community Chest (ComChest) donation box serves to remind people that although most Singaporeans are reasonably well-off, there is that minority for whom life is no bed of roses. These are the physically or mentally disabled, elderly, youth-at-risk, families in crisis, children with special needs, to name a few. ComChest helps more than 132,000 of these people annually, and has given out more than \$150 million since 1984.

The Community Chest is the fund-raising arm of the National Council of Social Services, and 50 member charities come under its umbrella. Both the logos of ComChest and NParks on the box reflect our joint concern for the welfare of those who are



less fortunate. The box was designed using a "re-cycled" log for a botanical theme appropriate to Singapore Botanic Gardens.

So the next time you see this box, spare a thought for those who are less fortunate. To those who are wondering when their next meal may be coming from, your donation can certainly make that difference.

Right, a donor does her part for charity.

Gardenwise is edited by Bonnie Tinsley and designed by Eng Siak Loy with editorial assistance by James Teng, Chan Choy Har and Haslin Salleh. Photos for this issue are provided by Tay Eng Pin (1), Marlane Guelden (2), Alliance Technology & Development Ltd. (3), James Teng (4, 5, 7, 8, 12, 16), Lee King Li (5, 6), Peyton Coffin (11), Pim Sanderson (13), Andrea Kee (14), Jennifer Ng (15), Eng Siak Loy (16). Published by National Parks Board, Singapore Botanic Gardens, Cluny Road, Singapore 1025 (Tel: 1800-4797100)