



# Historic *Gardens*

Singapore's First Unesco  
World Heritage Site

THE STRAITS TIMES









# Foreword

**On July 4, 2015, the Singapore Botanic Gardens joined a prestigious league of ancient monuments and natural wonders when it was listed as a Unesco World Heritage Site.**

It had been selected as the Republic's nominee for the accolade several years ago, after a study in 2010 found that it held the best chance of all heritage sites here.

Years of painstaking work and research followed, to craft and assemble a nomination dossier strong enough to clinch the Gardens a place amongst the likes of Cambodia's Angkor Wat and



*the Taj Mahal in India.*

*Those efforts paid off handsomely when international delegates lauded the Gardens – a lush, sprawling emerald landscape nestled in the heart of an urban city state - as an exceptional example of a British tropical colonial garden in South-east Asia.*

*Besides its well-preserved features – from heritage trees to landmarks such as the iconic 1930 Bandstand – what sets the Gardens apart was the key role it played in boosting the regional rubber trade through research conducted by its staff.*

*This book chronicles the historic moment in July, how it all began, and the key figures who made it possible. It also dives into the Gardens' rich history and showcases its diverse array of treasures.*



**Royston Sim**  
Assistant News Editor



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# *The Journey To Unesco*

CHAPTER 1





*In the heart of the bustling Singapore metropolis lies the country's 157-year-old Botanic Gardens. While its beauty has been acknowledged for decades, few knew that its history held the key to unlocking Singapore's first Unesco World Heritage Site. Relive the Gardens' exciting journey towards Unesco glory in this chapter.*

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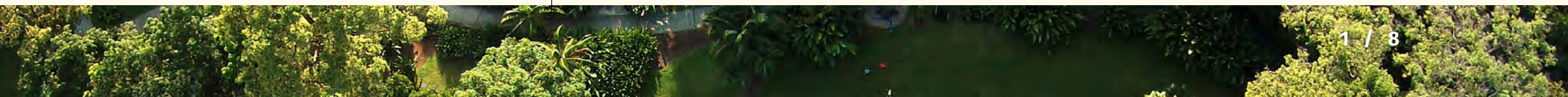


# *Singapore's first* Unesco World Heritage Site

One for the history books: Botanic Gardens inscribed, receives a resounding nod from all 21 members of Unesco committee.

On July 4, 2015, Singapore waited to find out if its Botanic Gardens would join a prestigious global league of ancient structures and marvels.

The city state had spent almost five years putting together its bid to get the beloved Gardens inscribed as a Unesco World Heritage Site, and its delegation – some of whom were on edge – had travelled to Bonn, Germany for the 39th World Heritage Committee session for the verdict.







The Symphony Lake located  
in the Gardens' Central Core.

ST PHOTO: JAMIE KOH AND MARK CHEONG

A lot weighed on the announcement. Back home, Singaporeans were eagerly awaiting the decision – a successful inscription would be the perfect jubilee gift for the nation's 50th birthday. It would also be Singapore's first Unesco site, compared to Malaysia's four and Indonesia's eight.



The delegation was led by then Minister of Culture, Community and Youth Lawrence Wong. With him were Mr Andrew Toh, Singapore's non-resident ambassador and permanent delegate to Unesco, and other representatives from the Singapore National Commission for Unesco including Gardens director Nigel Taylor.

Before them was the Gardens' 700-page nomination dossier – a tome which reflected the intensive research, legwork and studies conducted for the bid. Its pages relayed the untold stories of the green space.

For the longest time, few Singaporeans had understood its historic significance. While many hold fond memories of the Gardens – be it jogging there or attending a concert at Symphony Lake – few knew of its role in the region's rubber trade and how it had blossomed over time into an outstanding example of an English landscape garden in the tropics.

Singapore's bid was one of the first few on the World Heritage Committee's agenda for the day.

The process started out with Unesco's experts presenting their evaluation of the nomination. Thereafter, other state parties could give comments on the site.

All 21 countries on the Unesco committee opted to speak about the Gardens, voicing their support and lauding the site's "vast botanical





Palm Valley was filled with picnickers over the jubilee weekend in August 2015 to celebrate the Gardens' inscription as a Unesco World Heritage Site and the nation's 50th birthday.

ST PHOTO: JAMIE KOH  
AND MARK CHEONG





**Prime Minister Lee Hsien Loong unveiled the Gardens' Unesco World Heritage Site plaque on Aug 7 last year. It was installed at the Gardens' Tanglin Gate.**

ST PHOTO: LIM SIN THAI

values” and “excellent landscape design”.

Croatia said the Gardens has outstanding universal values and exceptional beauty, and called it a “perfect example” of how a nomination should be presented.

Turkey said Singapore would inspire all other interested parties and stakeholders with similar sites that they may be considering for nomination.

As representatives spoke, and even before the session’s vice-chairman Ruchira Kamboj had struck her gavel to announce the official results, World Heritage Committee members began making a beeline excitedly to Singapore’s delegates to congratulate them – an indication that the Republic had it in the bag.

Some embraced the Singaporean team, others gave them encouraging pats on the back and firm handshakes.

Following the vice-chairman's official inscription to a boisterous round of applause, Mr Wong took the floor to speak.

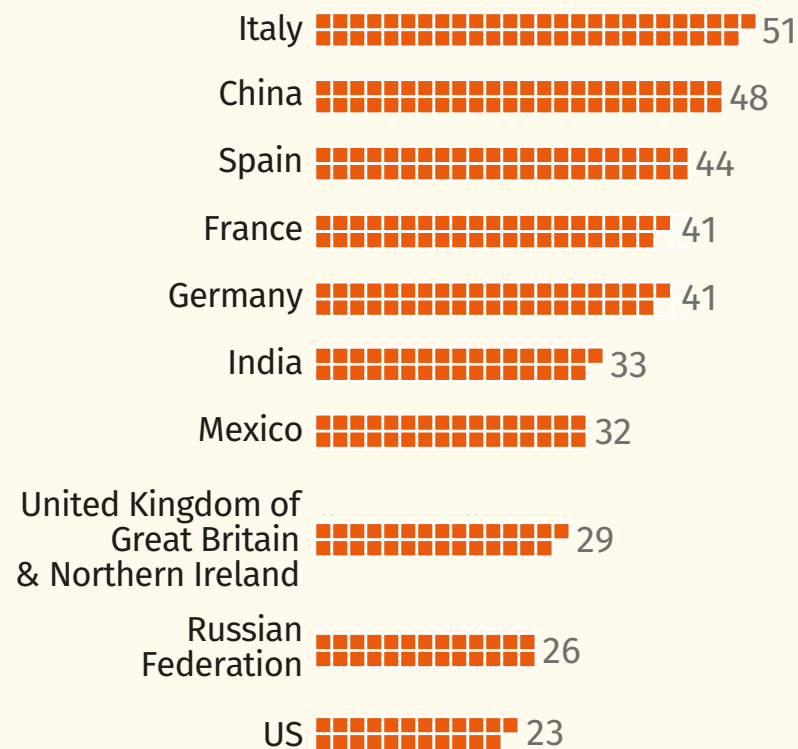
He described the moment as amazing and historic. When the idea to nominate the Gardens was floated five years ago, he said sceptics wondered if the site was worthy of the accolade compared to giants such as Australia’s Great Barrier Reef and China’s Great Wall.

Mr Wong said: “We have seen the overwhelming support of

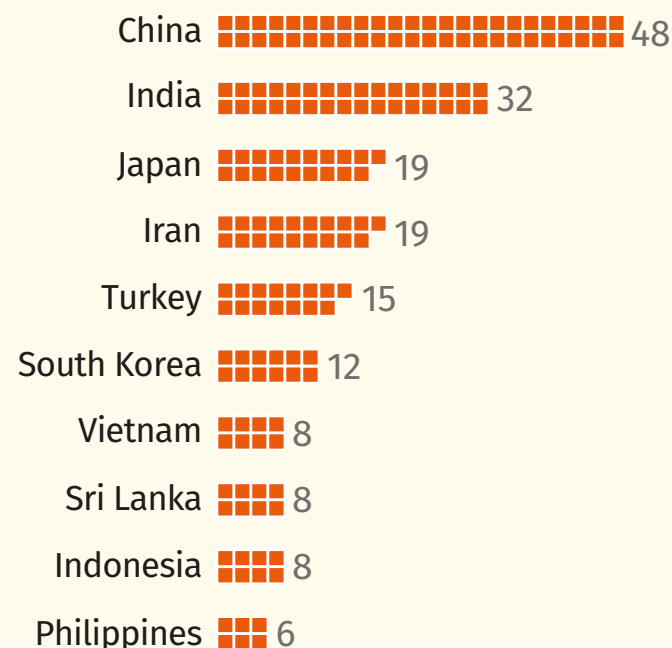


## MOST NUMBER OF LISTED SITES

### World's top 10



### Asia's top 10



Singapore's delegation which travelled to Bonn, Germany, to receive the results of its first Unesco World Heritage Site bid was led by then Minister for Culture, Community and Youth Lawrence Wong.

PHOTO: NATIONAL HERITAGE BOARD AND NATIONAL PARKS BOARD

international experts... It means we do have something of exceptional value in Singapore. I think it gives us a tremendous sense of pride that we have a site worthy of being a World Heritage Site.”

Back home, Prime Minister Lee Hsien Loong said in a Facebook post that the accolade is “a great Jubilee year gift to Singaporeans”, and highlighted the Gardens’ key role in making the country a Garden City.

Other sites that made the prestigious list during the 39th session included Jamaica’s Blue and John Crow Mountains, China’s Tusi sites and the Cultural Landscape of Maymand in Iran. In all, 24 of 44 nominated sites made the cut.



Dr Kevin Tan, president of the International Council on Monuments and Sites (Icomos) Singapore, believes Singapore's dossier "was very well done and cogently argued".

He said the Gardens' listing will not only make the world aware of the Republic's historical treasures, but also help open the eyes of Singaporeans. "For those who think we compare poorly with Europe, or China or even our neighbours like Malaysia, I think they will start looking at Singapore's heritage with fresh eyes."



## CRITERIA FOR SELECTION

A site nominated for World Heritage listing must illustrate one or more of these 10 values.



### Site of exchange of important values

Illustrate an important interplay of human values on architecture or technology, monumental arts, town planning or landscape design.

✓ **The Botanic Gardens was where the cultivation and extraction of rubber were perfected, paving the way for the region's rubber trade boom.**



### Historical landscapes

Be an outstanding example of a type of building, technology or landscape which illustrates a significant stage in human history.

✓ **The Gardens has its roots as a colonial tropical garden.**



### Natural beauty

Contain superlative natural phenomena or exceptional beauty.



### Creative masterpiece

Represent a masterpiece of human creative genius.





### Remnant of ancient civilisation

Be a unique marker of a cultural tradition or civilisation.



### Historical significance

Be an outstanding example of a major stage of Earth's history.



### Example of traditional cultures

Be an example of a traditional human settlement, land-use, or sea-use which is representative of a culture, or human interaction with the environment.



### Cultural or artistic significance

Be associated with events or living traditions, ideas and beliefs, or with artistic and literary works of outstanding significance.



### Ecological or biological significance

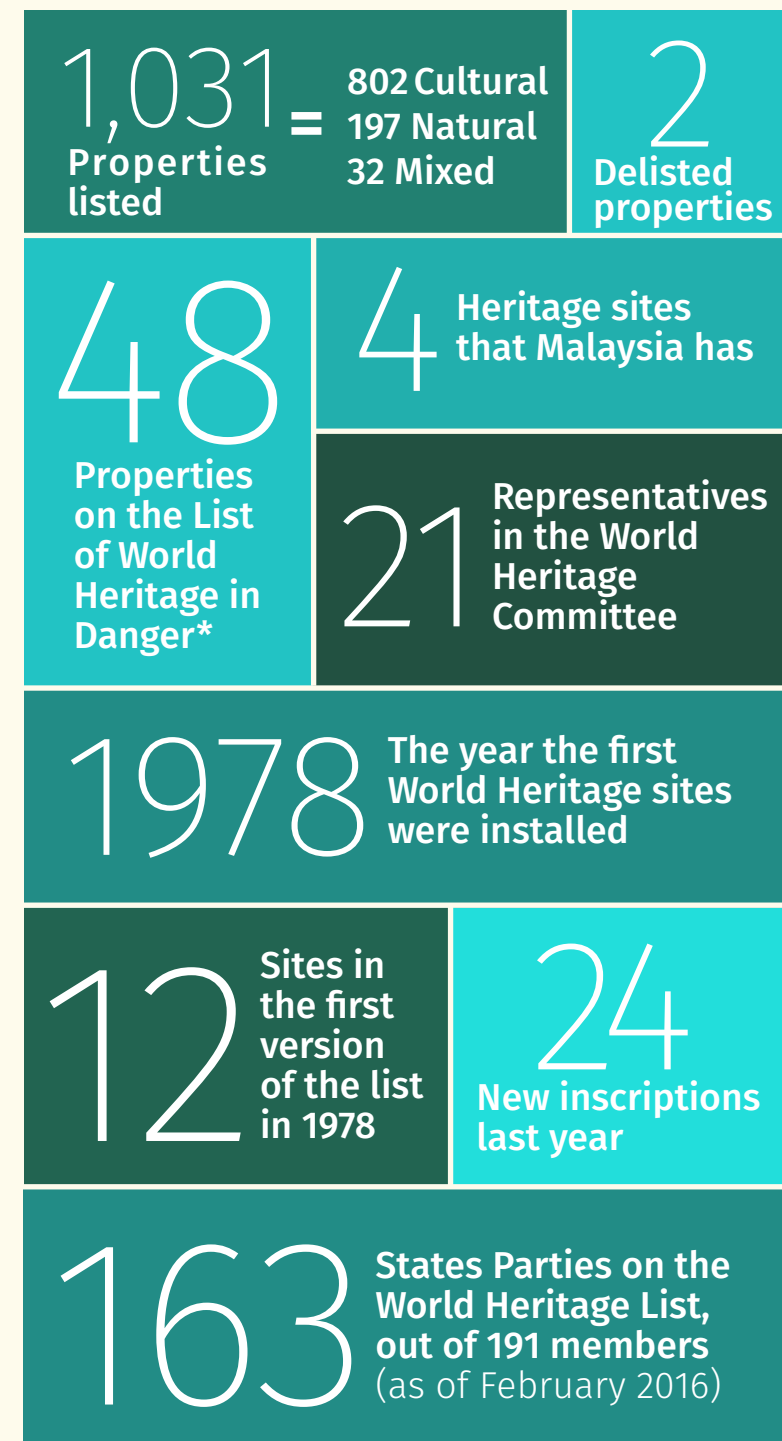
Be an outstanding example of ongoing ecological and biological processes in the evolution of various plant and animal ecosystems.



### Conservational importance

Contain the most important natural habitats for on-site conservation of biological diversity, including those with threatened species which are scientifically valuable.

## WORLD HERITAGE LIST - THE FACTS & FIGURES



NOTE: \*A site that is faced with serious threat of damage arising from human or natural causes or deterioration of structure and natural beauty.





# It Began With One Man's *Dream*

**The seeds of Singapore's Unesco bid were first planted in February 2009, when a heritage buff who had explored more than 200 Unesco World Heritage Sites said the Republic could have one of its own alongside India's Taj Mahal or China's Great Wall.**

But naysayers and detractors called adjunct associate professor of accounting Tan Wee Cheng's (left) suggestion "a joke".



Some candidates for possible Unesco inscription included the pre-war Tiong Bahru estate (right), home to Singapore Improvement Trust Art Deco flats, and Bukit Timah Nature Reserve (below) which was declared an Asean Heritage Park in 2011.

ST PHOTOS: NG TZE YONG  
& MALCOLM MCLEOD



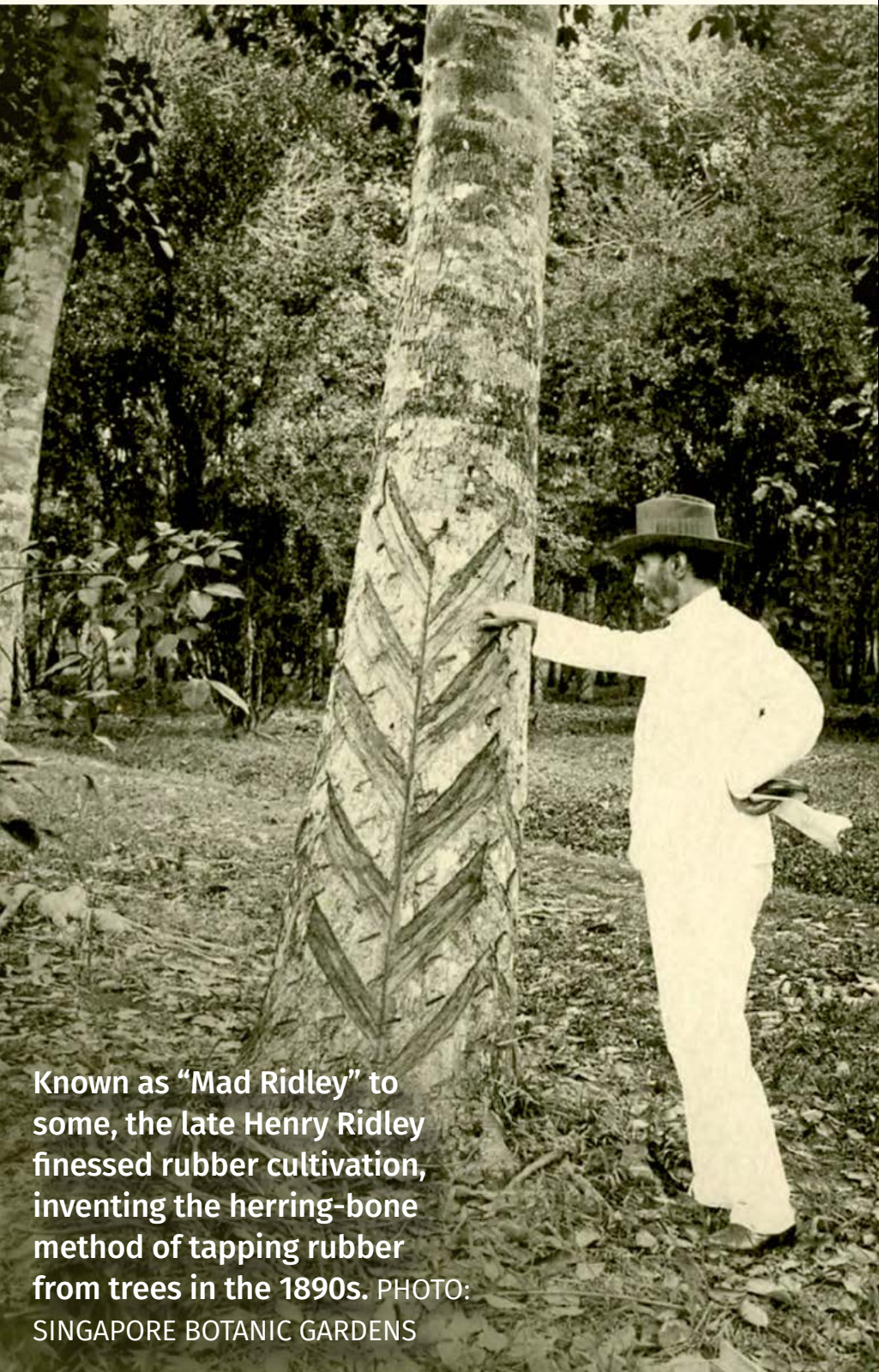
They said his suggested sites – which included the Botanic Gardens, Tiong Bahru and Bukit Timah Nature Reserve – lacked history, were insignificant, and could not match listed places such as Cambodia’s 12th century Angkor Wat temple compound or Egypt's ancient pyramids.

Mr Tan, who set up a Facebook group in 2009 to “spark a discussion” about what Singapore could offer, said some messages were discouraging. “A lot of Singaporeans dismissed the city as a boring place with nothing to see. But there are places here which had a role to play in the development of the world,” he said.

He was particularly conscious of the Gardens’ contribution to botanical research and the development of plantation technology for tropical plants, such as rubber, by one of its directors Henry Ridley. Ridley’s research had an impact on rubber trade across the region, and Mr Tan believed the Gardens thus met one of Unesco’s 10 listed outstanding universal values. To qualify for the listing, a place must have at least one value.

“I’ve been to a few hundred Unesco sites around the world and





Known as “Mad Ridley” to some, the late Henry Ridley finessed rubber cultivation, inventing the herring-bone method of tapping rubber from trees in the 1890s. PHOTO: SINGAPORE BOTANIC GARDENS

it occurred to me that there weren’t any in Singapore. I went to look at Unesco’s criteria and asked myself if any of our beloved sites here had a part to play in human civilisation. A Unesco listing could help develop Singaporeans’ sense of national identity as well,” he said.

His effort was picked up by The Straits Times, which triggered a lively debate on the subject. Leading heritage experts such as Johannes Widodo, Yeo Kang Shua, Kevin Tan and Lim Chen Sian also weighed in. The former president of the Singapore Heritage Society, Dr Kevin Tan, had already initiated talks with Mr Ng Lang the then chief executive of NParks in 2006 on the possibility of listing the garden as a Unesco World Heritage Site. Soon, the authorities, including NParks which manages the Gardens, met them to discuss the feasibility of a Unesco bid.

Dr Kevin Tan said the Botanic Gardens “was Singapore’s best shot”. “The Unesco idea came at the right time, when NParks was already keen. The bid then took on a momentum of its own,” he said.

In 2010, the Ministry of Information, Communications and the Arts launched a study which took in public feedback. The authorities also engaged the help of two conservation experts,



# How it began

2009

**Heritage buff Tan Wee Cheng raises possibility of inscribing a site here as a Unesco World Heritage Site following his travels to other Unesco landmarks across the globe**

2010

**The Singapore Botanic Gardens is identified as the site with the best chance of attaining Unesco status**

June 2012

**Singapore ratifies the World Heritage Convention**

professors Lynne D. DiStefano and Lee Ho Yin of the University of Hong Kong, to examine which site held Singapore's best chance.

The Botanic Gardens was found to have the highest chance of successful inscription as it also met another Unesco criterion – having an outstanding example of landscape illustrating a significant stage in human history. The Gardens, a well-preserved English landscape garden in the tropics, is part of the British landscape movement which emerged in England in the early 18th century before spreading across the globe.

To nominate the Gardens, Singapore needed to sign the 1972 Convention for the Protection of the World Cultural and Natural Heritage to become a state party. This was done in June 2012.

The following year, Ms Jean Wee, director of the National Heritage Board's (NHB) Preservation of Sites and Monuments division, and Dr Nigel Taylor, director of the Singapore Botanic Gardens and former curator at the Royal Botanic Gardens in Kew, London, started work on the site's nomination dossier.

Mr Tan Wee Cheng and other heritage professionals also got to work. They set up a local branch of Icomos to aid Singapore in its bid. The international non-governmental organisation functions



Dec  
2012

**Singapore officially  
indicates its interest in  
inscribing the Gardens  
to Unesco**

Sept  
2013

**The authorities conduct  
a four-month long public  
consultation for the  
draft nomination dossier**

Jan  
2014

**Official nomination  
dossier submitted to  
Unesco's headquarters  
in Paris, France**

Sept  
2014

**Icomos makes a  
technical assessment  
visit to the Gardens**

as an advisory body to Unesco.

In November 2013, the NHB engaged Icomos Singapore to conduct further historical research and assess the state of the Gardens' built structures as part of a four-month long consultation on its draft nomination dossier. The findings were incorporated into the Gardens' nomination dossier, which was submitted to Unesco's French headquarters in February the next year.

In September 2014, a technical assessor from Icomos came to Singapore to appraise the Gardens in person. The Unesco-appointed panel of experts would then decide on one of four possible verdicts on Singapore's bid.

They could recommend the Botanic Gardens for inscription without reservation, which meant it had a good chance of being inscribed by the World Heritage Committee at its 39th session in July 2015. If Icomos gave the site a referral of nomination, Singapore would have to provide more information. A deferral would have meant the need for a more in-depth assessment or a substantial revision. The worst result would have been a recommendation not to inscribe.

In April 2015, then Minister of Culture, Community and Youth Lawrence Wong described the wait as an anxious period. He said:



May  
2015

**Icomos recommends the  
Gardens for inscription**



ST PHOTO: LIM YAOHUI

July 4,  
2015

**The Botanic Gardens – of  
which 49ha was marked  
out as the World Heritage  
Site with a 137ha buffer  
zone – is inscribed at the  
39th session of the World  
Heritage Committee in  
Bonn, Germany**

“We are sort of in a position now where I feel like a child who has just completed his O levels.”

Icomos gave Singapore its stamp of approval in a report published online just after midnight on May 16 – a major step towards being recognised as a World Heritage Site. All that remained was for the World Heritage Committee to say yes or no.

By then, Mr Tan, who had started the Unesco discussion as a “casual endeavour”, was elated. “Singapore was not even part of Unesco when I first came up with the idea and everything was more of an academic exercise,” he said.

The Gardens was officially minted as Singapore’s first Unesco World Heritage Site in July 2015.

A World Heritage site listing usually benefits tourism, attracts additional funding and fosters civic pride, said Mr Tan, now the finance director of Icomos Singapore.

He added: “The Unesco status is more than an award undertaken for national prestige. The inscription is about the country’s commitment to want to conserve the site for all of humanity.”





# People Behind The Bid

**Dr Nigel Taylor, the Singapore Botanic Gardens' current director, is a walking compendium of facts and anecdotes about the space. Credited with uncovering its untold stories, he has been breathing life into the historical accounts of the Gardens.**



Eyes lighting up, Dr Taylor recounted how Henry Ridley, one of the Gardens' most colourful directors, had a pet tapir during his term. He said the tapir would sleep near Burkill Hall.

"In the morning when Ridley got up to go to work to his office, the tapir would follow him through the Gardens and then at some point, it would peel off and start munching its way through the vegetation.

"Having a tapir in your Gardens is not a very good idea actually, because they eat quite a lot of vegetation. In Ridley's handwritten journals, he described how the animal would fool him, hunker down and look like a boulder, and pretend it wasn't there. It's a wonderful story," he said.

One of Dr Taylor's roles for the Unesco bid was to gather historical information about the Gardens for its 700-page nomination dossier as well as to raise awareness and get "buy-in" from the public about its heritage.

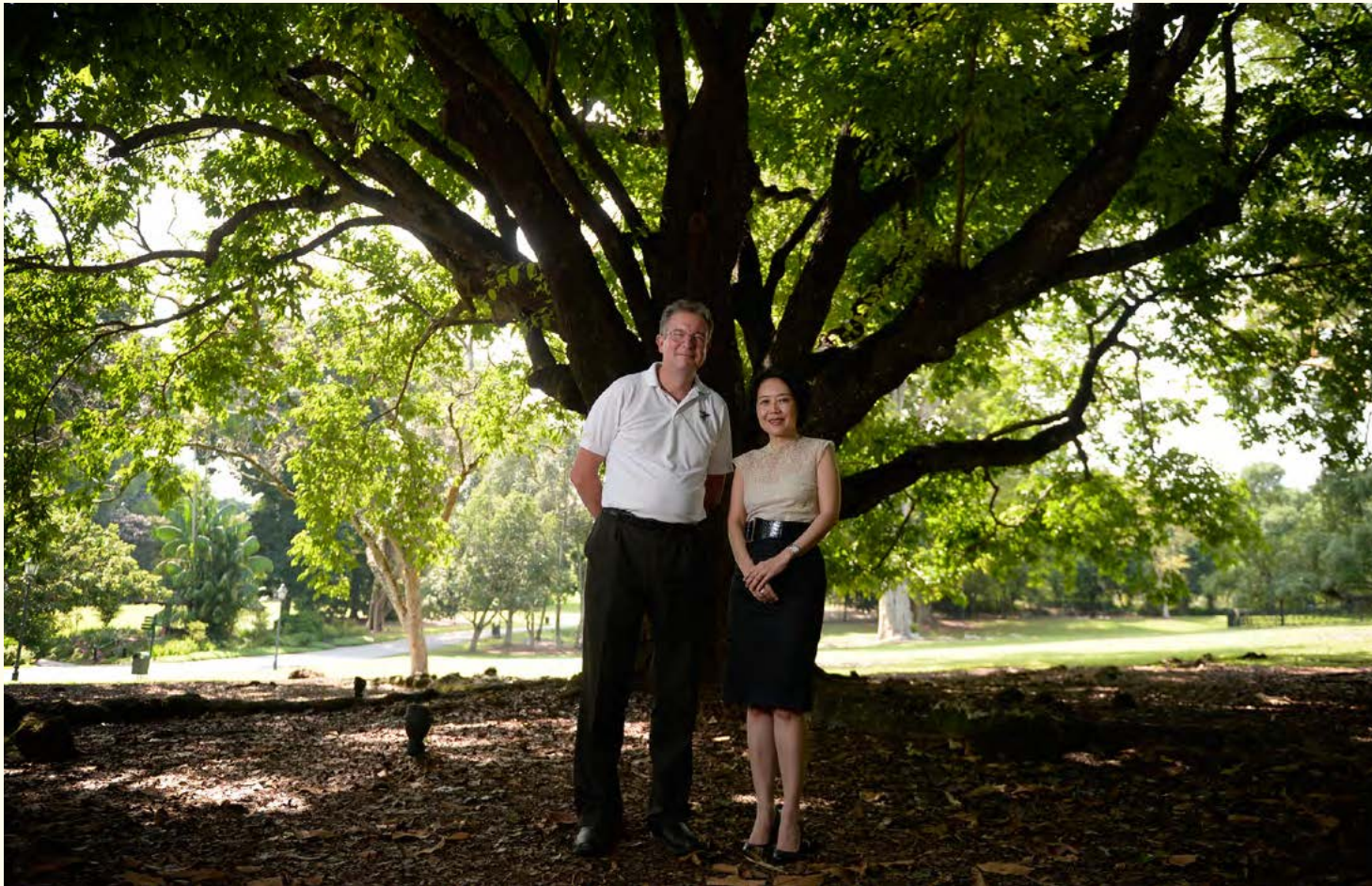
Juggling the roles of botanist and historian, he delved into annual reports, academic databases, botanic journals and scoured newspaper archives.

"Otherwise people might say why the Botanic Gardens as a World Heritage Site? What's the heritage of the Botanic Gardens? The only heritage that they might have been aware of could have been their



family heritage – that their grandparents had met there,” said Dr Taylor.

But the Gardens’ heritage goes much deeper than that, he said.



**History buff and botanist Dr Nigel Taylor, pictured here with the Preservation of Sites and Monument’s director Ms Jean Wee, was integral in piecing together the untold story of the Botanic Gardens. ST PHOTO: MARK CHEONG**

He cited how the Gardens had been the birthplace for nationhood because it was where multi-cultural concerts called the Aneka Ragam Ra’ayat or People’s Variety Show were launched by the late Prime Minister Lee Kuan Yew in 1959, to bring together people from various ethnic groups.

Dr Taylor said most people were also unaware of the Gardens’ role in testing plants, such as rubber, as potential crops for the region. This is because



the Economic Garden had not been open to the public so few would have known about it save for the scientists and specialists who had an interest in the plants grown there.

Dr Taylor was appointed as director of the Botanic Gardens in January 2011. He was brought in for his “scientific heft” and his know-how in running a public garden. His time as curator of Britain’s Royal Botanic Gardens, Kew, where he prepared its submission to Unesco, gave him a leg up over other applicants. The Kew Gardens was listed as a World Heritage Site in 2003.

Leaving no stone unturned, Dr Taylor is also credited with making fresh discoveries about the Singapore Botanic Gardens and its structures.

For instance, he discovered that Burkill Hall is actually the last surviving Anglo-Malayan plantation-style house in the region after having been mistaken as a colonial black-and-white house for decades.

Dr Taylor, who studied cacti for his doctorate degree at the Open University in the United Kingdom, also learned that the Gardens once used to be home to pitcher plants.

He cited the work of the late English Victorian botanical artist Marianne North. The artist, known for her plant and landscape





paintings, visited Singapore during her travels in the 19th century.

She had written in her autobiographical memoirs called *Recollections Of A Happy Life* (1893):

*“The Botanical Garden at Singapore was beautiful. Behind it was a jungle of real untouched forest, which added much to its charm. In the jungle I found real pitcher-plants winding themselves amongst the tropical bracken. It was the first time I had seen them growing wild, and I screamed with delight.”*


Although the environment is drier now due to urbanisation, Dr Taylor believes the plant can be reintroduced into the forest.

For his work on the bid, Dr Taylor picked up a National Day award in 2015.

Archaeologist Lim Chen Sian, one of the founding members of Icomos Singapore, said Dr Taylor and his NParks team were “instrumental” in the Gardens’ successful inscription.

“They worked really hard and looked at all elements of its heritage and architecture. Its maintenance management plan is first rate – and the best I’ve seen in 20 years, even better than other first-tier countries which have had sites inscribed,” Mr Lim said. “Dr Taylor and the team really thought through everything carefully.”



A man with glasses, wearing a light blue polo shirt and grey trousers, is sitting on a lush green lawn. He is smiling and looking towards the camera. The background is filled with tall palm trees and other tropical vegetation, creating a serene and beautiful landscape. The scene is brightly lit, suggesting a sunny day.

*“Palm Valley is special for many reasons. First, it is a beautiful piece of landscape, with the Rain Forest on one side and the National Orchid Garden on the other. It has a very comfortable enclosed feel and the palms give it grandeur.*

*“Historically it is very important as one of the earliest collections of plants in Singapore, begun in 1879 and now holding hundreds of palm species. Former director Henry Ridley regarded it as having among the most diverse palm collections in the world. Last, but not least, it is the setting for our weekend concerts at the Foundation Symphony Stage, when the valley fills with people enjoying the ambience and music while happily picnicking.”*

*- Nigel Taylor, the Gardens' director,  
on his favourite spot*



A woman with short dark hair, wearing a light blue striped button-down shirt and dark blue jeans, stands next to a white stone monument. The monument has a circular base and a rectangular column with a relief carving of a person. On top of the column is a metal scale. The woman is leaning her right arm on the top of the monument. The background is a lush green garden with a brick path and a yellow and black striped fence.

# Promoting The Gardens

**It was early January 2014, and the 700-page dossier nominating the Singapore Botanic Gardens as a Unesco World Heritage Site was finally ready for delivery to Paris.**

**Ms Jean Wee, director of Singapore's Preservation of Sites and Monuments division, described her role as a car salesman as she promoted the Gardens. ST PHOTO: YEO KAI WEN**



But the courier who was to pick it up at 7pm failed to show up.

Even though the deadline for submission was Jan 29, Ms Jean Wee, the director of the NHB's Preservation of Sites and Monuments division, charged with putting together Singapore's submission, was taking no chances.

She wanted enough breathing space to prepare for unexpected bad weather, flight delays or the possibility of strikes in France. A late submission could cost the Gardens the chance to make the prestigious World Heritage Site list in Singapore's 50th year.

She called the company's manager. "I told him, look, it's a matter of national importance. You have to collect it from me tonight because it has to be on the plane."

A courier came at 9pm, and the documents reached Unesco's French headquarters the next day.



*"I have many good memories coming here – as a child and as an adult. In my late 20s, I even came here for some fresh air after being hospitalised for chicken pox. It felt great to be out. I've been to the Gardens countless times as part of my work towards the Unesco inscription and dare say I will never be tired of it."*

*"I hope everyone will remember that this is where rubber, a non-indigenous plant to Singapore, was researched, cultivated and went on to transform the landscape and economy of South-east Asia – something we can all be proud of."*

*- Jean Wee, director of the Preservation of Sites and Monuments, on what the Gardens means to her*



Ms Wee and Singapore Botanic Gardens director Nigel Taylor were tasked with leading the country's first bid for a World Heritage Site.

Ms Wee, a double English major and a former assistant director of programmes and education and curator at the Singapore Art Museum, remembers attending her first Unesco meeting as an observer in June 2012.

“Singapore did not even have a name plate then. We were nobody and at the back.”

In 2013, she and Dr Taylor embarked on their 1½-year mission.

In the dossier, the duo highlighted the Gardens' colonial tropical garden roots – this fulfilled one Unesco standard, which is to have a historical landscape. They also dug into its forgotten place in the history of the rubber trade – meeting a second criterion of having a role in the interchange of human values.

An exhibition was set up at the committee's sessions in Phnom Penh, Cambodia, in 2013 and Doha, Qatar, in 2014. Ms Wee, who later picked up a National Day Award for her work on the bid, placed brochures about the Gardens on the seats of committee members.

She said: “We were like car salesmen... You need to be heard and seen to showcase what you believe in.”





ST PHOTO: YEO KAI WEN

# The Community Pitches In

**In 2011, NParks librarian Christina Soh (above) spent hours thumbing through boxes of archival materials in London's Kew Royal Botanic Gardens.**





ST PHOTO: NEO XIAOBIN

Her mission: to substantiate historic facts about the Singapore Botanic Gardens, a satellite of the 1759 Kew Gardens.

The 60-year-old also sought to learn more about the key players in the Botanic Gardens' history, such as former directors Henry Ridley and Richard Eric Holttum.

Over two trips in 2011 and 2012, Ms Soh went through the handwritten letters and expedition notes of the Gardens' first director Ridley. These included letters to Kew asking for manpower and finances to run the Gardens in Singapore.

Her research went into the Botanic Gardens' nomination dossier for its Unesco bid.

Other experts and members of the community who helped assemble the dossier included those from Icomos Singapore, Nature Society Singapore and even the great-granddaughter of pioneer Whampoa Hoo Ah Kay, Madam Hoo Miew Oon.

Director Nigel Taylor said the staff engaged the community from the start to "raise awareness of the bid and make it clear that this was an all-inclusive project, not just one run by Government".

NHB chief executive Rosa Daniel (left) also credited the successful listing to community support.

"This would not have been possible if we had not been able to



bring together the support of the community. It wasn't just from the public, but the stakeholders, our heritage interest groups, our experts who endorsed that," she said.



ST PHOTO: NURIA LING

Icomos Singapore, which comprises heritage practitioners, was asked to provide historic information for Singapore's nomination dossier. Among other things, it found that the Gardens continued its activities even during the Japanese Occupation. Its research into the Syonan Shimbun, or Syonan Times, showed performances by the Syonan Police Band were held there from May 1942 to September 1944.

Said its president, Dr Kevin Tan: "We were anxious for the pitch to succeed and we wanted to cover all angles as thoroughly as possible in terms of the site's social history and architectural heritage."

Meanwhile, Nature Society president Shawn Lum (left) said his group emphasised the role that the Gardens and its directors





ST PHOTO: LAU FOOK KONG

played in green conservation.

Madam Hoo (left) did her part by contributing Whampoa's antique cactus pots and two large flower pots to add to the Gardens' collection of artefacts. Her ancestor was fluent in English and a leading member of the Agri-Horticultural Society who helped negotiate with the colonial government for the Gardens' establishment.

The Gardens will continue to work with the community, said Dr Taylor. It has established a stakeholder committee, which will meet every six months and help oversee the Gardens' site-management plan.





The Man Who  
Saved The *Gardens*



**It might be a Unesco World Heritage Site now but parts of the Gardens, including its much-admired herbarium, were nearly lost to posterity in the 1970s.**

There was talk that the Gardens, which sits on prime land, could have been sold to developers.

Its herbarium was up for sale to American interests, which is how Dr Kiat W. Tan, 72, heard about the sorry state of Singapore's historic Gardens and later became its saviour.

At the time, Dr Tan – a former director of the Botanic Gardens who is now chief executive of Gardens by the Bay – was working as an assistant director at the Marie Selby Botanical Gardens in Florida.

He recalled: “They asked if our Gardens would want to buy the herbarium. I jumped. Why is the Singapore Botanic Gardens selling its priceless herbarium? Something smelled badly.”

A botanic gardens without a herbarium would have just been a “plain old green space” lacking heart, added the botanist, who has fond memories of climbing the branches of the Gardens' Tembusu tree as a young boy.

Galvanised into action, Dr Tan took up a senior administrative position with the Gardens in 1983.

On his first day of work, he discovered a portrait of the Gardens'

Former colleagues Dr Leong Chee Chiew (above left) deputy chief executive of NParks and commissioner of Parks and Recreation, and Dr Kiat W. Tan, former Gardens' director, worked day and night to put together a \$51-million Master Plan to save the historic space.

ST PHOTO: ONG WEE JIN



first director Henry Ridley – the man behind South-east Asia’s successful rubber trade industry – in the trash.

“All the colonial traces were going to be wiped out. It was a shock to see how sadly fallen were the fortunes of the Gardens,” said Dr Tan.

He found other problems. Dead dogs frequently washed up in one of the lakes at the Gardens’ Bukit Timah core, and rocks that dotted the lake looked like dentures sticking out.

Dr Tan, who grew up with cherished memories of the Gardens, said: “That’s where we went to have our pictures taken in our holiday finery.”

He and his team worked day and night to put together an 85-page, \$51-million Master Plan, executed in three phases from 1989 to 2006.



**The Swan Lake is part of the Gardens’ Tanglin heritage core and is well-loved by visitors.**  
ST PHOTO: DESMOND WEE



The aim was to reinstate the Gardens as a botanic institution with multiple roles in research, education, conservation and recreation.

“I quietly distributed the plan to every Cabinet minister without my bosses knowing,” said Dr Tan. “You must be able to put your career on the line if you believe in it. If you are so busy watching your rice bowl, the whole toilet bowl will land on your head.”

One team member, Dr Leong Chee Chiew, now the deputy chief executive of NParks and commissioner of Parks and Recreation, said of Dr Tan: “He was so very passionate and able to see the end results in elevating the Gardens to world-class standards.”

The plan was announced in 1989 by then Minister of National Development S. Dhanabalan at the Gardens’ 130th anniversary.

Dr Tan stitched together some 74ha of grounds by connecting two plots of land once divided by Cluny Road. He also preserved the Tanglin heritage core, which was critical to the Unesco bid.





# The *Iconos* Thumbs Up



**For more than a year, the team behind Singapore's Unesco bid waited anxiously for the assessment results of their 700-page nomination dossier.**

It had been submitted in January 2014 for evaluation by Icomos – a Unesco appointed panel of experts.

Their minds were only set at ease just after midnight on May 16, 2015, when Icomos, which appraised 44 cultural, natural and mixed properties in the lead up to the World Heritage Committee's 39th ordinary session in June and July, gave Singapore the thumbs up.

In a 14-page report recommending the site for inscription, Icomos said the Gardens is an “exceptional example” of a British tropical colonial garden in South-east Asia. It also highlighted the pivotal role the Gardens played in rubber trade in the region. Compared to similar gardens in places such as Hong Kong, Penang and India, Singapore has kept its original features intact, the panel said.

It said that the Gardens boasts a well-defined and well-preserved cultural landscape, including 47 heritage trees and 17 historic landmarks such as Holttum Hall and the Bandstand.

The Gardens also illustrates the interchange of values connected to ideas, knowledge and expertise in tropical and economic botany and horticulture – for instance, rubber extraction and cultivation



**The Gardens' resident white swans feeding on the foliage at Swan Lake. ST PHOTO: KUA CHEE SIONG**





The region's rubber boom can be traced back to the Singapore Botanic Gardens. It was at the Gardens that rubber extraction and cultivation were perfected. This was cited as one of the clear qualities that paved the way to the Gardens' eventual Unesco listing. PHOTOS: SINGAPORE BOTANIC GARDENS



were perfected there.

The report said that while the 1759 Royal Botanic Gardens in Kew, England, provided the initial rubber seedlings, it was the Singapore Botanic Gardens which “provided the conditions for their planting, mass-multiplication, experimentation, agro-industrial development and eventual distribution” to South-east Asia and beyond.

As such, “by 1920 Malaya was producing half the world’s latex harvest”. In addition, China’s rapidly growing rubber industry in Yunnan province today has its origin in trees supplied from Singapore in 1904.

Overall, the panel found that most of Singapore’s justifications for listing were “adequate”, noting that the Gardens’ main threats were developments or changes in land use, environmental pressures and tourism.

The report further highlighted how the Gardens is home to seven “very old specimens” of African oil palm, and two heritage white gutta percha trees planted in 1897 by the first director, Henry Ridley, to protect them from extinction.

Icomos added that the Gardens has played an integral role in Singapore’s social history, providing a backdrop for the lives of its residents for a continued sense of place and identity.



This can be traced back to the 19th century, when Singapore was a “Wild West town”, and its jungles rife with unruly Chinese headmen, snakes, tigers and disease, said Gardens’ director Nigel Taylor.

“So families went to the Botanic Gardens, where respectable families introduced boys to girls for arranged marriages. It was where families went to relax,” he said.





# Global Acclaim

**The Botanic Gardens' successful nomination was made even sweeter when international delegates at the organisation's 39th session heaped praises on the newly-minted Unesco World Heritage Site.**

## *Sharing a neighbour's joy*

!! Singapore is our nearest or closest neighbour, not only physically but also historically and culturally. We share the happiness of the state party. Being the greenest city state in the world, the Gardens is an exceptional example of a British tropical colonial botanic garden in South-east Asia, and an illustration of interchanges of magnificent botanic and horticultural technological values.”

*- Malaysia's heritage commissioner Zainah Ibrahim*







ST PHOTO: KUA CHEE SIONG

## *Home to natural and cultural heritage*

“With more than 150 years of history, the 74ha Gardens holds a unique and significant place in the history of Singapore and in the region and has succeeded in encapsulating natural and cultural heritage over all these years.”

*- Portugal ambassador to Unesco,  
Jose Filipe Mendes Moraes Cabral*





# *A uniquely Singaporean site*

“The delegation of Jamaica is delighted to indicate its support for the inscription of the Singapore Botanic Gardens. We are even more delighted that like Jamaica, Singapore is inscribing its first site on the world heritage list. This speaks well of the future of the list that two small states are being inscribed at the same session of the committee. Singapore has been successful in our view in making the garden uniquely Singaporean. An oasis in the heart of the city state, a unique feature of the Gardens is that it is also a centre for learning, a scientific institution and a place of conservation and recreation.”

*- Jamaican delegate Vilma Kathleen McNish.  
Jamaica's Blue and John Crow Mountains had also made the  
Unesco World Heritage list at the 11-day meeting*





A bronze sculpture of girl on a swing clad in a sarong kebaya by British sculptor Sydney Harpley R.A. was commissioned and presented by Singapore's first chief minister David Marshall to the Gardens in 1984.

ST PHOTO: KUA CHEE SIONG

## *Managed with love*

“ Having seen this outstanding site personally, I fully agree with its inscription on the World Heritage list. I heartily congratulate the state party of Singapore in its efforts to bring this first excellent nomination from the country (for a site) which is not only outstanding but also protected and managed by them with utmost care and protection.”

*- India's Unesco delegate Shikha Jain*





## Excellent digital plant inventories

“The conservation and monitoring approaches of digital inventories on living plants, archival plants, built heritage, biodiversity and other attributes of the cultural landscape that nurture discovery and creativity are exceptional. This inspiring site reminds us that research is the ground of innovation, the past is the foundation of the future, and memories the soil of the imagination.”

*- Philippine ambassador and Unesco delegate Maria Theresa P. Lazaro*

Believed to be as old as the Gardens, this Burmese Banyan has a cathedral-like architecture of aerial roots. It is depicted in old paintings of the Gardens.

ST PHOTO: ASHLEIGH SIM





ST PHOTO: MARK CHEONG

## Home to living heritage

“(The Botanic Gardens) is not an archaeological site or monument that doesn’t change over time. There are plants and changes there, and there are people of the city who spend some hours of their week or weekend there. So those aspects related to life and to intangible components of heritage are also very important.”

*- Icomos vice-president Alfredo Conti*



# Research prowess

// I had the possibility to recently spend a couple of unforgettable days at the Singapore Botanic Gardens. The Gardens has continued to deliver through its research programmes. The only question mark when it comes to a site like this is how to protect its integrity when situated in a fast-growing metropolis with limited space available for construction.

“Google Street View was surprisingly helpful in this case. I had spent hours in front of my computer walking around the paths of the Gardens, to take in different views... to see how the building height plan will function in reality. Discussions with the Urban Redevelopment Authority turned out to be very helpful in understanding land use in Singapore. I’ve to say that this authority has to be top-notch in the world when it comes to urban planning and is well capable of taking care of the site in its wider setting.”

**- Finland’s Stefan Wessman, senior adviser of the country’s National Board of Antiquities**

The Vanda Miss Joaquim display near the Gardens’ Bandstand. ST PHOTO: BASIL EDWARD TEO







## Remarkable commitment

“ Obviously Turkey supports the inscription of the Singapore Botanic Gardens. I, along with a number of friends over a year ago, had the privilege to attend a conference on conservation in Singapore where we were able to see the site in person. The remarkable commitment and the state of integrity of the site overwhelmed all of us.

“This small state, with the obligation of maximising the use of every square metre of land, is making a generous contribution by creating this site. Singapore will become a leader in this area that will inspire and lead all other interested parties and stakeholders who have similar sites.”

*- Huseyin Avni Botsali,  
Turkey's delegate to Unesco*



A wide-angle photograph of the Singapore Botanic Gardens. In the foreground, a curved concrete path runs along a pond filled with lily pads. A person is walking on the path. In the background, a large, modern, white, curved pavilion stands on a grassy area. The garden is lush with various trees, including a large tree on the left and palm trees in the background. The sky is clear and blue.

# A recreation of lost paradise

“The Singapore Botanic Gardens is encouraging proof of how men can recreate lost paradise, and of harmony between men and nature.”



- Serbia's Unesco delegate  
Darko Tanaskovic






# What Local Experts Say

Planting Singapore Firmly  
on the World Map





A bee is attracted to  
the flower of one of the  
Gardens' Cannonball trees.

ST PHOTO: KUA CHEE SIONG

**The Singapore Botanic Gardens' new status as a Unesco World Heritage Site is a feather in the cap for Singapore, said experts from the fields of heritage, nature and tourism.**

They described it as a significant endorsement from an independent, reputable body that raises the profile of the country's heritage and plants it firmly on the world map.

Cultural geographer Professor Lily Kong from the National University of Singapore called it a "fitting tribute" for Singapore in its 50th year of independence, while heritage conservation expert Johannes Widodo said the accolade is an "amazing achievement" for a small country.

Nature Society president Shawn Lum said the successful listing celebrates the vision of the Gardens' founders, the work of its directors and grounds-keeping staff, as well as the research produced there.

Meanwhile, tourism experts reckon the title adds a new dimension to the Singapore experience, which is known for modern marvels and attractions such as the Singapore Zoo, Marina Bay Sands and Gardens



*When a site is inscribed, we are effectively telling the world that it not only holds significance to us, but also the entire world.*

*- Singapore Heritage Society's Yeo Kang Shua*


by the Bay.

“It highlights to visitors that we have a well-preserved green space in Singapore despite its rapid development which tourists and even locals may not quite take notice of,” said Ngee Ann Polytechnic senior lecturer in tourism, Dr Michael Chiam.

But the title should not be wielded as a promotional tool or gimmick, they said. Instead, it is about raising awareness among Singaporeans about the gem in their midst, encouraging them to visit the place and to learn more about its history.

It also serves as a reminder that much of what and who made Singapore and its history and heritage started before 1965, said Prof Kong. “The much deeper roots of our history and heritage deserve to be embraced and celebrated.”

There is heavy responsibility on the part of the Government to give its commitment to maintain the site for posterity, said Singapore Heritage Society’s former honorary secretary Yeo Kang Shua.

“When a site is inscribed, we are effectively telling the world that it not only holds significance to us, but also the entire world,” he said. 



MILESTONES IN THE GARDENS' HISTORY

BOOSTING THE RUBBER TRADE

A HISTORY OF RUBBER

THE ENGLISH LANDSCAPE MOVEMENT

A STORIED PAST

# *A Walk Through History*

## CHAPTER 2







*The Singapore Botanic Gardens' visionary directors planted the first seeds which led it to international stardom more than a century later. The critical decisions they made, such as designing it to take the form of an English landscape garden, as well as their dedication to developing the rubber trade, have enabled the Gardens to stand out from its counterparts in the region.*

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# Milestones In The Gardens' History

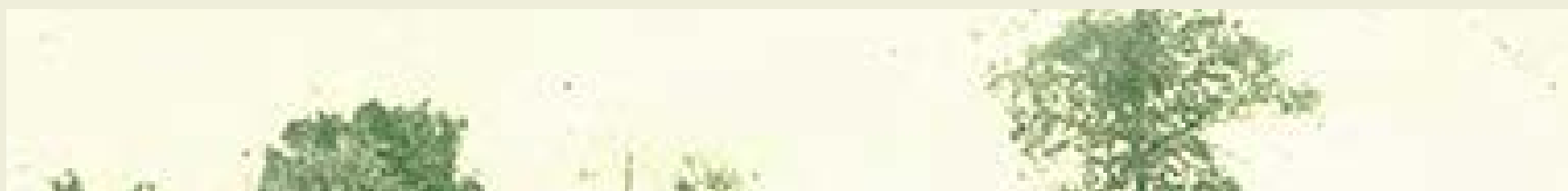
1822

Singapore's founder Sir Stamford Raffles sowed the seeds of a botanical garden near his bungalow on Government Hill, the present Fort Canning Hill. He started with 125 trees, 1,000 seeds of nutmeg and 450 clove plants.



1829

Lack of proper administration, funding and support led to its closure.







## 1859

The Agri-Horticultural Society was granted 22ha of abandoned plantation land by the colonial government. It is likely that one of the society's members, influential businessman Hoo Ah Kay (right), also known as Whampoa, was responsible for negotiating the land transfer. The society hired Lawrence Niven to develop a leisure garden and ornamental park. Niven is credited with implementing the English Landscape Movement in the Gardens. Several of its features from this time period such as Bandstand Hill (above), ring roads, Swan Lake and the Main Gate still stand today.





## 1861

Entertainment became a feature of the park, with a regimental band playing atop Bandstand Hill. There were flower shows, and two Chinese gardeners were employed to grow vegetables and fruit.

## 1866

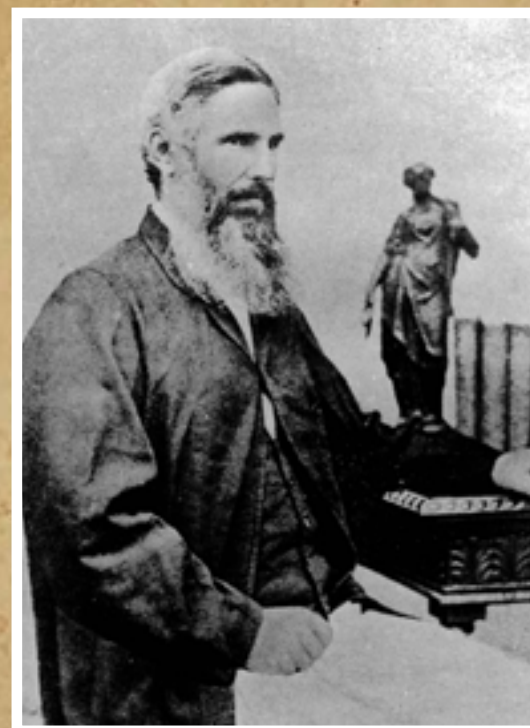
The park bought an additional 10ha to the north-west from the old Napier estate. Here, the Agri-Horticultural Society built a residential house for Lawrence Niven known as Burkill Hall today.

## 1875

Apart from organising flower and horticultural shows, the society also



# The Men Who Ran The Gardens



### HE LAID THE GROUNDWORK

Lawrence Niven (above),  
a nutmeg plantation manager,  
was hired by the Agri-  
Horticultural Society to create



introduced a zoo with an animal population of 140 including a leopard, four kangaroos and a wallaby.

Due to financial difficulties, the Gardens was handed over to the colonial government and Henry James Murton became the first of many horticulturalists trained at England's Kew Gardens to take charge.

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*1875 - 1880*

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Under Murton, the Gardens changed from a recreational park to a place for scientific study. In 1879, he obtained 41.3ha for an Economic Garden in the north of the Gardens. Coffee and rubber made their first appearances. Murton also planted Palm Valley.

a leisure garden. He served as the Gardens' manager between 1860 and 1875. Niven laid the groundwork for the Gardens, shaping its paths, flower beds, paving its roads and levelling Bandstand Hill.

### **He started a zoo**

Superintendent James Murton, who served between 1875 and 1880, set up the Straits Settlement's first herbarium and botanical library as well as the Garden's first zoo.

### **He started Singapore's greening process**

Nathaniel Cantley, who served as the Garden's superintendent between 1880 and 1888, planted trees in Singapore's streets and parks.



# 1880

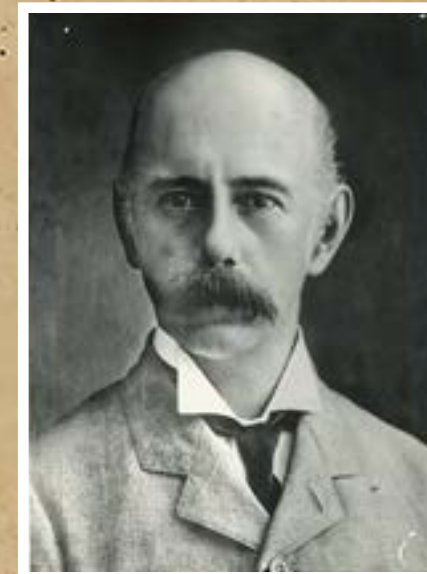
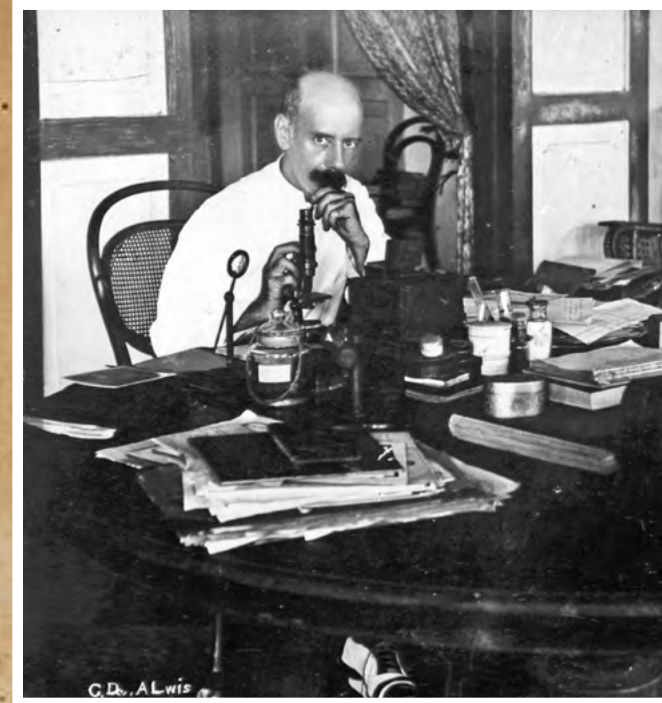
Nathaniel Cantley, who was also trained at Kew, replaced Murton. During his term, Cantley built new facilities such as an office, plant nurseries and an arboretum in the Economic Garden.

# 1888

Henry Nicholas Ridley became the first director of the Gardens. Convinced of the economic potential of rubber, he promoted its planting unceasingly.

# 1893

The Gardens announced the discovery



## **The father of Malaya's rubber trade**

Henry Ridley (above) served as the Gardens' first director between 1888 and 1912. The multi-talented



of a new orchid hybrid of a delicate mauve – the Vanda Miss Joaquim, named after an Agnes Joaquim who had found it growing in her garden at Tanjong Pagar.

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1912

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Isaac Henry Burkill replaced Ridley and became the Gardens' second director. He continued Ridley's work on plants of economic value.

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1928

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An innovative method of hybridising orchids using flasks of sterile culture in the laboratory was introduced to the Gardens during Eric Holttum's term. He had started work there as an assistant director between 1922 and 1925 before taking up the post of director from 1925 to 1949.

Ridley was an English botanist and geologist. He was popularly known as the father of Malaya's rubber industry, having devised a method to extract rubber from the tree without destroying the plant, thereby greatly boosting its yield. He also promoted the use of rubber as an economic crop.



### **He drove scientific research**

Henry Burkill (above), the Gardens' director from 1912 to 1925, was big on developing taxonomic classifications which resulted in the publication of many papers under his watch.



## 1929

Eric Holttum created the Sundial Garden.



## 1942

Singapore fell to the Japanese and Tohoku University's professor Hidezo Tanakadate took control of the Gardens. He asked senior staff such as Holttum and assistant director E.J.H. Corner to resume their work while others were sent to work on the Siam-Burma Railway. Kwan Koriba, a botany professor from the Imperial University of Kyoto, was appointed director.

## 1956

The Gardens started the practice of naming orchid hybrids in honour of visiting dignitaries.



**He initiated the orchid breeding programmes**  
Director Eric Holttum (above), who was in charge of the space between 1925 and 1949, kickstarted the Gardens' orchid breeding programme. He was behind the introduction of bougainvillea and frangipani plants on the streets of Singapore.





# 1963

Prime Minister Lee Kuan Yew launched the first Tree Planting campaign and the Gardens' priority shifted to providing a horticultural service for Singapore's garden city concept.

# 1970

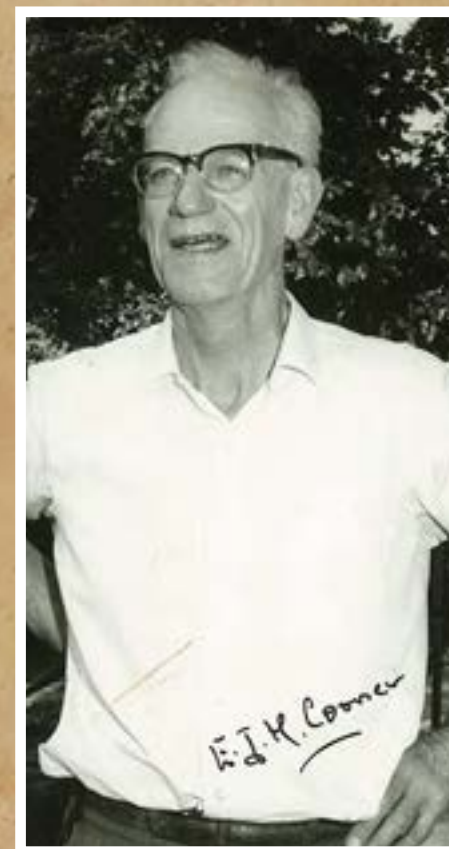
Arthur George Alphonso became chief administrator.

# 1972

The School of Ornamental Horticulture was opened, offering courses in the planning, development and maintenance of parks and open spaces.

# 1973

The Gardens merged with the Parks and Trees Branch of the Public Works



**He was a prolific writer and keen conservationist**

Assistant director E.J.H. Corner (above) was very well-liked. Under his watch, he trained macaques to collect specimens from trees.



PHOTOS: SINGAPORE BOTANIC GARDENS



Department to form the Parks and Recreation Division, later changed to the Parks and Recreation Department. The Gardens' director was re-designated deputy commissioner of the new division.

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## 1980s

The Parks and Recreation Department took the greening of Singapore zealously, planting 56,000 flowering trees, 400,000 shrubs and more than 10,000 fruit trees in a typical year.

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## 1986

The Gardens expanded to take in 12ha of land located along Cluny Road, which had been part of the Institute of Education's campus grounds.

## 1988

The Gardens was redesignated a separate division and the former position of director was restored. The post went to Dr Kiat W. Tan, who joined the Gardens in 1983.

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## 1989

A grant is secured to enable Dr Tan to commission a Master Plan for the redevelopment of the Gardens, which is rolled out over the course of about 17 years. The plan included the development of the National Orchid Garden, Spice Garden, Ginger Garden, Evolution Garden, the Cool House, Eco-lake, the Symphony Lake stage, and the restoration of the Bandstand, Burkill Hall and Corner House.



# 1996

Dr Chin See Chung takes over the role of director until 2010.

# 2005

The 1.5ha Evolution Garden (below) opens in the southern part of the Gardens' Bukit Timah Core. It traces the development of plant life on earth over the past 3.5 billion years.





2011


Dr Nigel Taylor (right) is appointed the Gardens' new director, to lead its Unesco bid.



July 4, 2015

The Gardens is inscribed as a Unesco World Heritage Site

Aug 7, 2015

Unesco World Heritage Site plaque (right) is installed at the Gardens' Tanglin Gate. 





# Boosting The Rubber Trade







PHOTO: SINGAPORE BOTANIC GARDENS

**Singapore was a major sorting and export centre for rubber from the 1900s to the 1960s, a period when the trade picked up and boomed.**

The Singapore Botanic Gardens played a pivotal role in that growth – it was where its first scientific director Henry Ridley devised a rubber-tapping technique that yielded maximum quantities of latex without destroying the trees.

The Gardens’ role in plant research and its studies of rubber for cultivation were major factors that earned it the status as a Unesco World Heritage Site.

Since the rubber trade declined, its role in Singapore’s history has been largely forgotten by the public.

Given the Gardens’ intricate ties with rubber, the 106-year-old Rubber Trade Association of Singapore hopes its new status will help “boost awareness about rubber’s economic heritage among younger





Rubber pioneers (from left) Teddy Chua, Peter Tan and Lim Kok Eng beside a bust of Sir Henry Nicholas Ridley at the Rubber Trade Association of Singapore's office in Cecil Street. Mr Tan is holding a book he has written on rubber, and the others, old sample sheets of rubber. ST PHOTO: MELODY ZACCHEUS

generations of Singaporeans”.

Mr Peter Tan, 71, a board member of the association, said: “We don’t have rubber trees lining the country that can serve as reminders, but it’s still a shame that some kids today might not even know how rubber feels like in their hands.”

He recalled how Singapore was home to 15 rubber factories at one point. These factories came with mills and smoke houses, which cleaned the rubber and extracted moisture from the material.

Rubber, used in the production of tyres, was one of two commodities that built up Singapore’s economy said Mr Tan. The other was tin.

The rubber boom can be traced back to London’s Royal Botanic Gardens, Kew, which gifted 22 rubber seedlings to the Gardens here in 1877. A dozen of them were planted in the Gardens and studied to gather data about cultivation methods over the next two decades.



Ridley often visited Straits Settlements plantation owners with his jacket pockets filled with rubber seeds from 1,000 mature trees growing in the Gardens.

“He believed so much in the value of rubber as a commercial crop for the region... He encouraged many to plant the crop,” said Mr Tan.

The first to do so was Singaporean Chinese and tapioca estate owner Tan Chay Yan, grandson of Mr Tan Tock Seng. By 1901, he had a rubber plantation that spanned 1,200ha near Malacca.

Other Chinese entrepreneurs, such as Tan Kah Kee, Lim Nee Soon (above), and Lee Kong Chian, also started rubber businesses (left), which were handed to their descendants.

According to Singapore: A Pictorial History, 1819 - 2000, Lim Nee Soon controlled more







Rubber bales hoisted by crane onto a lorry with the Victoria Memorial Hall and Victoria Theatre's clock tower in the background in this photo taken in March 1969. Rubber was a key commodity for Singapore. PHOTO: THE PORTERS

than 8,000ha of rubber trees in Thomson, Seletar, Sembawang, Jurong, Chua Chu Kang, Mandai as well as in Malaya.

“The fortunes of many of Singapore’s early millionaires were built on the rubber trade,” said Mr Teddy Chua, 73, another board member of the association.

When he was 17, Mr Chua, who owns Eastland Produce, used to walk on Boat Quay’s gangplanks to inspect rubber bales that pulled up in tongkangs (light wooden boats) at the Singapore River.

He would grade them and ring up a manager at his father’s rubber plantation, Hua Heng, who would price them and make a bid to the rubber owner.

Hua Heng was about 32,000 sq m, or about the size of six football fields.

Rubber packing and processing activities in Singapore declined in 1963, after Indonesia stopped exporting the raw material to be processed in Singapore following the start of Konfrontasi. Some firms, including Hua Heng, went under.

Today, Thailand, Indonesia and Vietnam are the main suppliers of rubber to the world, producing 12 million tonnes in total each year – more than 70 per cent of the world’s supply. 🌱



# A History Of Rubber

**The Western world first got wind of rubber in 1736 via European scientist explorer Charles Marie de la Condamine, who came across the substance in Peru from the Hevea Brasiliensis or Para rubber tree.**

He wrote the first scientific paper on rubber for the Academie Royale des Sciences in the 1750s, describing its waterproofing ability and elastic quality to readers. In 1770, its effectiveness in erasing pencil marks was discovered in England.





**Rubber trees at the Singapore Botanic Gardens.**

ST PHOTO: LEE TUCK SOON

Back in the 1700s, the only source of rubber was from wild trees in the equatorial forests of Africa and Brazil. Existing rubber extraction methods were destructive as the trees were hacked for their latex which resulted in early death.

Scientific work conducted in the Singapore Botanic Gardens that refined rubber extraction methods was the catalyst behind the eventual rubber plantation boom that started in the late 1800s.

The spread of rubber in South-east Asia stemmed from British foresight. Aware of its widespread industrial and commercial applications, the British predicted soaring demand for rubber in various fields. They knew the existing situation was unsustainable and started exploring the possibility of establishing rubber plantations in their colonies and territories.

They made several attempts, the first in 1873 when they sent out 2,000 rubber seeds by sea from Brazil to Kew's Royal Botanic Gardens. The plan was to have them germinate in Calcutta and the Himalayan Sikkim, but this failed due to factors such as climate.

The British tried again, this time sending 70,000 seeds to Kew. Propagation at Kew was successful, with 1,900 of these seeds germinating, but they failed to take off at their next destination in Sri Lanka as coffee plantations were already rampant there.





**Seeds from the rubber plant.**  
PHOTO: SINGAPORE BOTANIC GARDENS

British explorer Henry Wickham, now at the helm of the rubber planting endeavour due to his knowledge of Brazil and the Amazonian Basin, informed Kew that the rubber plant would likely do well in the Malay Peninsula. Kew promptly sent two cases of rubber plants to the Singapore Botanic Gardens, but most died as they had been delayed at the port here for too long.

In 1877, 22 rubber plants finally reached Singapore's shores from Sri Lanka. A dozen were planted by the Singapore Botanic Gardens. By the time Henry Ridley, a botanist and geologist, joined as Gardens director in 1888, some 1,000 trees had matured and were ready for exploitation and experimentation.

Ridley helmed the effort to improve rubber cultivation and extraction techniques. He developed the herringbone method of extraction, an incision pattern that allowed tappers to collect larger amounts of sap from a tree without damaging it.

His invention ensured that the trees could continue to produce latex for more than two decades before they needed to be replanted. Ridley also found that trees could be tapped within five years of age, instead of 10 years as previously believed. His research cemented the rubber tree as a sound and efficient economic investment for plantation owners.





ST PHOTO: DESMOND FOO

Rubber Trade Association of Singapore board member Peter Tan described Ridley's work as a game-changer. "The tree now had a longer economic life. Beyond the herringbone method, Ridley devised plantation management methods to increase the yield potential of rubber trees in a plantation environment," said Mr Tan.

More change was on the horizon. In 1886, automobiles with rubber tyres were rolled out and would soon take the world by storm. Ridley took on the role of rubber advocate, persuading European and Chinese plantation owners as well as entrepreneurs in the region to invest in the crop. However, rubber was low on their radar as their focus was on crops such as sugar and coffee.

Undeterred, Ridley would travel with rubber seeds (left) in his pockets, handing them to planters to try out. He penned regular articles on the subject in an agricultural journal, and would also share about the material at horticultural shows whenever he had the chance.

He was soon nicknamed "Mad Ridley" for his avid advocacy. The story goes that the name caught on following an encounter with a coffee planter in the Malay Peninsula one rainy day. The planter refused to believe Ridley when he shared that South American Indians had made and used their own waterproof boots.





ST PHOTO: YAP YEW PIANG

But things changed six years later in 1895. The crop took off shortly after Straits Chinese Tan Chay Yan approached Ridley for rubber and sowed the first seeds in his estate near Malacca. Hailing from a respected family, Tan helped popularise rubber planting among other Chinese plantation owners and entrepreneurs. The Gardens sold 20,000 rubber plants and seeds that same year. Others such as Dr Lim Boon Keng, the man behind Sembawang Rubber Plantations, entered the industry in 1898.

Most of the region's rubber estates spanned between 50ha and 1,000ha in size. Smaller farmers ran plots about 5ha in size. Alongside rubber, some plantation owners grew pineapples, tapioca and sugarcane.

Due to land scarcity, Singapore was never a major producer of the material but it provided the processing facilities for farmers in Malaya and the surrounding islands of the East Indies for almost 80 years, said Mr Peter Tan. "Because of Singapore's deep water harbour (left), we also became the export centre for rubber from the region," he added.

Almost 70 per cent of rubber produced today goes towards the manufacture of tyres, with Singapore still playing a key role in the rubber trade a century later. Mr Tan described the Republic as the



“undisputed centre” for the natural rubber trade. He said: “It is here that rubber pricing is decided for the world. It is an important commodity that continues to contribute to the country’s economic life.”



ST PHOTO: LAU FOOK KONG


## Ribbed smoked sheets

Pictured here are varying grades of ribbed smoked sheets from the 1950s and 1960s, from the Rubber Trade Association of Singapore’s



collection. These coagulated sheets were processed from latex and range in quality depending on their grade.

The sheets were smoked to preserve them. In the past this was especially important as shipping them across the world took about a month. The sheets were ribbed to further increase the surface area exposed to the smoking process.

Rubber is given a grade depending on the amount of contamination during the sheeting and smoking process. 

Source: Singapore Rubber Trade – An Economic Heritage



# The English Landscape Movement

Compared to other similar gardens in places such as Hong Kong, Penang and India, the Singapore Botanic Gardens is an exceptional example of a British tropical colonial botanic garden in the region –



**meeting yet another criteria for Unesco World Heritage Listing where sites must illustrate that the building, technology or landscape in question reflects a significant stage in human history.**

In response to the precise and ornate style of great continental gardens, the English Landscape Movement focused on developing a natural and informal style featuring free-flowing landscapes and curved paths. This style was introduced by Charles Bridgeman in the 1720s at the Royal Gardens of Kew.

The informal landscape design was rolled out for the first time in the tropics at the Singapore Botanic Gardens by Scotsman Lawrence Niven. Niven was said to have understood the site's original rolling landscape well, moulding it and tweaking it into a space for nature lovers and recreation-seekers. With the aid of convict labour, he cleared some trees to make way for seamless footpaths and roads but retained others such as the Sago Palm. It is located on Lawn A, near the Tanglin Gate.

Working with the original landscape, Niven further pinpointed the Tanglin Core's highest point as the site for the Bandstand – a levelled parade area for military bands to play music especially on moonlit evenings, according to the book *Nature Contained: Environmental Histories Of Singapore*.





An aerial view of the Gardens' Vanda  
Miss Joaquim display.  
ST PHOTO: JAMIE KOH AND MARK CHEONG

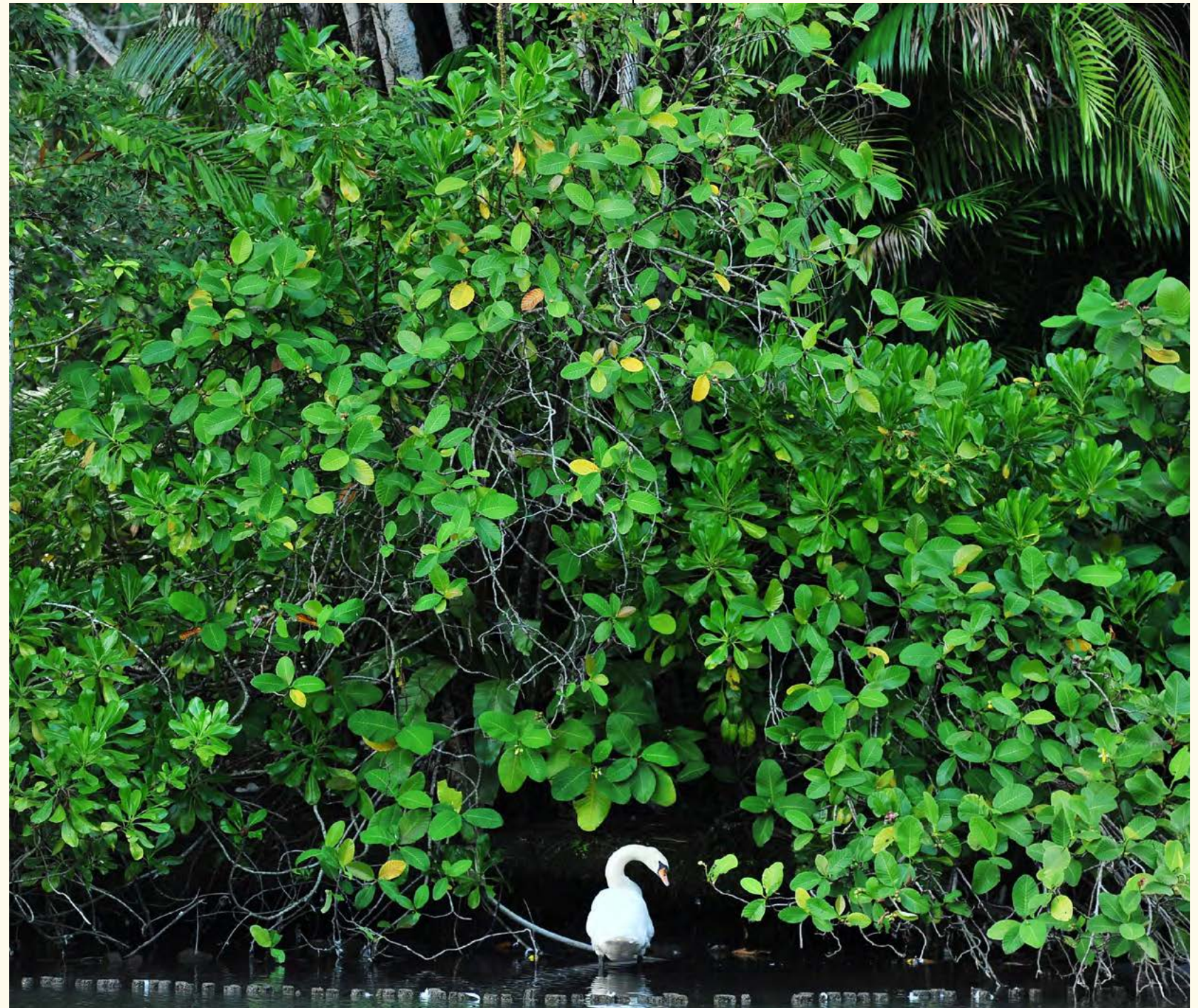




Then, the Gardens' was often used by members of the Agri-Horticultural Society who rode their horses and carriages across the space.

Niven was also behind the excavation and landscaping work that transformed a patch of swamp there into the stunning Swan Lake (right) – the oldest ornamental water body in the city state.

Later on, Gardens' superintendent James Murton designed Palm Valley – a gently northward sloping depression which lies between the soaring trees of the Gardens' Rain Forest and the hill where Burkill Hall stands –



ST PHOTO: LIM YAOHUI





Swan Lake was originally known  
as the Main Lake or First Lake.

PHOTO: NPARKS



another design element inspired by the English Landscape Movement.

Director Nigel Taylor said the Gardens' landscape is often taken for granted. "People wander into the Gardens and take it as a free-flow place but as soon as you enter any other historic gardens in



**A long-exposure shot of Palm Valley's towering tropical plants.**  
ST PHOTO: GEORGE GASCON






The English Landscape Movement is characterised by free-flowing landscapes and meandering paths.  
ST PHOTO: LIM YAOHUI



the tropics from the same period, you enter a very formally laid out landscape where the trees are identical in form and paths that cross give you neat symmetrical rectangular beds to plant things in.”

The Gardens’ naturalistic landscape is a reflection of “men making an improvement on nature”, said Dr Taylor, where slopes, hills, water bodies and trees are used as part of the design.

“The initial topography of the Gardens suggested the design to the designer rather than the designer imposing the design onto the landscape,” he said. 



*Most people who visit the Gardens notice its beautiful landscape. If people can recognise that the landscape was designed specially in this way, I would be very happy because it was key in fulfilling the Unesco criteria for having a cultural landscape. The Botanic Gardens is an outstanding and truly unique example of the English Landscape Movement in the tropics.”*

*- Director Nigel Taylor*



# A Storied Past

Dusty annual reports chronicling the Gardens' history have unearthed colourful stories.

## A Royal Visit

In 1871, at the age of 18, Siamese King (above centre) Chulalongkorn visited the Gardens as part of his itinerary on his first trip abroad.



Records from the National Library of Australia indicate that he was on a tour of both Singapore and Batavia (now Jakarta) to observe British and Dutch systems of administration.

According to the third volume of *The Siam Repository: Containing A Summary Of Asiatic Intelligence*, a salute was fired from Fort Canning when he first landed on Singapore's shores.

He was also welcomed by members of Singapore's Chamber of Commerce. The King in response said that it was a source of pleasure that his first visit out of the Kingdom of Siam was to Singapore. He added that Singapore was renowned for its trade.

At the Gardens he attended a flower show. A photograph documenting the royal visit shows the young King dressed in a Western jacket and holding a white hat.

The King made subsequent trips to Singapore. These state visits not only contributed to friendly relations between both countries but also resulted in administrative reforms and the modernisation of Siam during his reign from 1868 to 1910.

The King, who liked Singapore, acquired a mansion along Orchard Road in the early 1890s – the site of the Thai Embassy today.





ST PHOTO: BASIL EDWARD TEO



PHOTO: THE NEW PAPER

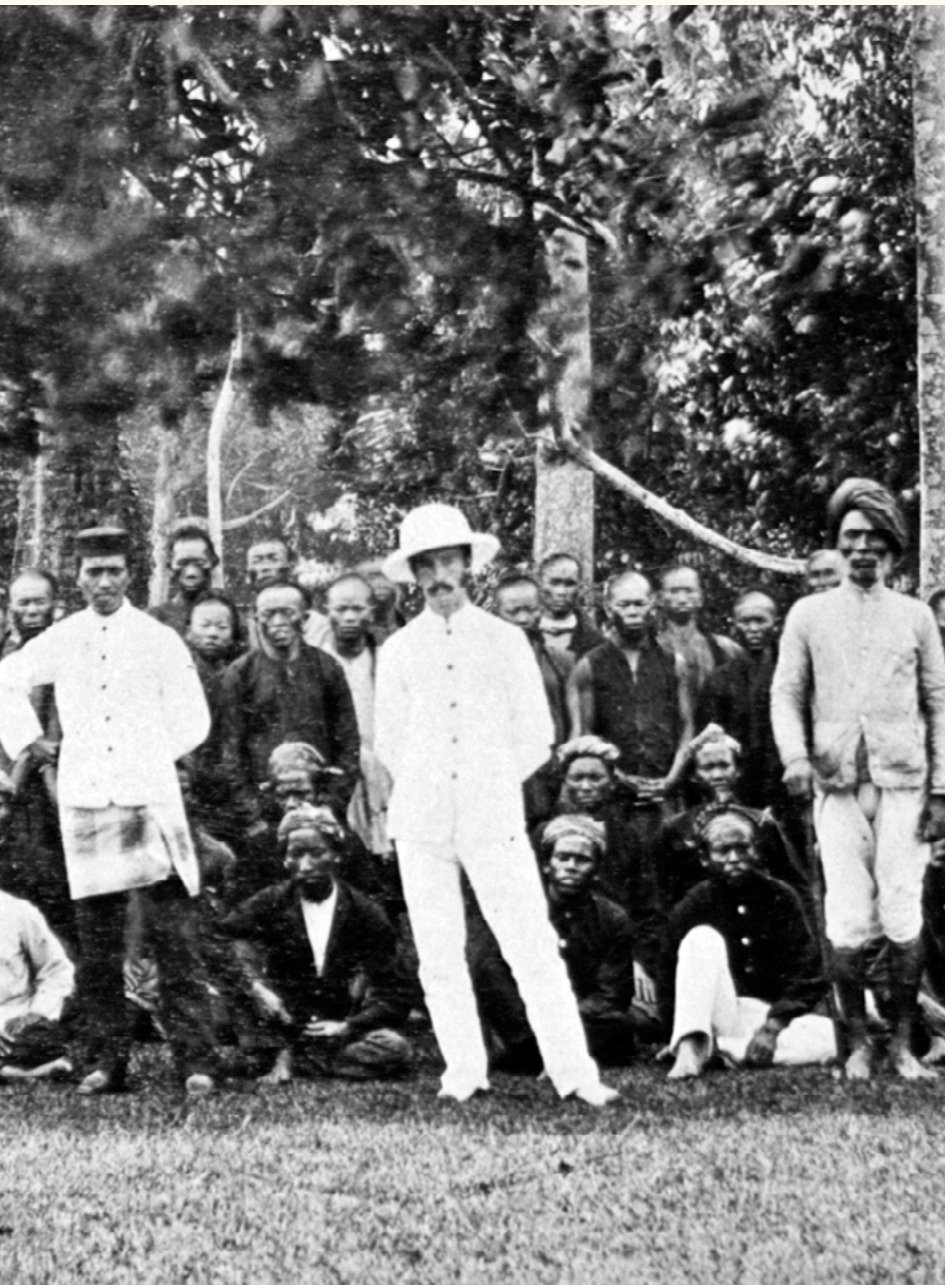
## POW Steps

This flight of brick steps at the Gardens' Plant House in its Tanglin Core was made by Australian prisoners of war (POWs) during the Japanese Occupation.

The bricks are identified by an arrow carved into each one (above) as an act of defiance.

Former POWs who visited the Gardens in 1995 had jumped up and down the steps in excitement when they realised that the bricks they had made at a brickworks in Changi were still intact.





# Revolver, Parangs In Showdown At 1868 Burkill Hall

The stately Burkill Hall, now a popular wedding venue at the Singapore Botanic Gardens, was the site of a showdown in 1875 that involved a revolver and parangs.

Then Gardens superintendent James Murton had withheld the wages of Javanese coolies working there as they had allegedly stolen items from his office.

This resulted in a verbal spat, a physical struggle and a chase around the complex with their immediate manager. The situation came to a head when 30 armed coolies confronted Murton, then in his early 20s, at Burkill Hall where he was living.

Murton fired shots from his revolver over their heads in an attempt to disperse the group. He then locked himself in the bathroom till the head gardener had calmed the situation down.

This incident was uncovered by Gardens director Nigel Taylor, who dug into newspaper archives to piece together historical anecdotes about the site as part of his research for the Gardens' Unesco World Heritage Site bid.





PHOTO: SINGAPORE BOTANIC GARDENS

## Home To A Zoo


The Gardens was once home to a menagerie. This collection of animals, which included a rhinoceros, kangaroos, a tiger from the Sultan of



Terengganu, leopards from the King of Siam, two orang utans, monkeys, a wallaby and ornamental birds, were exhibited live.

The idea for a zoo in the Gardens was first suggested by then Governor of the Straits Settlement Sir Harry St. George Ord. It was established by then superintendent of the Gardens James Murton in 1875.

Animal enclosures were established in various parts of the Gardens. A rhinoceros wall was set up near Napier Road, an enclosure for carnivores was built at the north-east side of Bandstand Hill while an aviary was built on the east side.

In 1877, a donation of \$2,000 by wealthy Chinese merchant Cheang Hong Lim went to the building of a monkey house where a small collection of animals was kept. The monkey house was an ornamental iron structure that was octagonal in shape with a dome top (above). The zoo closed in 1903 due to a lack of funding and some of its animals were sent to the Calcutta Zoological Garden. 



THE GARDENS' SENTINELS

PLANT PORTRAITS

SOWING AN ORCHID GARDEN

FROM SEED TO BLOOM

ORCHID HYBRID STARS

A WILDLIFE BONANZA

# *A Haven For Nature*

## CHAPTER 3







*The Botanic Gardens is home to towering giants such as the Meranti Laut and Jelutong trees. Wildlife such as the crimson sunbird and Malayan monitor lizard flourish here. Occasionally, white-bellied sea eagles circle above the dense pocket of green. Beyond this fragment of primary forest are lakes which support aquatic wildlife. Experience the abundance and beauty of the Gardens' nature captured in the following pages.*

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# The Gardens' Sentinels

The Gardens' lush collection of mature trees has been a silent witness to the growth of the city state, and each tree has its own story to tell.

This is one of two Kapok heritage trees within the Gardens. NParks describes Kapok trees as having “buttresses wide enough to hide a baby elephant”. PHOTO: NPARKS





**This iconic Tembusu sits on the lawn above Swan Lake. It is believed to be more than 200 years old.**

PHOTOS: NPARKS AND JOYCE FANG






**This Senegal Mahogany was planted by the late Mr Lee Kuan Yew in 1980 to commemorate Tree Planting Day. He had launched a national tree planting campaign on June 16, 1963.**

ST PHOTOS: CHEW SENG KIM AND LIM SIN THAI



A large, spreading Cola tree with a thick trunk and many branches, casting shade over a paved path in a park. Several people are walking on the path, including a woman in a green shirt and colorful pants on the left, and a woman in a grey t-shirt on the right. The background is filled with lush green foliage and other trees.

This giant Cola tree, native to the tropical rainforests of Africa, is known for producing a bitter nut that is high in caffeine content. It is used in Africa to treat cough, asthma, malaria and fever. Its tree bark can also be used as a painkiller. This evergreen usually grows up to 50m in height. ST PHOTO: KUA CHEE SIONG





**Standing more than 50m high, the Malayan Terminalia or Jelawai Jaha tree at the junction of Liane Road and Lower Ring Road of Singapore Botanic Gardens is one of the tallest trees there. The tree, which has large spreading buttress roots and a wide conical and flat-topped crown, has been there for more than 150 years.**

**PHOTOS: NPARKS AND LIM YAOHUI**





This Teak tree dates back to 1884. The species which was introduced to Singapore hails from India, Myanmar, north Thailand, north-west Laos and East Java. Teak is known for its high quality timber. ST PHOTO: KUA CHEE SIONG





This Buah Keluak tree is described by NParks as "one of nature's monsters" as it is filled with poisonous hydrogen cyanide. Even so, methods have been devised to extract the oil from its seeds safely for cooking. In Singapore and Malaysia, the seeds are a key ingredient in Peranakan cuisine such as ayam (chicken) buah keluak. ST PHOTO: KUA CHEE SIONG



This Chicha, or Snake tree, on the slope above Main Gate Road near Swan Lake, produces flowers which resemble ballet tutus. The Snake tree has been planted in the Gardens since 1882. This particular tree was brought over from the Gardens' municipal nursery in 1937. ST PHOTO: LIM SIN THAI



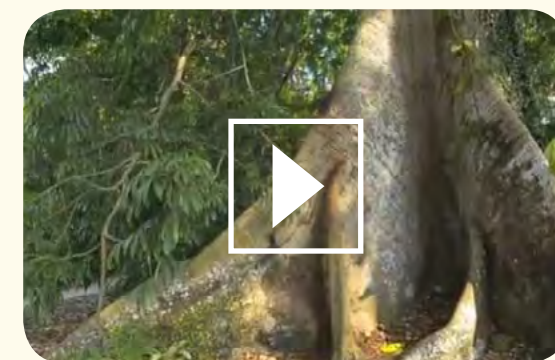
This White Gutta besides the Evolution Garden Walk is part of a collection introduced to the Gardens by Henry Ridley. Latex from White Gutta trees was used to insulate early undersea telecom cables. ST PHOTO: LIM SIN THAI





The beautiful Cannonball tree has always fascinated botanists with its form and unique botanical features. For instance, unlike other trees which bear flowers and fruits on their branches, the Cannonball's massive trunk is intertwined with thick long stalks that bear large showy flowers and huge rounded fruits resembling cannon balls. This tree was planted in 1931 from seeds collected by assistant director E.J.H. Corner from tree specimens he found in Colombo, Sri Lanka.

ST PHOTOS: KUA CHEE SIONG



### **TAP VIDEO TO PLAY**

View five of the  
Gardens' heritage  
trees up close in  
this video.

(Internet connection  
required)



# Plant Portraits

**Botanical illustrations depict the form, colour and details of plant species.** In the past, such plant portraits assisted early physicians, explorers and botanists in their identification. Despite advancements in photography, the practice continues to thrive today. This is because this form of documentation is both aesthetically pleasing and scientifically accurate. The following selection of heritage tree prints are critical additions to the Gardens' collection of artwork which date back to the 19th century. They were produced by artist Waiwai Hove.



## *Calophyllum inophyllum*

This tree usually has multiple, massive trunks which results in a spreading crown of glossy, leathery leaves. It bears fruits in the shape of spheres that are about 3 to 4cm in diameter.





## *Lecythis pisonis*

There are three such trees in the Gardens which date back to the 1920s. They are also referred to as Monkey Pot trees as they bear fruit which resemble woody earthenware. These pots are filled with seeds that are popular with the Gardens' squirrels.

## *Dryobalanops aromatica*

This evergreen tree usually grows to more than 65m in height. Its leaves are lightly veined. It has nuts that take the shape of a shuttlecock with five wings that are about 6cm in length.



## *Alstonia pneumatophora*

This tree, also known as the Pulai Basong, is believed to predate the Gardens' establishment. It was part of the freshwater swamp forest along the western edge of the Gardens. This tree is associated with the pontianak (a she-demon in Malay and Indonesian folklore). It has tubular flowers that are pale yellow.





## *Alangium ridleyi*

This tree, also known as the Mentulang Daun Lebar, was named after Gardens' director Henry Ridley who died in 1956 at the age of 101. It is one of many species that other botanists named in his honour. It bears edible fruit and has flowers with long and narrow white petals that curve downwards. This tree can grow up to 40m in height.

## *Parkia speciosa*

This tree, also known as the Petai, has fat bean pods that smell like garlic. Its seeds are used in Malay cooking. Such trees can grow to a height of about 45m. They have sharply buttressed trunks which result in an umbrella-shaped crown of feathery leaves, and cream-coloured flowers that cluster together.



## *Kigelia africana*

This African Sausage tree was planted in 1931. It has beautiful deep-red flowers that hang unopened in long chains from every part of the crown at dusk. These bloom after dark and emit a smell attractive to bats. Its fruit is a yellow-grey pod with rough skin that can weigh up to 9kg.



## *Terminalia subspatulata*

After more than a century, this giant tree has soared to around 50m in height. In Singapore, wild populations of the tree can be found at Changi. It has leathery leaves which are curved inward at the edges and bluntly tipped. Its yellow-green flowers are inconspicuous.



## *Ficus kurzii*

This tree antedates the Gardens' establishment. It has a cathedral-like architecture of aerial roots and figs the size of marbles which ripen from pale yellow to orange or dark red.

## *Pentadesma butyracea*

This tree, with its whorled, horizontal branches and grey, fissured bark, was planted in the former Economic Garden. Mature trees of this species can produce more than 500 fruits at once with each one weighing more than half a kilogram. Each brown, ovoid fruit contains three to 10 flattened seeds. These seeds have 40 per cent fat content which are devoured by the Gardens' squirrels. It has pale green or pale red flowers. Their rancid smell attracts bats.







## *Adenanthera pavonina*

Planted around 1882, the Gardens' saga tree on the south slope of Bandstand Hill produces shiny and red heart-shaped seeds which visitors would often collect from its foot. Its leaves comprise nine to 15 pairs of asymmetric, oval leaflets. Its tiny, star-shaped flowers turn from cream yellow to dull orange. Its fruits are curved seed pods which coil up and split open when ripe, disbursing eight to 12 seeds each time.

## *Phyllanthus pectinatus*

This tree dates back to 1912. Its leaves are just 8mm in length. It also has small flowers which are attached to the underside of the tree's twigs. The tree bears round green fruits that are extremely sour.



## *Cyrtophyllum fragrans*

This botanical print of the ancient Tembusu on the lawn above Swan Lake showcases its trumpet-shaped flowers and tiny berry fruits ripening from orange to red.



# Sowing An Orchid Garden

The birthplace of South-east Asia's orchid industry has its roots in the Singapore Botanic Gardens.





The tombstone of Armenian horticulturist Agnes Joaquim (right) in the memorial garden of the Armenian Church on Hill Street. The Vanda Miss Joaquim which was named after her, is Singapore's national flower. PHOTOS: THE NEW PAPER AND NADIA WRIGHT

**Early Singapore, with its primary forests and mangrove swamps, was home to 228 species of native wild growing orchids.**

But by the 19th century, and over the following century, many species became threatened as large swathes of land were cleared for development such as gambier and rubber plantations.

In 1928, then director Richard Eric Holttum started an orchid breeding programme in a laboratory at the Gardens. He wanted to increase the variety of plants for landscaping the island.

He was inspired by the Vanda Miss Joaquim – a hybrid spotted in the garden of Agnes Joaquim at 2 Narcis Street, Tanjong Pagar, in 1893. This plant had been taken to Holttum's predecessor Henry Ridley.

Holttum picked orchids for his mission, as some can produce lasting flowers throughout the year.

But the difficulty lay in ensuring their successful germination, since orchid seeds are the tiniest of flowering plants and can be as small as dust.

Things changed when German orchidist Professor





Hans Burgeff visited Holttum. The professor brought with him information on the latest germination method called the asymbiotic flask culture method from botanist Louis Kundson at Cornell University.



PHOTO: THE NEW PAPER

Speaking to The Straits Times, the Gardens' orchid and breeding department's principal researcher Dr Yam Tim Wing (left) said the Knudson method was a "spectacular improvement over nature, efficiently producing masses of seedlings in sterile culture flasks".

This technique requires the use of agar to solidify chemicals and minerals found in nature such as potassium, nitrate, phosphate and sugar on a culture medium. Dr Yam said it allows the seeds of many tropical orchids to germinate easily.

By 1931, the Gardens produced its first hybrid flower – the Spathoglottis Primrose – a robust yellow and pink orchid.

Since then, the Gardens has registered more than 500 hybrids with the Britain-based Royal Horticultural Society, a 211-year-old organisation that is the international registration authority of orchid hybrids.



Dr Yam said the Gardens is the only gardens in the world contributing to the propagation of orchid hybrids on such a scale. “There is no other garden that has such an extensive orchid breeding programme.”

The other contributors to the Royal Horticultural Society list include hobbyists and commercial nurseries. Internationally, more than 110,000 hybrids have been crossed in cultivation across the globe, with more than 3,000 new orchid hybrids added annually.

The Gardens focuses on breeding two main groups of orchids found in Asia – the dendrobium and vandaceous orchids. These are “showy, flower through the year, and long lasting”, said Dr Yam.

The Gardens continues to tap on the latest methods and technologies. About a decade ago, it adopted a method called the induction of tetraploidy where the chromosomes of an orchid are doubled to increase the quality of flowers such as their colour intensity, size, shape and ability to last.

“This is exciting because we add value to the orchids in the laboratory. You can see the differences from the start as the plant grows compared to the control plant,” he said.

The Botanic Gardens has also created new artificial hybrids such as the Ridleyara, Holttumara and Kiattanara – named after its directors including Dr Kiat W. Tan.





The Duke and Duchess of Cambridge pictured with the Papilionanda William Catherine hybrid named in their honour at the National Orchid Garden in September 2012. The British royal couple were in Singapore as part of their tour of the Asia-Pacific region to mark the Queen's diamond jubilee. ST PHOTO: KEVIN LIM



In all, the Gardens has named about 200 orchid hybrids after very important guests such as foreign dignitaries and another 20 after celebrities. The National Orchid Gardens on its grounds is home to a total of 2,000 types of orchid hybrids.

Dr Yam has bred more than 200 orchid hybrids since he started in the orchid hybridisation department at the Gardens in 1991.

His favourites include the Papilionanda William Catherine hybrid for its pink specks and white base, the Kiattanara Serzh Sargsyan and Spathoglottis Lion of Singapore – his first tetraploid hybrid.

Dr Yam, who has been with the Gardens for 24 years, also kick-started Singapore's first native orchid conservation programme, reintroducing more than 20 of the endangered native species in nature areas such as Bukit Timah Nature Reserve, Pulau Ubin and on roadside trees and other parks.







PHOTO: KUA CHEE SIONG

**The Botanic Gardens' orchid breeding programme was started by Eric Holttum in 1928.** Holttum later introduced the asymbiotic flask culture method to horticulture communities in Singapore and Malaysia. This boosted the local orchid nursery industry and paved



the way for Singapore's flourishing orchid export trade. Today, the Gardens' nursery aims to produce 20 to 30 quality hybrids every year.



## **1. Defining the objective**

The team sets out the desired qualities of the hybrid - its flower count, shape, size and its ability to grow and last.





## 2. Identifying the parent plants

The team selects the appropriate parent plants, sometimes travelling overseas to acquire parent plants. After returning, the plants are screened to ensure they can grow well here.



## 3. Cross-pollination

The botanist plays the role of an insect, helping to pollinate the plant. A piece of sturdy, fine-tipped material such as wire is used to retrieve pollen from the male parent and deposit it onto the female parent.

## 4. Developing the fruit (left)

If fertilisation is successful, the fruits will develop and ripen over the course of a few weeks to a few months. Within these fruits are thousands to a million dust-like seeds. They are sown in the laboratory using the symbiotic seed germination method. In the laboratory, the fruits are sterilised and sliced open to extract the seeds, which are then placed in an agar medium to germinate.



## 5. Growing orchid seedlings

After germination, the seedlings are grown for about a year.

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## 6. Transferring seedlings to nursery

Once the seedlings hit about 7 to 8cm in height (below), they are transferred to the nursery and grown in a small pot for about six months.







## **7. Repotting mature orchid plants**

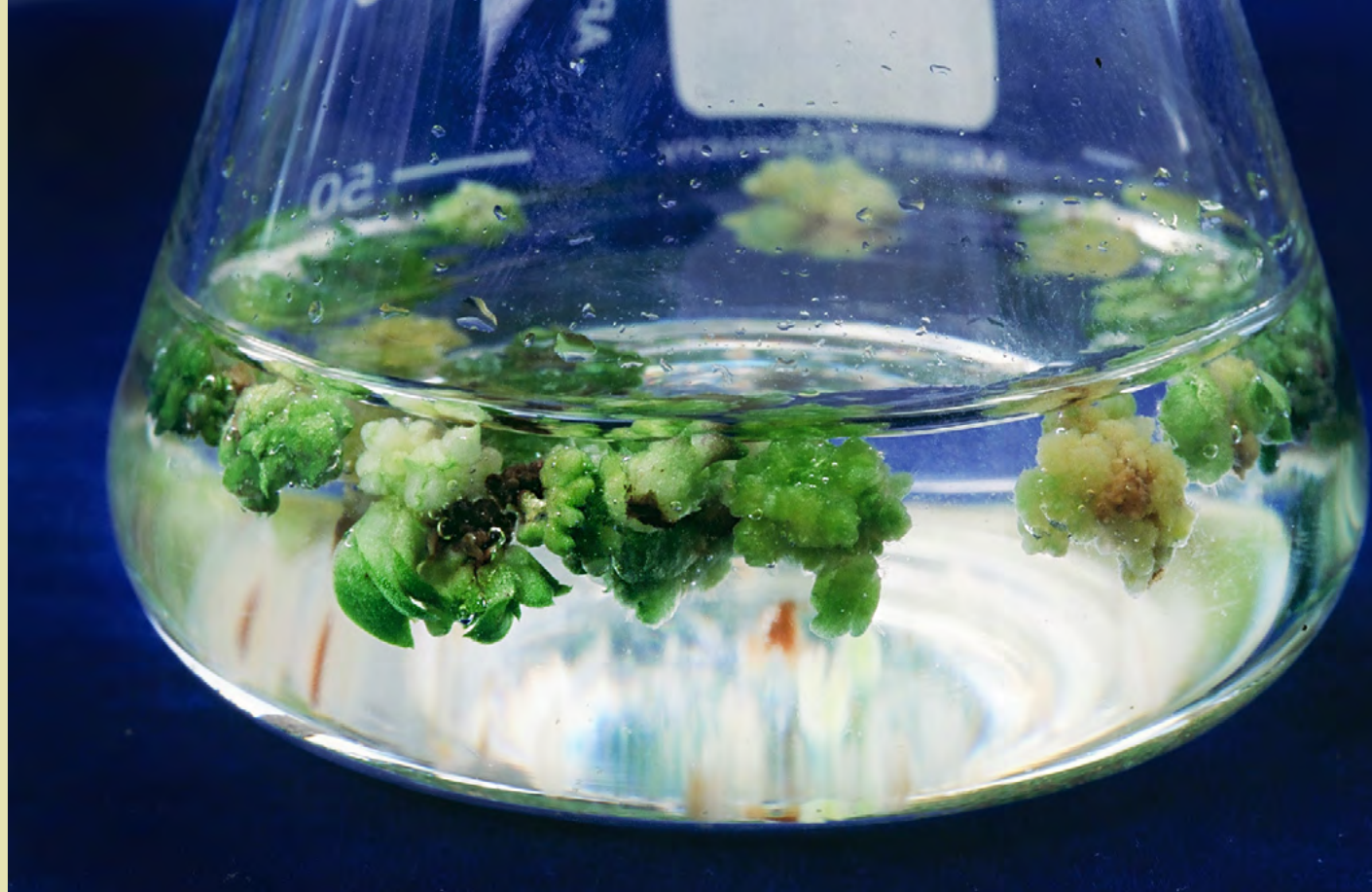
Once each plant has developed a healthy root system, they are transferred into individual pots. They can take between one and four years to flower.

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## **8. Selecting the best hybrid**

The team selects the best plant from the lot, rigorously culling those that do not meet standards. The best plants are typically set aside for the Gardens' VIP orchid naming programme.





## 9. Cloning the hybrid

Using the micropropagation or tissue culture method, the best plant is cloned. This involves extracting the plant stem cells and multiplying them in a special culture medium with some plant hormones to stimulate growth.

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## 10. Naming and registering the bloom

Once the new hybrid is named, it is registered with the Britain-based Royal Horticultural Society.





# Orchid *Hybrid* Stars

These are some of the stars of the Gardens' orchid hybrid programme which has produced an array of dazzling sprays since the first hybrid, the *Spathoglottis* Primrose, was created in 1929.

The *Ridleyara Fascad* is the first trigeneric hybrid comprising the genera *Arachnis*, *Vanda* and *Trichoglottis*. Registered in 1962, the new genus was named after former Gardens' director Henry Ridley. PHOTO: DR YAM TIM WING, SINGAPORE BOTANIC GARDENS AND NPARKS







**Aranthera Anne Black is the first  
VIP orchid. It was named after Lady  
Black, the wife of former Governor of  
Singapore, Sir Robert Black, in 1956.  
PHOTO: DR YAM TIM WING, SINGAPORE  
BOTANIC GARDENS AND NPARKS**






The Sealara Nelson Mandela was named in honour of the former president of South Africa when he visited the Gardens in 1997.

PHOTO: DR YAM TIM WING, SINGAPORE  
BOTANIC GARDENS AND NPARKS





The Dendrobium  
Memoria Princess  
Diana, a vigorous  
and free-flowering  
hybrid named in  
memory of Diana,  
Princess of  
Wales in 1997.


PHOTO: DR YAM TIM  
WING, SINGAPORE  
BOTANIC GARDENS  
AND NPARKS





The Papilionanda William Catherine is a free-flowering hybrid that bears many attractive flowers. Its petals and sepals are white with purple red spots, and its outstanding lip is dark purple. Registered in 2012, the hybrid is named after the Duke and Duchess of Cambridge. ST PHOTO: KUA CHEE SIONG





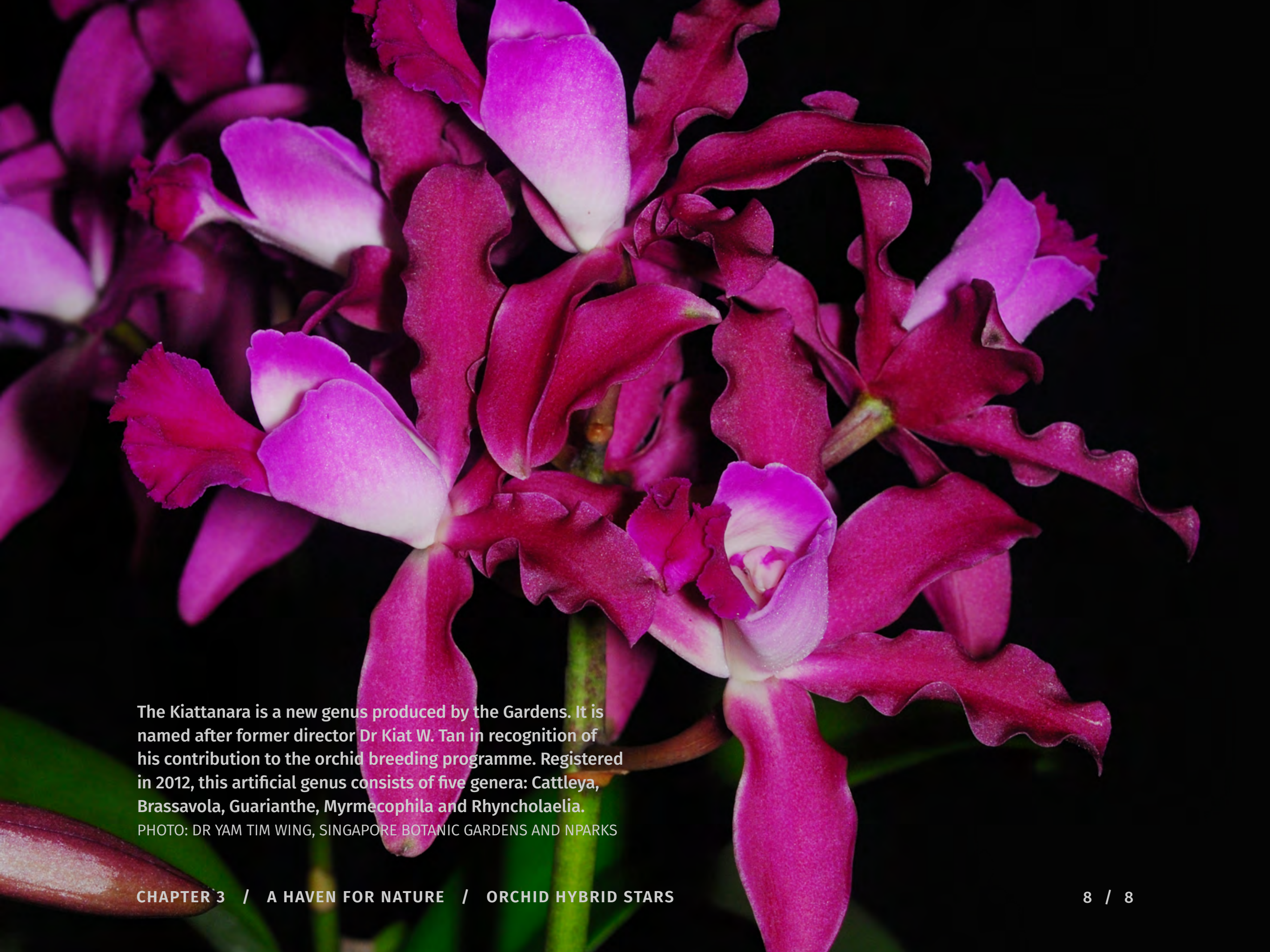
The Holttumara Cochineal is the first trigeneric hybrid made up of the genera Vanda, Arachnis and Renanthera. Registered in 1958, the artificial genus was named to honour Eric Holttum for pioneering orchid hybridisation in the Gardens. PHOTO: DR YAM TIM WING, SINGAPORE BOTANIC GARDENS AND NPARKS





The Dendrobium Margaret Thatcher was named after the former prime minister of the United Kingdom, during her visit to the Gardens in 1985. PHOTO: DR YAM TIM WING, SINGAPORE BOTANIC GARDENS AND NPARKS





The Kiattanara is a new genus produced by the Gardens. It is named after former director Dr Kiat W. Tan in recognition of his contribution to the orchid breeding programme. Registered in 2012, this artificial genus consists of five genera: Cattleya, Brassavola, Guarianthe, Myrmecophila and Rhyncholaelia.

PHOTO: DR YAM TIM WING, SINGAPORE BOTANIC GARDENS AND NPARKS



# A Wildlife *Bonanza*

An impressive array of wildlife calls the Botanic Gardens home. Swans, turtles and koi grace the Gardens' emerald green lakes while shier creatures such as the many-lined sun skink lie deep in its Rain Forest – unperturbed by the bustle in the Gardens' core sections.

Spotting red dots and white streaks on its wings, reminiscent of the five stars and crescent moon on the Singapore flag, the Common Rose or *pachliopta aristolochiae* asteris was voted as the “national butterfly” in a contest held by the Nature Society Singapore. The butterfly feeds on the nectar of flowers and is found mainly in forests including the Botanic Gardens' Rain Forest.

PHOTO: CRAIG WILLIAMS, SINGAPORE BOTANIC GARDENS, AND NPARKS





The Gardens is also populated by bees which do their part to pollinate its flowers. This is a species of amegilla which was photographed at the Jacob Ballas Children's Garden with a *leea rubra* shrub. PHOTO: CRAIG WILLIAMS, SINGAPORE BOTANIC GARDENS, AND NPARKS



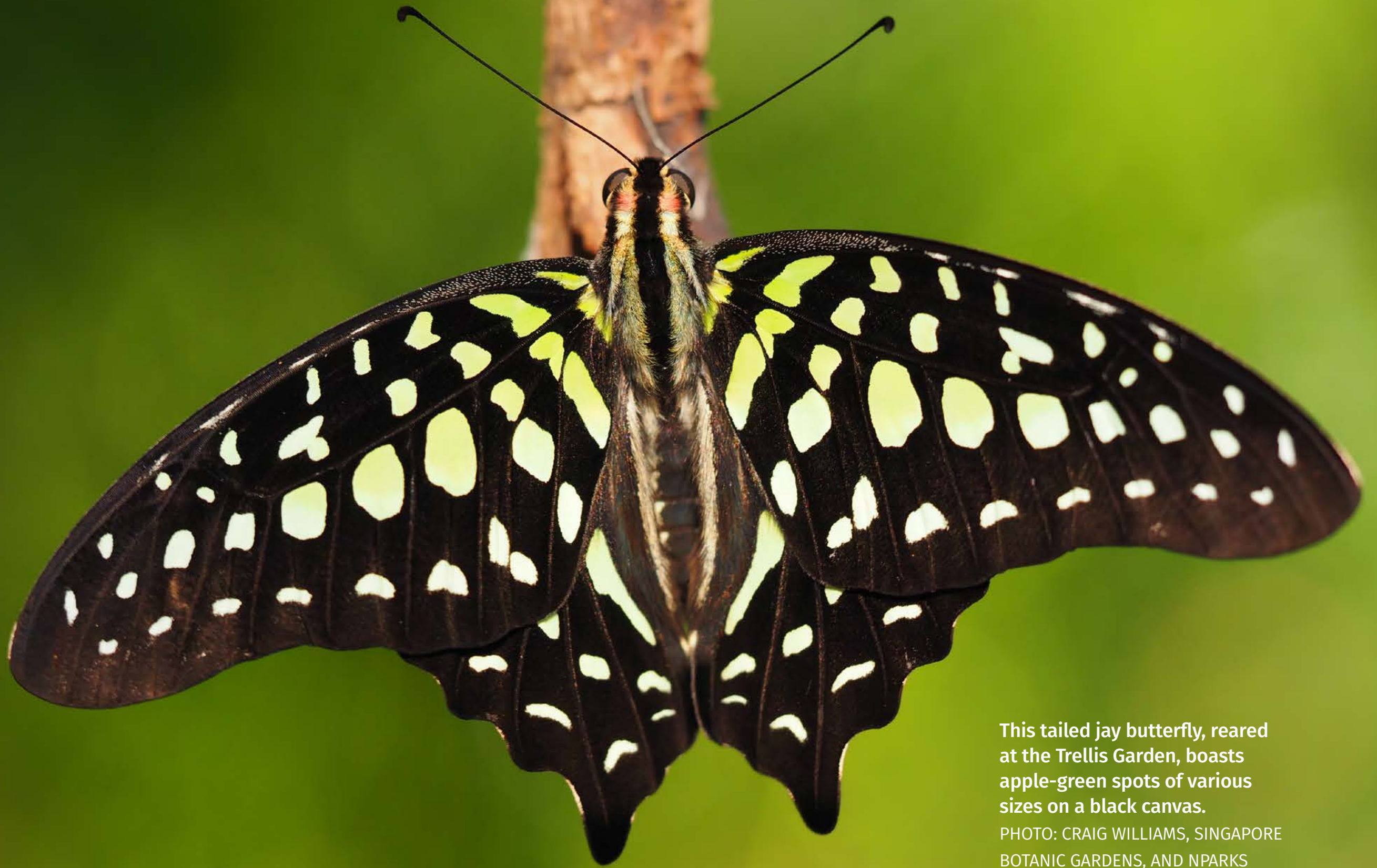


**Weighing about 9g, these bamboo bats roost in the stems of bamboos, and eat insects such as termites. Their existence in the Gardens was first recorded by Henry Ridley in 1908.**

PHOTO: CRAIG WILLIAMS, SINGAPORE BOTANIC GARDENS, AND NPARKS







This tailed jay butterfly, reared at the Trellis Garden, boasts apple-green spots of various sizes on a black canvas.

PHOTO: CRAIG WILLIAMS, SINGAPORE BOTANIC GARDENS, AND NPARKS





The crimson sunbird is a small and active bird with a brilliant red plumage that can be spotted at the Singapore Botanic Gardens and near forests. PHOTO: NPARKS





The banded woodpecker with red and brown feathers, dwells in lowland primary rainforest. PHOTO: NPARKS





The stork-billed kingfisher is rarely sighted in Singapore due to its shy nature. The bird's large and heavy bill helps it to catch and kill prey such as fish. It also eats crabs, frogs and lizards. PHOTO: NPARKS





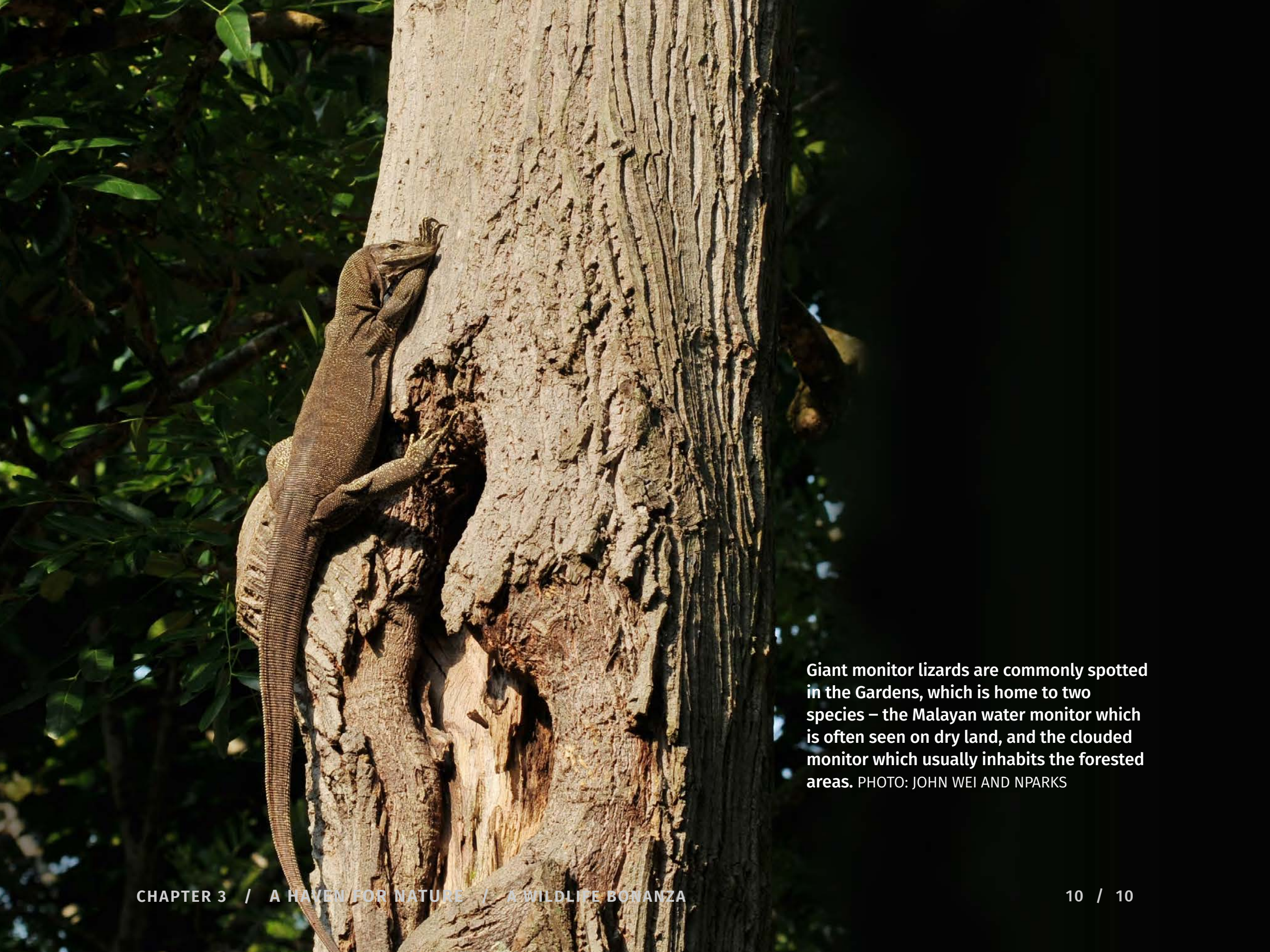
The yellow-bellied bittern is a small, solitary bird with a short neck and longish bill. It hunts alone using its powerful bill to catch prey such as small fish and frogs. It is most active at dawn and dusk. The bird nests in places such as reed beds and man-made canals. PHOTO: NPARKS



An otter was spotted  
enjoying its meal at the  
Botanic Gardens' Swan  
Lake in October 2014.  
ST PHOTO: LIM YAOHUI







Giant monitor lizards are commonly spotted in the Gardens, which is home to two species – the Malayan water monitor which is often seen on dry land, and the clouded monitor which usually inhabits the forested areas. PHOTO: JOHN WEI AND NPARKS



THE BANDSTAND | BURKILL HALL | SWAN LAKE | THE GARAGE | RIDLEY HALL | FORMER FIELD ASSISTANT'S HOUSE

HOLTTUM HALL | CORNER HOUSE | THE GALLOP BUNGALOWS | SECRET WORLD WAR II AIR-RAID SHELTER | CHINESE GRAVES

# *A Home To Landmarks*

## CHAPTER 4





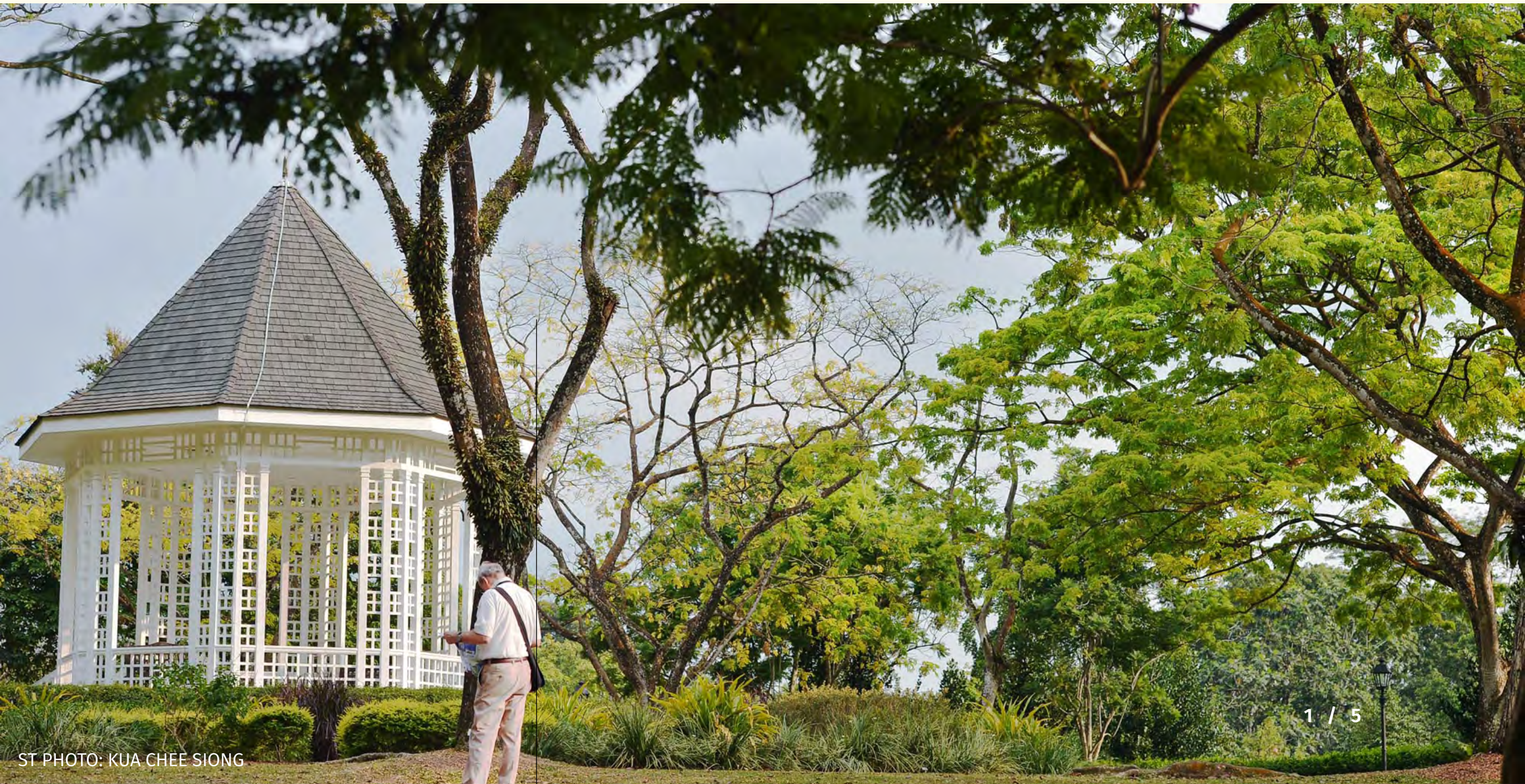


*Historic structures representing different milestones in local residential and global architecture dot the Gardens. These buildings offer visitors a glimpse into the lifestyles of the Gardens' directors and the premises where scientific research, botany and experimentation were conducted.*

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# The Bandstand





The 1930 octagonal Bandstand, with its latticework columns, balustrades and cornice, was the setting and stage for early evening performances by military bands for many years. Bandstands were treasured features and focal points of Victorian public parks.

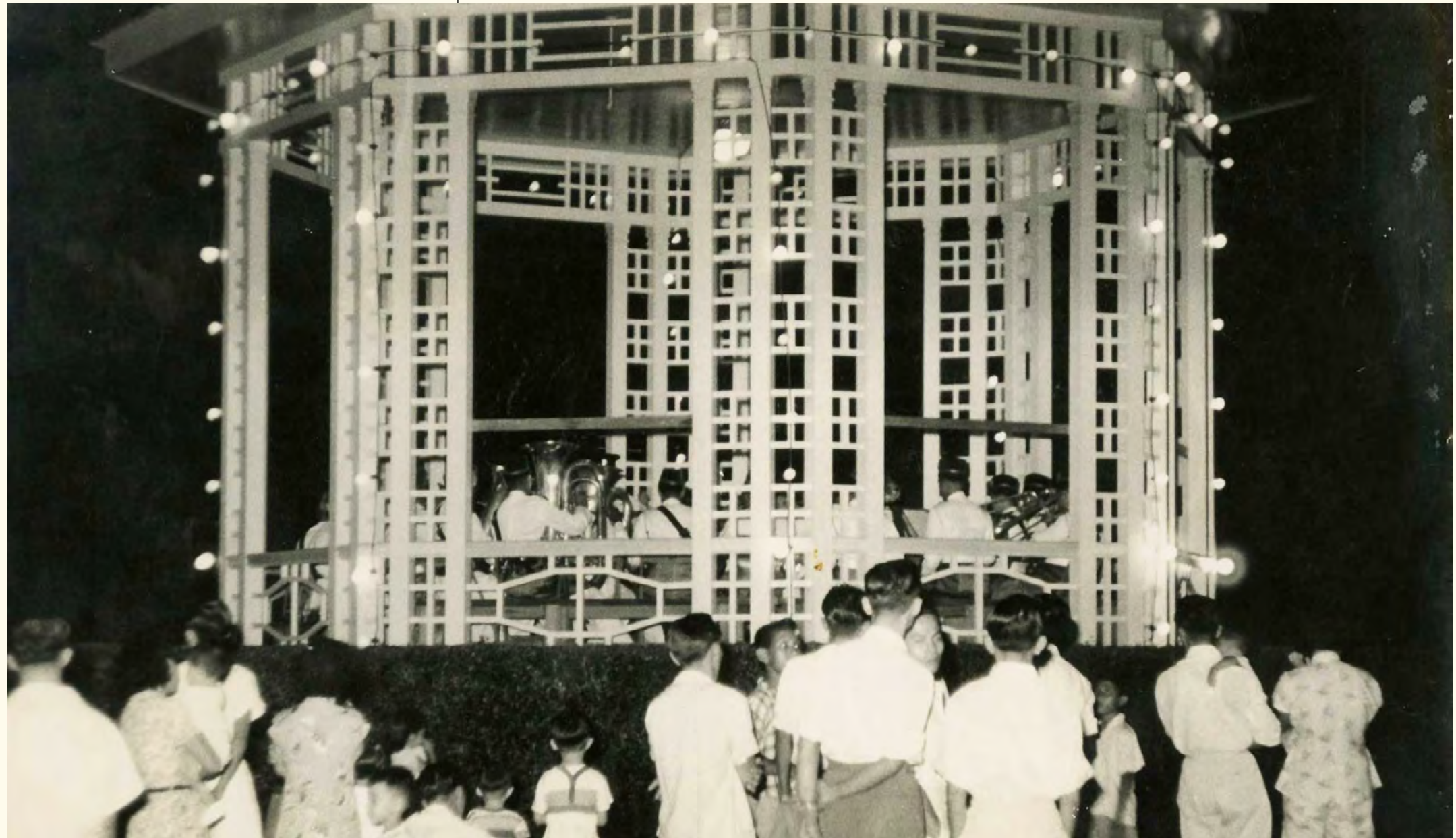


PHOTO: SINGAPORE BOTANIC GARDENS





This must-see Gardens' landmark is tied to the stories of many courting couples, some of whom have gotten married here. PHOTO: ST FILE







# Music In The Gardens

**A crowd gathered at the Botanic Gardens for the first Aneka Ragam Ra'ayat opened by Prime Minister Lee Kuan Yew in 1959.**

ST PHOTO: LOW YEW KONG



Music has been played throughout the Gardens' history. Records show that band performances started there from as early as 1861. The band would play there twice a week every evening from 5.30pm. This continued throughout the Gardens' history – even during the Japanese Occupation when the Syonan Police Band performed Japanese and European pieces. The band would then end off with the Japanese national anthem Kimigayo.

In 1959, the first in a series of multicultural concerts called the Aneka Ragam Ra'ayat or People's Variety Show, was launched at the Gardens by founding Prime Minister Lee Kuan Yew. The open-air cultural concerts were held there till 1964 and included Malay drama and ronggeng music, Tamil devotional songs, Indian classical dances, Chinese lion dance displays, Peking opera, and Western classical music and folk performances. These shows had been organised by the Ministry of Culture. 🌿



# Burkill Hall



Mistaken as a black-and-white bungalow for more than 50 years, the historic 1868 Burkill Hall will be returned to its original white palette in 2016.

The two-storey bungalow, now a popular wedding venue, will have its black window and door frames, timber beams and railings repainted.

This comes after Gardens director Nigel Taylor discovered that the structure is actually an Anglo-Malayan plantation-style house. It is the last one standing in the region, and possibly the world.

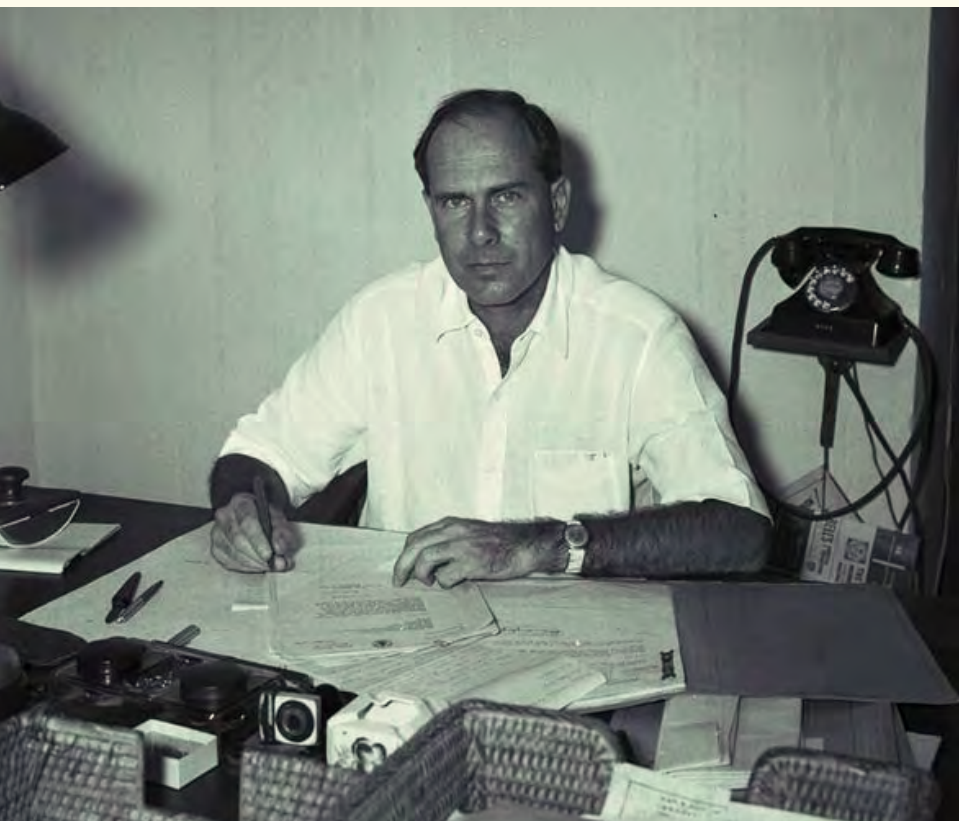
While researching on the Gardens' structures, he found that Burkill Hall pre-dates the black-and-white style, which appeared here only in 1898.

Photos of Burkill Hall from the late 1800s up till 1959 also showed it clad in white paint. Dr Taylor said the Public Works Department,



ST PHOTO: YEO KAI WEN





ST PHOTO: LOW YEW KONG



#### **TAP VIDEO TO PLAY**

Get a preview of some of the Botanic Gardens' historical spots in this video. (Internet connection required)

which likely did not know as much about the building's history, painted it black and white in the 1960s.

The repainting project is part of an overall effort to conserve the heritage features and retain the authenticity of the Botanic Gardens' original structures and features.

On Burkill Hall, he said: "It's something much older and much more special (than a black-and-white). To recognise that, we now need to redecorate it in the style it was originally decorated."

Designed like a farmhouse, Burkill Hall was built to function without electricity. For instance, it has verandahs on the east and west sides to create a wind-tunnel effect.

Such plantation houses were common in Orchard Road, which was dominated by nutmeg plantations in the 1840s and 1850s.

These homes made way for development alongside the decline of the crop from 1857 due to disease.

Constructed by contracted builder "Ah Wang" at a cost of \$4,000, Burkill Hall served as the residence of the Gardens' superintendents and directors for more than 100 years.

These included former directors Isaac Henry Burkill and his son Humphrey Morrison Burkill (top left).

The hall, which was named after them, was conserved in 2008. 🌿



# Swan Lake

Dating back to 1886, the Swan Lake is the earliest extant ornamental water body in Singapore.

ST PHOTO: DESMOND WEE



The lake which was designed to emulate British pleasure gardens, was incorporated into the Gardens in 1866. This required a "wide promenade with a large body of water" as well as "scattered trees on mown grass". The gazebo (below) on the edge of the lake is the oldest structure in the Gardens. It was built in Britain and originally located at the Old Admiralty House on Grange Road. The cast iron structure was dismantled and transported to the Botanic Gardens in 1969. 🌿



ST PHOTO: URA



# The Garage

This Art-Deco two-storey building used to serve as a garage for college professors. Conserved in 2014, it has seven bays, each with a half-round arched entrance, and was built against a slope. Located near the Foliage Garden, it was completed in the 1920s. 🌿





# Ridley Hall

Built in the early 1880s, Ridley Hall is one of the oldest structures in the Gardens and the earliest surviving administrative building. It started out housing the Garden's herbarium and library collections. Made of brick and plaster and featuring a pitched tiled roof, it was later used by Henry Ridley as his office and laboratory. Today, the structure functions as a meeting space and hosts individuals such as visiting experts. 🌿



# Former Field Assistant's House

PHOTO: SINGAPORE BOTANIC GARDENS

Completed in 1919, the house was used for a period of time by the Gardens' Field Assistant, who conducted research there. The building is now used as office space by NParks.





# Holttum Hall

Completed in 1921, the Edwardian style Holttum Hall was the office and laboratory of Eric Holttum.

Conservation experts say that the two-storey colonial bungalow with its lych gates – featured at the entrances of some English church compounds – could have been influenced by the British vernacular style. It has housed the Gardens' Heritage Museum since 2013. 🌿



PHOTO:  
SINGAPORE  
BOTANIC  
GARDENS





# Corner House

Author John K. Corner, son of Edred John Henry Corner, pictured in front of his father's house in 2013. The late Corner lived there when he worked as assistant director of the Gardens from 1929 to 1945. The younger Corner examined his father's life and research in the book *My Father In His Suitcase: In Search Of E.J.H. Corner The Relentless Botanist*. ST PHOTO: CHEW SENG KIM



Built in the 1910, the two-storey symmetrical black-and-white bungalow near the Symphony Lake was named after Eldred John Henry Corner, the assistant director of the Gardens from 1929 to 1945. Corner had specialised in mycology and the ecological study of tropical forests. It now houses a restaurant. 🌿

**Prime Minister Lee Hsien Loong (far right) and his wife Ho Ching hosting Chinese President Xi Jinping and First Lady Peng Liyuan to a four-course lunch at Corner House in the Botanic Gardens in November 2015. An orchid hybrid, called the Papilionanda Xi Jinping-Peng Liyuan, was named after the visiting dignitaries who were in Singapore on a two-day state visit. PHOTO: FACEBOOK PAGE OF LEE HSIEN LOONG**





# The Gallop Bungalows





These two historic structures became part of the Singapore Botanic Gardens' new 82ha compound in November 2015.

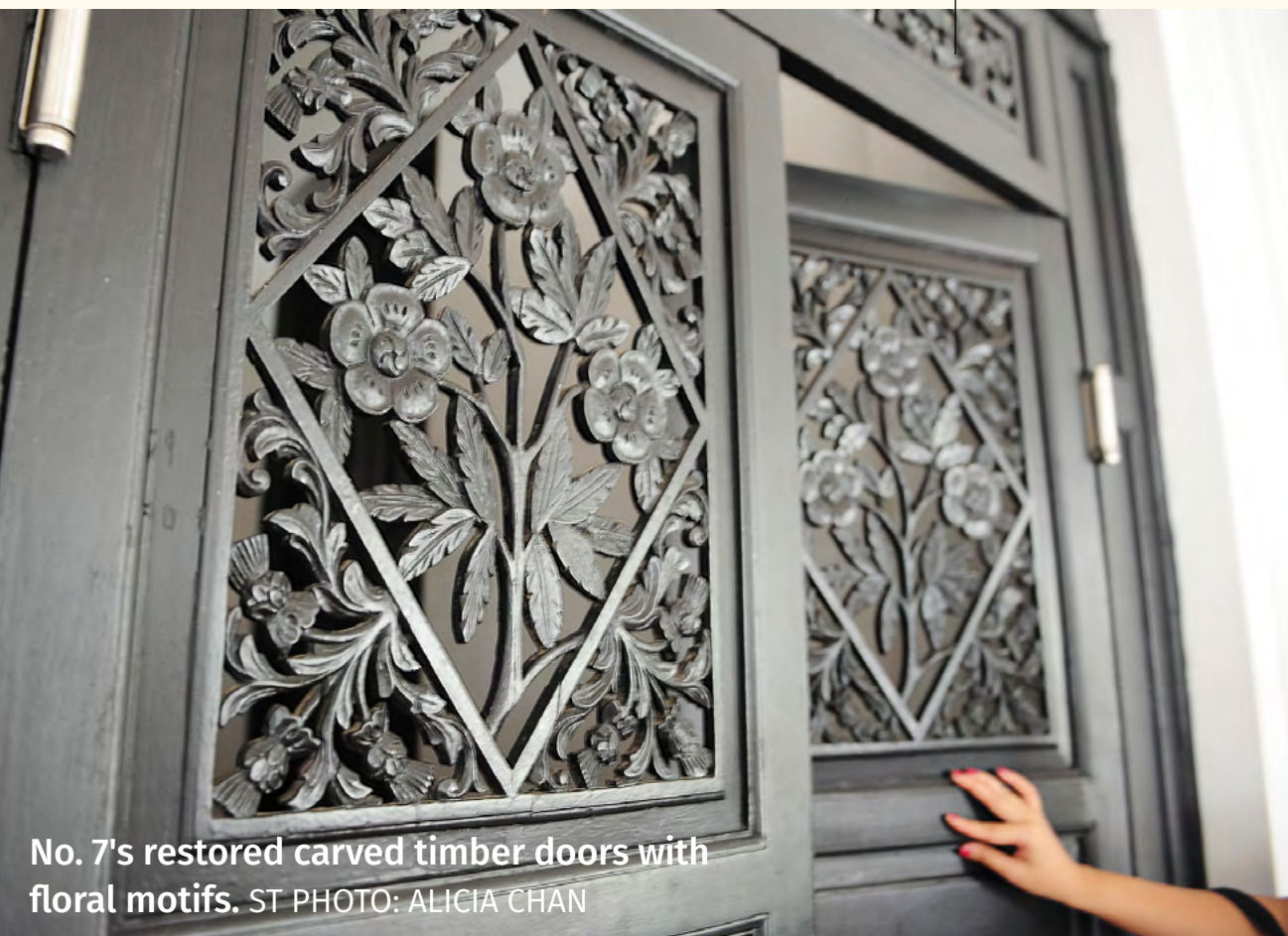
By 2018, the No. 5 bungalow (above) will house the new forest conservation interpretive centre, while No. 7 will be home to the Unesco World Heritage Site's first natural art history gallery.

The buildings situated on rolling grounds were restored in 2011 and 2012 by SA Chua Architects. The URA documented the houses and guided the restoration work.

The URA describes No. 5 as a “major milestone” in the development of the black-and-white style in Singapore. The 1898 house is the earliest known and oldest surviving black-and-white building here, according to the book *Black And White: The Singapore House 1898-1941* by Julian Davison.

The two buildings hark back to a time when the area featured large country estates owned by rich landowners. The Gallop Road area was often used as exercise grounds for horses.

The two newly-restored bungalows were developed by architect Regent Alfred John Bidwell, who also designed national monuments Raffles



No. 7's restored carved timber doors with floral motifs. ST PHOTO: ALICIA CHAN





The second-storey sitting room of No. 7 has full height windows that allow ventilation and expansive views of the surrounding greenery.

ST PHOTO: ALICIA CHAN



and Goodwood Park hotels.

No. 5's front carriage porch is influenced by gothic architecture. It also has a stairway and columns with Moorish ornamental features not usually found in black-and-white houses.

Also known as Atbara, the 1,111 sq m house at No. 5 was owned by John Burkinshaw, a member of the legislative council who also established one of Singapore's oldest law firms.

In 1903, the house and its surroundings were sold to Charles MacArthur, one of the earliest chairmen of the Straits Trading Company. He built No. 7, a 1,270 sq m house known as Inverturret.

The glass windows of the 1906 No. 7 (left) were made using the 14th-century crown glass technique in which glass is spun into small panes.

Both houses were bought by the Straits Trading Company in 1923, then leased to the French government for its embassy and ambassador's residence between 1939 and 1999. 🌿



ST PHOTO: ALICIA CHAN



# Secret World War II Air-raid Shelter



On the fringes of the Botanic Gardens sits a secret World War II air-raid shelter that had gone undetected for decades.

The approximately 4m-tall, 5m-wide, 10m-long sand-coloured shelter was shrouded in thick vegetation, and a towering ficus tree had taken root above it.

The structure was discovered only in 2012 by a staff member who had been wandering through the area. Describing it as “rather impressive”, Gardens director Nigel Taylor said about 2.5m of earth had to be removed before its door was found.

In 2014, NParks commissioned a team of archaeologists from the Iseas-Yusof Ishak Institute to study the area.

To access the bunker, the team had to break through its entrance, which had been sealed with bricks and a layer of cement plastering.

Nothing was found within but researchers said the shelter’s layout – two antechambers at its entrance leading to a larger main chamber – was likely designed to diffuse a direct blast from the entrance or act as smoke or fire stops.

Researchers added that the lack of ventilation shafts meant that the shelter had probably been designed to protect important property or records and was not intended to house people.

Its date of construction is unclear, but it appears in a 1948 aerial



photograph. Iseas archaeologist Lim Chen Sian, who led the study, said the structure could have been built around the 1930s in the lead-up to the war.

It is unclear who used the shelter as the area has changed hands multiple times throughout its history – from the old Botanic Gardens, to Raffles College, the Singapore University, the National Institute of Education and the former Singapore Management University.

While the Iseas report said that the structure could have been used by Raffles College, Dr Taylor's conjecture is that it may have been used by Japanese forces, which had occupied the college as their headquarters. 🌿

The entrance of the bunker which was broken through to study its layout and interiors.

ST PHOTO: JAMIE KOH





# Chinese Graves





The Gardens is also home to what is likely a family burial ground with three sets of old Chinese tombs – one of which is the oldest known Chinese grave still in its original location.

A team of archaeologists from the Iseas-Yusof Ishak Institute carefully excavated parts of the site, conducted topographic documentation and studied the tombs' iconography and inscriptions.

Iseas anthropologist and cemetery specialist Hui Yew-Foong said two sets of graves, dated 1842 and 1881, are significant and provide “fertile material for studying the evolution of Chinese tombs in Singapore and the region”.

He said the 1842 grave gives an idea of the materials, workmanship and design used for the grave of a moderately wealthy Chinese family in early colonial Singapore.

The Iseas team said Qiu Zheng Zhi, who lies in the 1842 tomb (left), could have come to Singapore from Penang instead of from his ancestral home in Fujian, China.

Meanwhile, Qiu's wife, Li Ci Shu, had been given an honorific posthumous name to commemorate



ST PHOTO: JAMIE KOH



her virtues – a practice commonly seen in Bukit Brown, where such names are found conferred on female ancestors.

The researchers added that the 1881 set of tombs (below) is an early example of an inter-ethnic union. The husband, Huang Hui Shi, from Fujian, China, married a woman called Si Ma Ni, a non-Chinese name.



ST PHOTO: JAMIE KOH



**NParks' staff (from left) Cassandra Lew, Ada Davis, Gardens' director Nigel Taylor and Straits Times heritage correspondent Melody Zaccheus, explore the Gardens' ancient Chinese graves. Dr Taylor believes there's a possibility that the family buried there has historical connections with the Gardens. ST PHOTO: JAMIE KOH**

They believe this could have been a “transliteration” of the Indonesian-sounding “Nisma” and that she could have come from the Dutch East Indies.

Heritage enthusiasts had highlighted the presence of the tombs to the authorities in 2006, which led to NParks shelving its plans for a new extension for landscaped horticulture displays.

Dr Taylor drew up the proposed boundary of the World Heritage Site to include the graves to protect them. 🌿





MEMORIES OLD AND NEW

BORN, BRED AND WED AT THE GARDENS

MORE GROWTH FOR THE GARDENS

MAP OUT YOUR VISIT

# *Beloved By Generations*

## CHAPTER 5







*Elderly seniors practise gongfu and young women do yoga poses on its snaking pathways. The Gardens' rolling grounds have also been the site for picnics and strolls with pets while its verdant landscape has been the setting for graduation and wedding photographs for the past century.*

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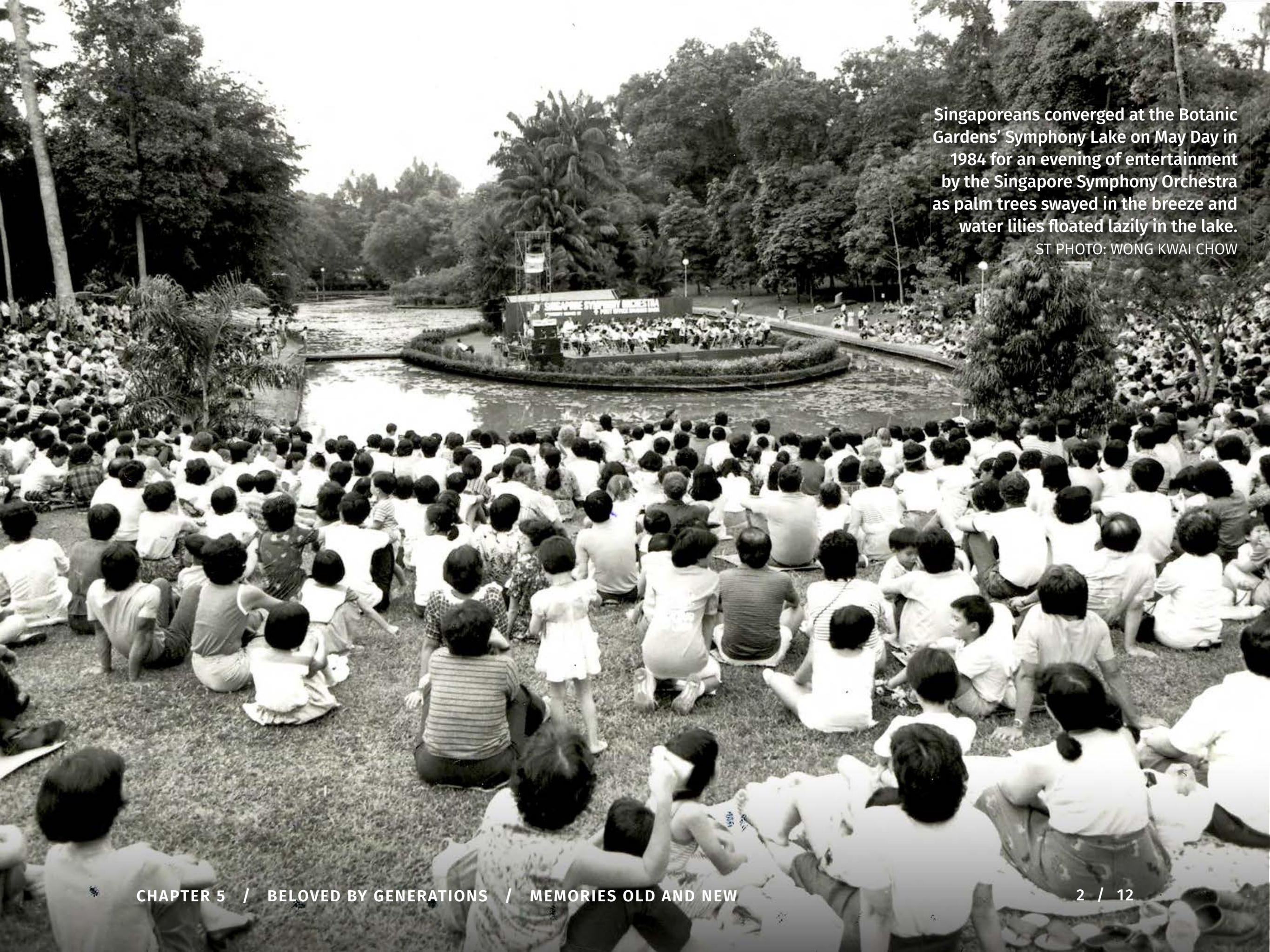


# Memories Old and New

Visitors share their favourite spots in the historic space







Singaporeans converged at the Botanic Gardens' Symphony Lake on May Day in 1984 for an evening of entertainment by the Singapore Symphony Orchestra as palm trees swayed in the breeze and water lilies floated lazily in the lake.

ST PHOTO: WONG KWAI CHOW





*I've been showing my friend around the Gardens. It's something to be proud of as it shows how green we are as a country."*

*- Fred Tan*

*The amphitheatre's lotus shape really blends well with the landscape. It's important to have such a green space in an urban setting."*

*- Wong Si-En*

Full-time national serviceman Fred Tan, 20, with his friend fresh graduate Wong Si-En, 20, a tourist from Malaysia. PHOTO: DIOS VINCOY JR FOR THE STRAITS TIMES






The Gardens has been a popular  
recreational space for decades.  
PHOTO: SINGAPORE BOTANIC GARDENS





Despite the tropical heat, it was a practice for some Singaporeans to converge at the Gardens in their festive finery to mark special occasions with family and friends. PHOTO: ST FILE





Undergraduate Farah Diyanah, 24, with her mother Esah Isa, 60, a security officer, and her nieces (from left) Sarah Arissa Mohammed Elias, 6, Iliya Qistina Mohammed Elias, 8, and Shireen Arianna, 2.  
ST PHOTO: JAMIE KOH

“The children get quite excited about the swans, fishes and turtles here that’s why we always come to this area. There’s nowhere else in Singapore you can see swans roaming about like this.”

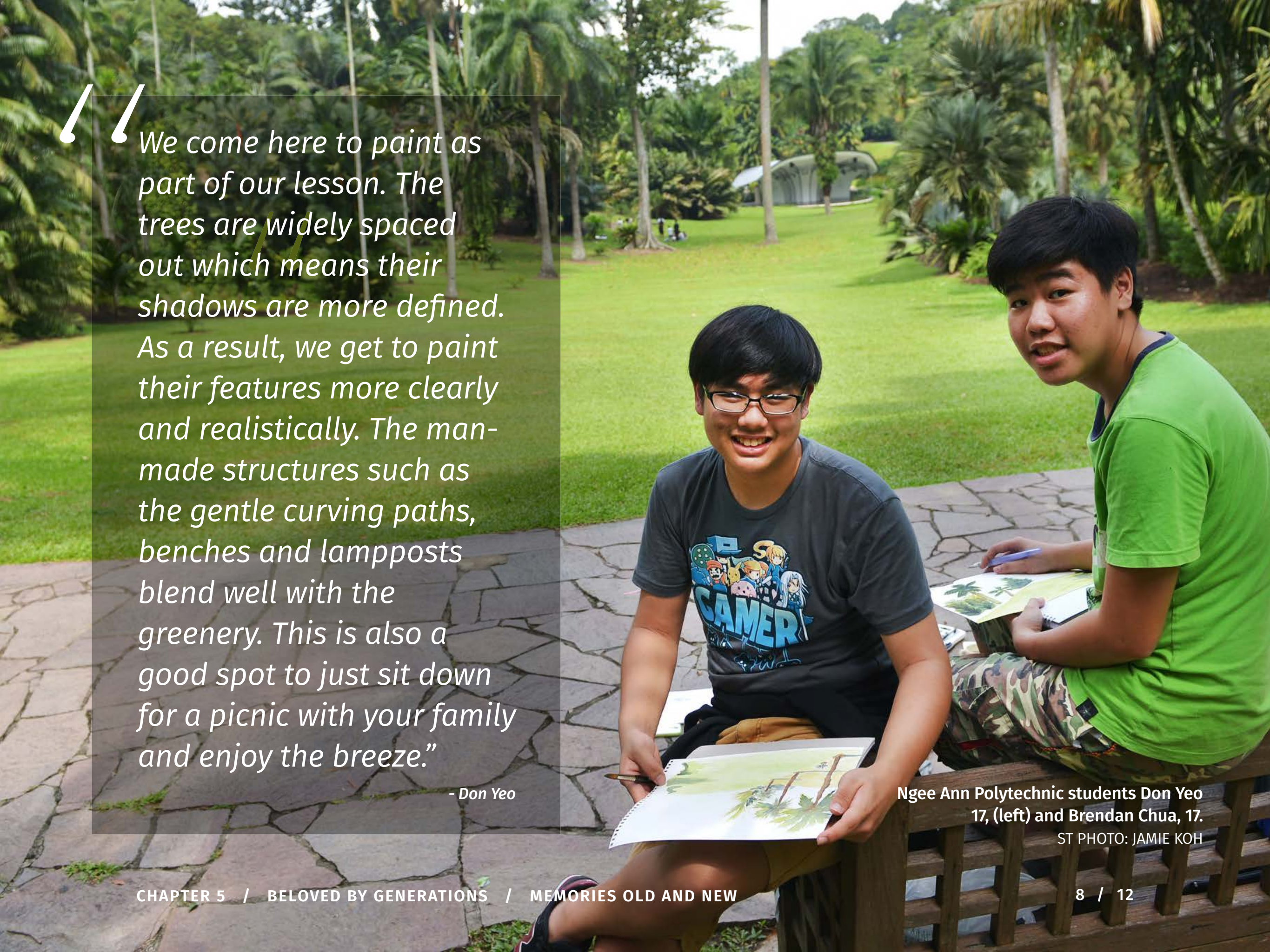
- Ms Farah





This 1971 photo taken on Hari Raya Haji shows boys rolling and revelling on the gentle slopes of Palm Valley. ST PHOTO: LOW YEW KONG



A photograph of two young men sitting on a wooden bench in a lush, green park. The man on the left, wearing a black t-shirt with a 'GAMER' graphic and glasses, is smiling and holding a sketchbook with a drawing of a landscape. The man on the right, wearing a bright green t-shirt and camouflage pants, is also holding a sketchbook and looking towards the camera. The background is filled with tall palm trees and a well-maintained lawn. A semi-transparent text box is overlaid on the left side of the image.

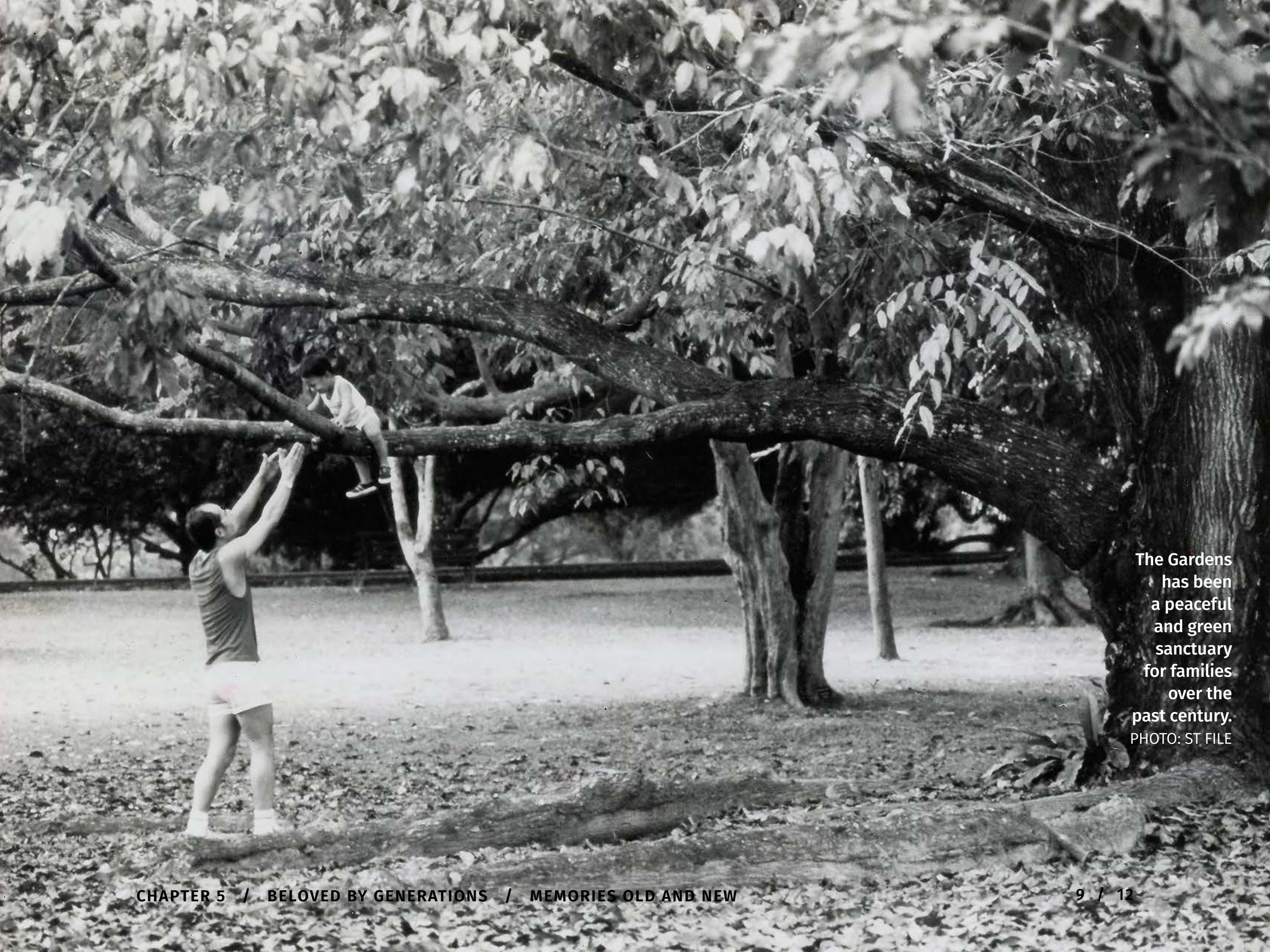
*We come here to paint as part of our lesson. The trees are widely spaced out which means their shadows are more defined. As a result, we get to paint their features more clearly and realistically. The man-made structures such as the gentle curving paths, benches and lampposts blend well with the greenery. This is also a good spot to just sit down for a picnic with your family and enjoy the breeze.”*

*- Don Yeo*

**Ngee Ann Polytechnic students Don Yeo 17, (left) and Brendan Chua, 17.**

**ST PHOTO: JAMIE KOH**





The Gardens  
has been  
a peaceful  
and green  
sanctuary  
for families  
over the  
past century.  
PHOTO: ST FILE





*The Ginger Garden  
is special to me...  
It's a very  
enchanted and  
alluring space."*

- Ms Koay Ai Hua, 62,  
a nanny with her charge,  
undergraduate Ng Jacin, 19

PHOTO: DIOS VINCOY JR  
FOR THE STRAITS TIMES



A photograph of a young man and woman standing together in a lush, green garden. The woman, on the left, has long dark hair and is wearing a patterned top. The man, on the right, has short dark hair and is wearing a white t-shirt with a graphic print. They are both smiling at the camera. Large, vibrant green leaves are in the foreground, partially obscuring the couple. The background is filled with more greenery and trees.

*It's our first time in Singapore. We heard that it's been crowned a Unesco World Heritage Site so we came here to explore. We've really enjoyed our time at the Ginger Garden and the Swan Lake. It's a beautiful garden."*

*- Indian tourists Anita Sabavath, 26, a post graduate student, and Rathod Baddusingh, 29, a civil servant*

PHOTO: DIOS VINCOY JR FOR THE STRAITS TIMES





— Palm Court is a favourite spot for group exercises. ST PHOTO: LIM YAOHUI





# Born, Bred And Wed At The Gardens

**Madam Rasidah Zali has the Singapore Botanic Gardens in her blood.**

The horticulturist, 57, was born at the Gardens' old staff quarters where the Evolution Garden, near Symphony





PHOTO: RASIDAH BTE ZALI



**TAP VIDEO  
TO PLAY**  
Madam Rasidah  
shares her  
memories of  
growing up in the  
Gardens. (Internet  
connection required)

Lake, stands today.

The area was previously home to 50 families who tended to the flora at the Botanic Gardens.

Madam Rasidah's father and grandfather had also worked in the Gardens. While she is not sure what her grandfather's duties were, she said her father supervised the plant decorations for official functions and events from 1941 to 1989.

At 14, Madam Rasidah met a nurseryman named Ali Jasman whose job was to tend to the Gardens' seedlings and other young plants.

They married in April 1976 (left), when she was 17 and he, 23. The wedding was held at her family's quarters.

After giving birth to her first child, a boy, she started work as a horticulturist the following year where she drew a salary of \$3.60 a day.

Although she moved to Clementi when the quarters were demolished, she and Mr Ali continue to work at the Gardens.

For her, the Botanic Gardens will always be home.





# More *Growth* For The Gardens

Director Nigel Taylor in the  
Tyersall Learning Forest  
extension. ST PHOTO: NG SOR LUAN





# A Larger Learning Forest

**In November 2015, NParks announced that the Gardens would be expanded by 8ha.**

The expansion, about the size of eight football fields, will be added to the Gardens' Learning Forest at Tyersall Avenue. The extension will include the Gallop Arboretum, Forest Conservation Interpretative Centre and the Natural History Art Gallery.

This brings the Gardens' total size to 82ha, up from the 74ha when it was inscribed, and almost four times its original size in 1859.

The Learning Forest area, which was destroyed by a fire more than a century ago, has naturally regenerated over the decades. Today, about 190 plant species have been recorded in the Tyersall area, of which 29 are critically endangered.

The upcoming attraction is expected to take some pressure off the Rain Forest by spreading visitors more evenly across the larger



space. The expansion is in line with the Gardens' site management plan for its Unesco bid.

The new trees to be planted there include forest species such as the Tualang and Kempas, which are some of the tallest in South-east Asia.

Walks will be rolled out to feature trees with interesting forms and barks such as the Hantu Duri, Gelam, Tembusu Hutan and Pelawan. Rare fruit and nut trees such as wild durians, persimmons, oaks and chestnuts will be showcased in the forest, alongside a collection of diverse bamboos in Asia.

It will also house a freshwater swamp forest with boardwalks and viewing decks to bring visitors closer to the flora and fauna.

Dr Taylor said swamp forests are usually “unpleasant, impenetrable places” which are hard to see in Singapore. “So we're trying to re-create a user-friendly swamp forest so people can see and experience what it is like in a safe and educational way.”

Some of the freshwater swamp species which visitors can look forward to include the Borneo Olive and the Malayan giant frog. Parts of the Tyersall Learning Forest are expected to be ready later in 2016.





# More attractions at the Jacob Ballas Children's Garden

**The Jacob Ballas Children's Garden is also  
set to get an upgrade.**





The space, which aims to help the young understand the ecology of plants through adventure play and experiential learning, will get new attractions such as a marsh garden, farm garden, stream garden and rainforest adventure section.

The rainforest adventure section will comprise a network of canopy tree huts and rope bridges nestled in the tree tops.

Children will get to wade into the shallow waters of a mini marsh and observe and interact closely with the plants and amphibians that thrive in such a habitat while learning about the ecosystems of the marshlands.

Users will also get to experience and learn about the growth cycle of economic plants by taking charge of plots, sowing seeds in a nursery, re-potting them and harvesting the crops.

The Stream Garden will be built around a cool, shaded woodland creek meandering through the heart of the Children's Garden.

When completed in 2018, the 4ha Children's Garden will be the biggest children's garden in Asia.



**Occupational therapist Tan Peng Chian and her husband, engineer Ian Koh, with their children Marissa and Benjamin, photographed at the Jacob Ballas Children's Garden in 2011. ST PHOTO: ALPHONSUS CHERN**



# New Ethnobotany Garden

**There are also plans for a new Ethnobotany Garden adjacent to the Foliage Garden, which will showcase how plants were used in the past. This is expected to be ready in 2016.**

## New heritage exhibition

**On the heritage front, Dr Taylor said the Gardens will be launching an exhibition at its CDL Green Gallery later in 2016, which will feature, among other things, details on the Unesco World Heritage Convention as well as some of the heritage sites in South-east Asia.**

“Now that we’re part of the club we can talk about it, you see,” Dr Taylor said.

He added that NParks has distributed a guidebook he wrote with a staff member Ada Davis to “every state secondary school in Singapore”. This, he said, is in line with Unesco’s strong emphasis on education. “Everything we are doing has and will have an education focus,” he said.



A photograph of Mr David Lim, a nursery manager, holding a potted orchid plant. He is an older man with glasses, wearing a white polo shirt and dark trousers. The orchid he is holding has long green leaves and a cluster of yellow flowers. In the background, there are many other orchid plants in pots, some with pink and yellow flowers. The setting appears to be a nursery or garden.

# Twice as many orchid types at upgraded National Orchid Garden

The garden will be given a \$35-million upgrade which will be completed by 2018.

Mr David  
Lim, nursery  
manager at the  
National Orchid  
Garden.

ST PHOTO:  
YEO KAI WEN



Visitors will get to see at least 2,000 orchid hybrids in its 3ha garden up from the current 1,000 in its collection. This is expected to be ready in 2018.



Visitors at the National  
Orchid Garden's Cool House.  
ST PHOTO: LAU FOOK KONG



The public will also be able to see more orchid species particularly those which grow at higher altitudes following the modification of the existing Cool House that will allow access to a second level.

The garden's bromeliad enclosure and Mist House will have better ventilation, misting and irrigation systems. The enhanced orchid nursery will come with a public viewing deck.

Visitors will also get to observe part of the orchid hybridisation process at the newly-renovated laboratory located at the Botany Centre.

Dr Taylor said people currently go to the National Orchid Garden to see the “wonderful orchid displays” but are not taught very much about them. “Orchids are remarkable plants and we ought to be telling people more about the life cycle of orchids and why they are significant globally as creeper plants,” he said.



**Simon Tan, the National Orchid Garden's assistant director, cross-pollinating orchids.**

ST PHOTO: KUA CHEE SIONG





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