



Prime Minister Lee Kuan Yew laying the foundation stone for Jurong Secondary School, 1963.

The Jurong Heritage Trail is part of the National Heritage Board's ongoing efforts to document and present the history and social memories of places in Singapore. We hope this trail will bring back fond memories for those who have worked, lived or played in the area, and serve as a useful source of information for new residents and visitors.

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JURONG HERITAGE TRAIL



Jurong Shipyard workers listening to a National Day speech, 1986.



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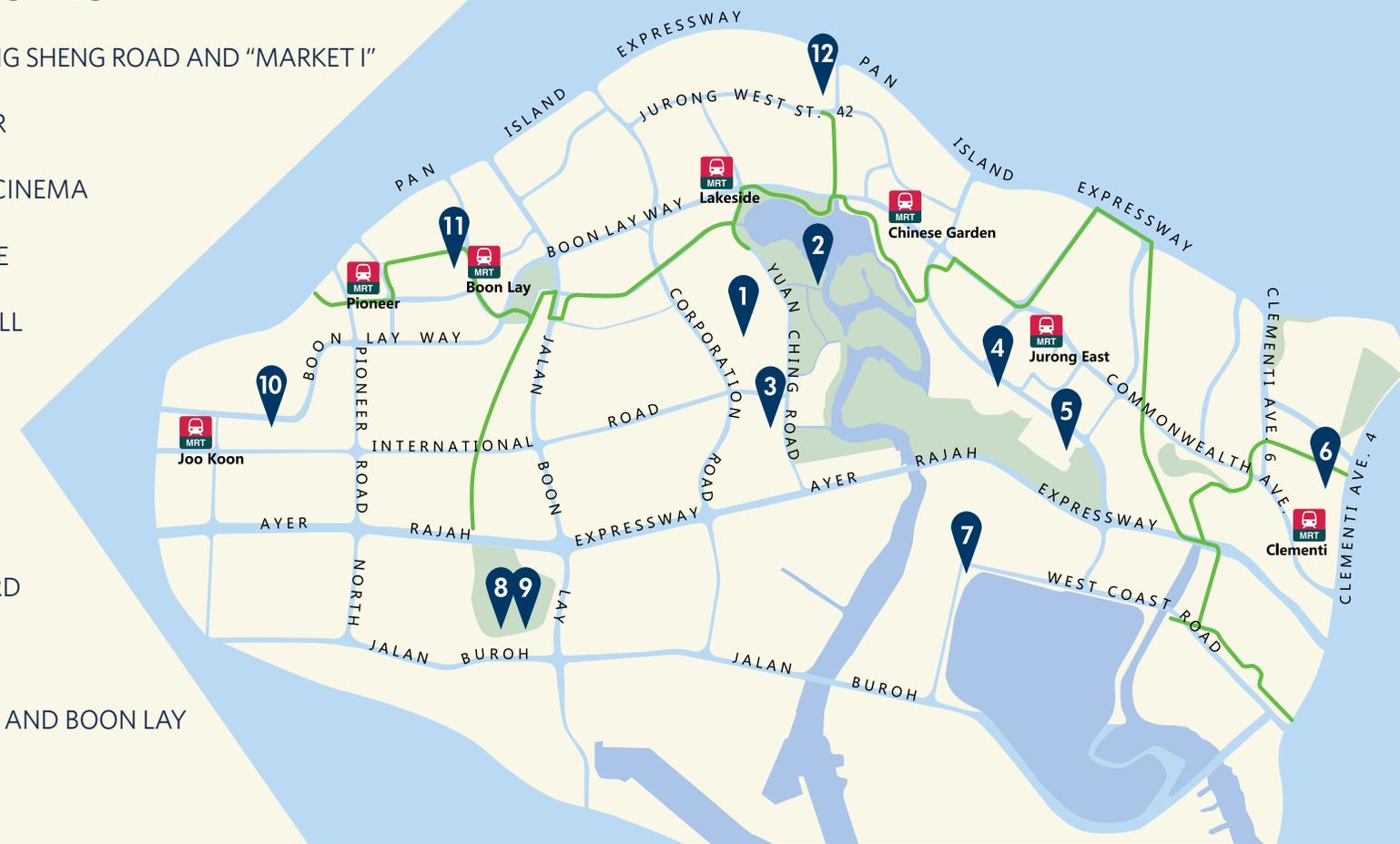
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» AREA MAP OF

JURONG HERITAGE TRAIL

MARKED HERITAGE SITES

1. "60 STALLS" (六十档) AT YUNG SHENG ROAD AND "MARKET I"
2. AROUND THE JURONG RIVER
3. FORMER JURONG DRIVE-IN CINEMA
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INTRODUCTION



Far. Industrial. These are two of the more common responses that the mention of Jurong elicits from Singaporeans. Others may remember factories, ports and shipyards that they or a relative worked at, with industry changing the lives of families and mirroring the wider national picture. Some will always associate with Jurong the smell of roasted cocoa, wafting to Boon Lay Bus Interchange from chocolate factories nearby. Those serving National Service or working in the military recall being challenged physically and mentally in camps in Jurong, including the seemingly endless charges up the merciless, almost legendary Peng Kang Hill.

While its transformation into one of the most significant industrial towns in Asia is undoubtedly the area's most familiar face, there are many more facets of history, culture and heritage that make up the Jurong story.

There's the ancient maritime trade route that wound through the waters off Pulau Samulun, today part of Jurong Shipyard. What is now Jurong Island was a maze of island hideouts, to which pirates would disappear into after raids on passing vessels. And then there were the gambier pioneers in the early years of the 1800s, paving the way for large-scale settlement in Jurong even as they permanently altered its natural environment. The kampong days

when Jurong was the *koo chye* (Chinese chive) capital of Singapore.

There was also the storied area of Tanjong Balai, today part of Jurong Port but previously a millionaire's estate, a spy and guerrilla training camp, where the Japanese military attempted to build a submarine base and the site of one of the first beauty contests in Singapore and Malaysia. The traffic jams caused by the former Nanyang University's opening, a day Jurong old-timers still recollect easily.

The industrial story too, presents a fascinating canvas of social histories. Many know that the Jurong Industrial Estate was initially considered to be such a gamble that it was labelled Goh's Folly, after its mastermind Dr Goh Keng Swee. Less well-known are the myriad, inventive ways Dr Goh engineered to ensure the survival of the industrial estate, including the threat of a tollgate to persuade workers to live in Jurong.

These are the stories, personal memories and narratives presented in this Jurong Heritage Trail booklet. They serve to shine a light on the way people lived, worked and played in the area, and shaped it in their individual ways. Through the sites highlighted in this trail, explore the legacies of old Jurong and immerse yourself in the tales of this ever evolving town.

EARLY HISTORY OF JURONG

HISTORICAL EXTENT OF JURONG

Like a number of other places in Singapore, the boundaries of Jurong have shifted with time, land use and ownership. The areas that we know today as Jurong West and Boon Lay were once Peng Kang, while Jurong itself was a smaller slice of land between Peng Kang and Bukit Timah, roughly where Bukit Batok is today. What is now Jurong Island was a cluster of small islands that guarded a significant sailing trade route and housed Orang Laut and Malay villages long before Sir Stamford Raffles landed in 1819.

The space that Jurong occupies in the public psyche too has defied the boundaries laid down

in official maps. In a 1911 map, the area marked as Jurong is only a fraction of the locale we know today, bounded by Jurong Road in the south, Choa Chu Kang in the north and west, and Bukit Timah Road in the east. However, community leader Ng Lee Kar (b. 1904), who lived in the area from the 1920s, remembered the extent of Jurong differently:

“Jurong, as I know, is bounded by Bukit Timah Road — so called seven miles (7th milestone). The extended road beyond 7 miles is called Jurong. From that road leading to the sea, and even to Pasir Laba, opposite Johor, is also called Jurong. Jurong encompasses a very broad boundary.”



Jurong and its surrounding areas in a 1911 map of Singapore.



Courtesy of Singapore Land Authority

Singapore mileage along roads, 1936. The line in red indicates Jurong Road.

His Jurong then, spanned Pandan and Peng Kang in the south and reached Tuas in the west. Ng's memories of Jurong as an area, like that of many Singaporeans, is shaped by the stretch of Jurong Road, the first part of which was laid from Bukit Timah Road between 1852 and 1853. This first section of the road ran from the 7th milestone of Bukit Timah Road to the head of the Jurong River. When exactly the rest of the road was constructed is not known, but by 1936 Jurong Road and Upper Jurong Road stretched from the 7th milestone to the 18th milestone at the Tuas coast in the west. Before the development of Jurong in the 1960s, Jurong Road was a two-lane carriageway, as Francis Mane (b. 1958) recalled:

"One way up, one way down. If there's a major accident, that's it. Really jialat (terrible)."

Tan Kim Leong (b. 1951) added:

"Two cars could barely squeeze past each other on Jurong Road. There were many accidents, because the road was very narrow and at night, there were

no lights. When Nantah (Nanyang University) opened in 1956, there were traffic jams all the way to the 11th milestone. That day, there was no way for us to travel along the road."

While the traverse of Jurong Road defined the area in popular memory, it is likely that the name itself came from Sungei Jurong. The river is named on a 1828 map from one of the earliest colonial surveys of Singapore, the Plan of British Settlement of Singapore by Captain Franklin and Lieutenant Jackson (see page 9).

The roots of the name Jurong is more of a mystery however. It may derive from the Malay words *jerung* (a voracious shark), *jurang* (a gap or gorge) or *penjuru* (corner). The area between Sungei Jurong and Sungei Pandan was named Tanjong Penjuru (Cape Penjuru).

In its pristine state before large-scale human habitation or development, the Jurong area comprised the three types of ecological habitats common to Singapore. The coastal and riverbank areas were largely mangrove

forests with an outer line of mud and sand, corresponding to today's Sungei Jurong, Jurong Lake, Sungei Pandan and Pioneer areas.

Further inland, making up today's Boon Lay, Jurong West and Jalan Ahmad Ibrahim was lowland Dipterocarp forest. The three Mass Rapid Transit (MRT) stations of Joo Koon, Pioneer and Boon Lay stand on what used to be freshwater swamp forest.

The Dipterocarp forests were denuded within a century of colonisation from 1819, through uncontrolled timber harvesting and forest clearance for agriculture. Mangrove forests,

habitats for a diverse range of wildlife and important for natural coastal protection, were gradually cleared for firewood, to make charcoal, timber for *kelongs* (fishing platforms) and boat building. In Jurong today, only small fringes of mangrove forest exist at the mouth of Sungei Pandan.

Freshwater swamp forests were associated with rivers and streams like Sungei Jurong, Sungei Pandan and their numerous tributaries, and were periodically inundated through rainfall runoff and water inflow from surrounding terrain. This produced a habitat that had different flora from Dipterocarp forests, and fertile alluvial soil (land formed by deposits from flowing water) that became highly sought after for agricultural land.

In 1932, Edred J. H. Corner, the assistant director of the Botanic Gardens, made a systematic study of one of the last remaining plots of the freshwater swamp forests of Jurong, to the south of the 15th milestone. He concluded that in terms of tree and plant species, Jurong was distinct from similar swamp forests in Mandai and the Pontian and Sedili River regions in Johor, with 15 tree species that were not found in the other areas.



Jurong was an area of mangrove swamps and jungle.



Sungei Jurong, with mangroves on the far bank.



Courtesy of Singapore Botanic Gardens

Scenes of Jurong's natural landscape in the 1930s.

THE ORANG LAUT AND EARLY TRADE ROUTES

These days, the sounds of Pulau Samulun are an industrial soundtrack of vessels being constructed and deconstructed. A small island facing the mouth of the Jurong River, Pulau Samulun is today home to Jurong Shipyard, but its maritime heritage stretches back centuries. An important clue to the identity of the first settlers in Jurong that we know of lies in its name — Samulun is derived from Sembulun, the name of one of the tribes of the Orang Laut.

The Orang Laut were sea and river-based nomads that have lived in Singapore and in

other parts of Southeast Asia since at least the 16th century, and likely earlier than that. Orang Laut *sukas*, or tribes, that were recorded as resident in Singapore when Raffles arrived in 1819 include the Orang Biduanda Kallang, the Orang Galang, the Orang Gelam, the Orang Seletar and the Orang Selat.

These tribes lived in places like the Kallang River, Geylang, Kampong Glam and the Seletar River, while a 16th century settlement around the Keppel Harbour area has been hypothesised to be home to the Orang Selat. While virtually nothing is known of the Orang Sembulun apart from their name, they may have been related to the Orang Selat, given their proximity.



Villagers standing by rubber trees on Pulau Samulun, 1963.

The Orang Laut shared a symbiotic relationship with the more settled Malays, often serving as the naval forces of a number of Malay kingdoms. However, the two peoples were culturally distinct until the 20th century, when the Orang Laut began to be assimilated into Malay communities in Singapore, Malaysia and Indonesia.

References to the waters around Pulau Samulun can be found from the 16th century, pointing to the fact that this area was a significant zone on the ancient maritime Silk Road. In his 1595 publication, *Reysgeschrift vande Navigatien der Portugaloyzers in Orienten*, Dutch author Jan Huyghen van Linschoten detailed sailing directions for a journey between Malacca and Macau, a leg of the venerable and lucrative trade routes between China, India and Europe. From the southern end of the Straits of Malacca, Linschoten describes an eastward route through the Selat Sembilan (“the first straits through which you

must pass”), after which the route passes between the mainland and Sentosa.

Linschoten based his instructions on the knowledge of Portuguese and Spanish navigators in the late 16th century. The Portuguese, who sought to avoid the Straits of Johor as they were often in conflict with the Johor Sultanate, used Orang Laut or Malay ship pilots known as *batins* to guide their vessels through the tricky, shoal and sandbank-laden waters of southern Singapore. Linschoten’s detailing of the Selat Sembilan showed that the strait was familiar to the Orang Laut and the Malays.

The nomadic Orang Laut gradually settled into kampongs after 1819, including Kampong Tanjong Kling, Kampong Damar Daut, Kampong Sungei Pandan and Kampong Penjuru in the Jurong area and nearby islands. These kampongs were said to be former pirate hideouts, with the raiders of the

straits assaying forth and then disappearing back into the bewildering maze of islands, mangroves and rivers they knew like the back of their hands.

While the Orang Laut were labelled pirates, particularly by European traders between 1819 and the 1830s, later scholars have taken a more nuanced view. Acts of piracy in the waters around Singapore were well documented, from the 19th century Bugis chronicle *Tuhfat Al-Nahfis* to numerous European accounts in the 1800s. The victims of piracy and violence on the straits were of every stripe of seafaring traders — from Malay and Bugis vessels to Chinese junks and European ships.

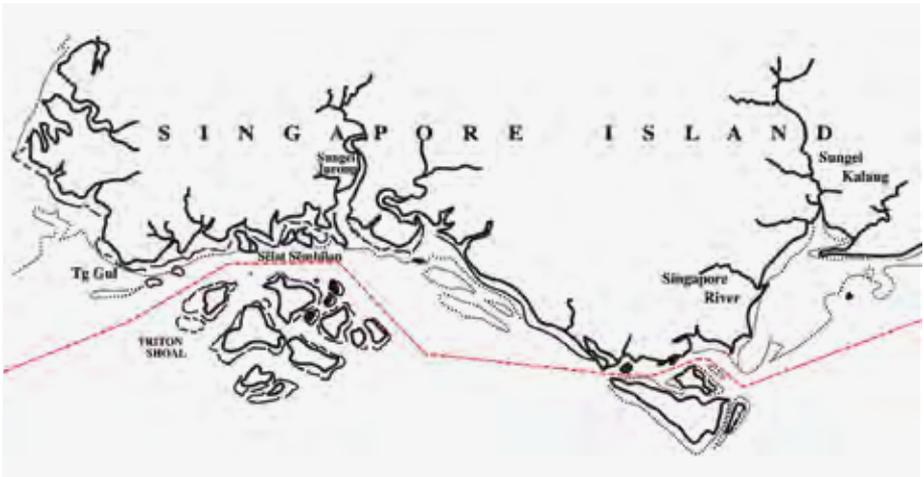
An account by author George Earl provides the 19th century European perspective:

“The Malay pirates absolutely swarm in the neighbourhood of Singapore, the numerous islands in the vicinity, the intersecting channels of which are known only to themselves, affording them a snug retreat...”

Earl went on to describe the pirate bands as originating from the leadership of local Malay chieftains, who gathered:

“as many restless spirits as he can muster, and sails for one of the most retired islands.... Here he erects a village as a depot for slaves and plunder, and then lies in wait with his armed perahus... Should the chief be eminently successful, he soon gains a large accession to his force, and his village increases to a small town, while his fleet of perahus becomes sufficiently numerous to be subdivided into several squadrons, which cruise in the various straits and channels.”

Captured vessels were plundered and burnt, and their goods taken back to Singapore to be resold by the pirates. Crews and passengers had the sad fate of being sold as slaves for plantation labour, and piracy occupied many a page of the European newspapers in Singapore in the 1830s. While violence and robbery on the seas undoubtedly occurred in that period, later scholars and historians have placed these acts in context (see box story).



Linschoten's navigational instructions published in 1595 were text-based. This illustration of the route is adapted from C. A. Gibson-Hill's 1954 paper *Singapore: Notes on the history of the Old Strait, 1580-1850*.

Raiders or guardians of the straits?

For centuries, the Malay and Orang Laut sea captains had derived their authority from local Sultans to patrol the waters and demand tribute from trading vessels. They acted as the naval forces of various sultans and were not rogue pirates — a distinction made clear by the existence of the *perompak*, sea bandits who enjoyed no royal sanction.

With the arrival of the British, Malay lines of control over the waters were disrupted. The subsequent acts of 'piracy' are now viewed by some scholars as rebel privateering during a time of conflict instead. A privateer was an armed vessel commissioned by a governing authority to attack the merchant shipping activities of their enemies.

Other scholars also note the British policy of free trade clashed with the traditional taxes imposed by Malay chiefs based at riverine settlements, and the British often classified such disputes as piracy. Whether the Orang Laut of Pulau Samulun and the early inhabitants of Jurong and the nearby islands, were pirates or rebels may well be a matter of perspective.

Apart from their naval exploits, the lives of the Orang Laut in the Jurong area were likely similar to those of other tribes elsewhere in Singapore and Southeast Asia. They carried out subsistence fishing, gathered plants and fruits from the forest for medicine and food, and utilised freshwater streams. The mangroves and swamp forests of Jurong would also have provided mangrove timber and Nipah palms for their homes and boats.

The northern section of Tuas was named Bajau in early 19th century maps, referencing another

Orang Laut group. Unfortunately, any knowledge of a possible Bajau Laut haven there has not survived to our times.

EARLY ACCOUNTS OF JURONG

Captain Franklin and Lieutenant Jackson's 1828 map details a number of natural features in Jurong



Kampong Teban, a fishing village in Jurong, in the 1950s.

including the Jurong and Pandan rivers, Pulau Damar Laut, the Selat Sembilan as well as the islands Pulau Pese (Pulau Pesek), Pulau Sakra, Pulau Butun, Pulau Saraya (Pulau Seraya) and Pulau Ayer Chawan. In the Tuas area, Tanjong (referring to a cape or promontory) Kampong, Tanjong Rawa and Tanjong Gull (Tanjong Gul) are named.

Interestingly, a well is marked on the mainland overlooking Selat Sembilan. A newspaper report from 1848 notes that the well at Ayer Trujun (Ayer Terjun) was well-known among the Malays for the quality of its water, second only to that of Pulau Ayer Brani. However, Ayer Terjun lies further up the Sungei Jurong, some distance from the well on the map.

In 1848, government surveyor John Turnbull Thomson surveyed the rivers and creeks of the island, and included notes on Sungei Jurong and Sungei Pandan. Thomson described Sungei Jurong as "a large creek which divides at the top into two branches, the east one being called by the Chinese the Jurong, and the west Peng Kang... The Chinese here are numerous



Map of Singapore by Captain Franklin of the East India Company's Quarter-Masters Department, prepared in the early 1820s.

and there are also several Malay villages." Sungei Pandan was "a large creek with Chinese and Malays (resident) at the head", while a tributary, Sungei Pandan Kichi, was unpopulated and not cultivated.

Thomson also observed *pukats* in both of the rivers — these were large, open boats that could seat up to 35 people and used for transporting trade goods particularly between coastal and riverine towns. It is likely that the *pukats* Thomson saw at Jurong moved gambier, pepper and other agricultural products to the markets and port in town for export.

Another early account of Jurong comes courtesy of one of the most infamous expeditions in world history. The American expedition of 1852–1853 led by Commodore Matthew Calbraith Perry is better known for forcing the opening of then isolationist Japan to world trade and diplomacy, but the expedition

also had stopovers in Singapore, Cape Town, Mauritius, Hong Kong and Shanghai.

In Singapore, the American East India Squadron of two frigates and two sloops-of-war surveyed the Jurong River and reported on the local flora, fauna and geography. Peter Wilhelm Heine and Eliphalet Brown, the expedition's two official artists, produced a lithograph that is the earliest known illustration of the Jurong River.

The print shows stilt houses typical of Malay kampong residences, a canoe with the United States flag on the river, the lush vegetation ubiquitous of Jurong at the time and a fire beyond the trees in the background. This possibly was a reference to the frequent fires in town in the 19th century. Two crude structures in the background, on the right of the print, seem to house fires and may represent the cauldrons used to boil gambier leaves for the industry then prevalent in Jurong.



Print of Jurong by Peter Wilhelm Heine and Eliphalet Brown, 1853.

Francis Hawks, the keeper of the expedition journal, described the surroundings thus:

"Inland, the surface of the country is diversified with low hills and shallow valleys, while the sea shore is low and overgrown with mangroves, and occasionally broken by the entrances of salty creeks, which, penetrating sometimes to the extent of six or seven miles, overflow their banks, and convert their neighbouring soil into marsh. The artists of the expedition have supplied a view of (Jurong), which will give an idea of the characteristic scenery."

The lithograph and the expedition reports on Singapore were later published in 1856's *The Narrative of an American Squadron to the China Seas and Japan*.

Another account of early Jurong comes from a 1904 newspaper report of a police raid on a currency counterfeiting operation deep in the jungles of Jurong provides an idea of the landscape, penetrable only with great effort:

"Last night at 10.45 Insp. Branagan and a party of detectives raided a house situated four miles from the 9th milestone Jurong Road in the jungle. It would have been a difficult matter even in daylight to get to the house, but at night it was extremely dangerous as the path led through dense jungle and swamp, and across many streams which were bridged by a single pole. Man-holes abounded and when the party arrived at the house they were rather done up and some presented a wretched appearance, having been unfortunate enough to fall into swamp holes."

THE GAMBIER PIONEERS: OPENING UP THE INTERIOR

While the Orang Laut and the Malays built their small villages along the Jurong River and in coastal areas, Jurong remained for the most part a pristine, forbidding snarl of jungle, swamp and large swathes of land saturated with mangroves. Tigers found isolated and rural areas like Jurong to be most amenable hunting grounds, while crocodiles thrived in the waterways in the area, staring laconically at travellers.

After the establishment of the British colony from the 1820s however, Singapore's population began to grow exponentially and while the majority of the new settlers stayed in town, some ventured into unknown country. Many of these newcomers were plantation owners and workers, and like a number of other places in Singapore's interior, the jungles of Jurong were cleared for agriculture and human habitation.

The new settlers were predominantly Chinese, with the Hokkiens in the majority, and they painstakingly scoured parts of Jurong of its jungle, carried out rudimentary land reclamation by filling in swamps and made a living the best they knew how.

The answer for most was gambier and pepper — complementary cash crops often planted together that promised riches but only delivered survival for all but a few fortunate individuals. Gambier's legacy was apparent from the naming of the Peng Kang area, now part of Jurong, from the Hokkien term for the boiling of gambier leaves as part of the production process.



A gambier and pepper plantation, 1900s.

The pattern of land clearance, crop cultivation and settlement evolved into the *kangchu* system in Singapore, Johor and other parts of Malaya. The *kangchus* (literally 'lord of the river' in Teochew) were Chinese headmen who organised labour, supplies, capital and the transport to markets.

They were often chiefs of the *kangkars* ('foot of the river' in Teochew) as well, a term that referred to riverine villages that handled the produce from the plantations and housed labourers as well as the entire plantation area linked to the settlement. The *kangchu* legacy lives on in the place names of Choa Chu Kang, Lim Chu Kang and Yio Chu Kang among others.

Bangsals were the plots of land on which the gambier, pepper and other crops were actually planted, averaging between 10 and 50 acres, and usually worked by nine or 10 men. Besides the planted plots, they contained *attap* and wood huts for the labourers, built cheaply from materials obtained from the surrounding forest, as well as cauldrons to boil the gambier.

Gambier, used in the dyeing and tanning industries in Asia and Europe, was a voracious crop however; it exhausted the fertility of the soil after a handful of years and cultivators moved on

to new ground, clearing yet more primary forest and jungle. Gambier leaves also needed to be boiled after harvesting, necessitating yet more felling of trees for firewood.

There were already some 20 gambier plantations in Singapore, owned by Malays and Chinese, when Raffles arrived in 1819, but a gambier boom in the 1830s after a surge in demand and prices led to an expansion of plantations into the north and west interior of Singapore, including Jurong. By the 1840s, there were around 600 gambier plantations across the island, worked by some 6,000 mainly Chinese labourers. Some considered the gambier industry a cornerstone of the economy, not by the export dollars it fetched, but by the number of jobs it created.

Other than the Orang Laut and Malays who lived on subsistence farming and fishing, the majority of people living in Jurong at this time worked in the plantations. A report to the Municipal Committee in 1855 provides a snapshot of the plantation industry in Jurong, listing 20 clearings (plantations) in Peng Kang, three in Sungei Jurong, 14 in Pulo Dammar (either Pulau Damar Daut or Pulau Damar Laut) and five in Sungei Pandan.

These contained more than 600,000 gambier trees, some 67,000 pepper vines and around 1,700 nutmeg trees. The local yield was 2,002 piculs of gambier, 1,498 piculs of pepper and some 7,625 nutmegs. The number of labourers working in these four locations — just under 300 — gives some indication of the population in Jurong at the time.

It is likely though that there were numerous plantations in the area not assessed in this report, a fact acknowledged by the report itself stating that plantation owners were "materially understating" their actual production. Other owners likely did not make themselves known to the colonial authorities, having set up their plantations without legal title.

A member of the Singapore Agricultural and Horticultural Society (the members of which were mainly European) provided an account of his visit to a Chinese-owned coffee plantation in Jurong in 1837:

"We pulled one to two miles from the mouth of the Jurong, landed on the left bank of the river, and after walking about a mile through the jungle came to the clearing, on the slope of a low hill. The soil appeared a rich, light mould, rather sandy. The forest trees had been cut down and allowed to remain as they fell, to decay in process of time. The ground was half covered with the stumps and felled trees, and in the clear spaces young coffee plants were inserted very much at random."

The observer from the society expressed surprise at the Chinese style of coffee planting, with the plants entirely without the benefit of shade but appearing to thrive. The differences between Chinese and European planters were also laid bare; the Chinese owner of the plantation contrasted his style of clearing land — merely chopping the trees down and leaving to them to decay amid his plantation — with the more elaborate and expensive methods used by the Europeans. In the long run, Chinese and Asian plantations of gambier and pepper would outlast European efforts with nutmeg, sugar and other spices in the 19th century.

For the most part, the Chinese planters were preoccupied with producing export-oriented cash crops, turning a profit and returning to China. Their success with gambier, pepper and tapioca economically surpassed all other agricultural efforts before the introduction of rubber, but their methods often left the soil exhausted and unusable after which they simply moved on to fresh ground, causing consternation among the European community.

Besides the fact that Singapore was rapidly being cleared of its primary forests and jungles, many Chinese planters did not pay rent for their plantations or taxes for their produce, as the colonial system of land taxation and assessment was dysfunctional until the late 1800s. The European complaints were valid, even if they were coloured by colonial prejudice. In a report

to the Legislative Council in 1883, the Colonial Engineer and Surveyor-General Major Henry Edward McCallum summed it thus:

"If the honourable members at the other end of the table had been out in the country districts as much as some of the Government members have, they would see the necessity of granting some such powers as we now ask for the protection of the lands of the Crown. Chinese have entered these lands without any claim or title, and they have cleared, chankoled, planted exhaustive crops, cleared out again, and left the country one vast desert. The districts of Jurong and West Bukit Timah furnish a specimen of what has been done."

While gambier was economically the most successful crop in Singapore in the 19th century, it did not prove the making of more than a few notable individuals. Most of the gambier planters were smallholders, having ventured into the jungle on capital borrowed from merchants in town. They were also obliged to purchase supplies from these merchants, and sell them their gambier at preferential prices.

Coupled with gambier prices that were often in flux in the mid-1800s, many smallholder planters made barely enough to cover their expenses. For this meagre living, they endured tropical diseases, unforgiving weather, robberies arising from a lack of effective policing in the rural areas and a series of communal conflicts that roiled the gambier industry from the 1830s.

Not all Chinese plantation owners worked their land without legal title. A newspaper advertisement from 1854 details estates put up for sale after the death of Keong Kong Tuan, including a nutmeg plantation at the 8th milestone of Sungei Jurong. Keong, a wealthy Peranakan merchant, was one of the first in the Chinese community to hold land titles recognised by the colonial administration.

In 1903, some 75 acres of agricultural land in Pulau Damar, Jurong, Tanjong Gul and Peng Kang was purchased by See Chuan Kiat for \$2,800. The sales implied the existence of legal title and legal recognition of the land holdings.

Forest reserves in Jurong and Tuas

By the late 1870s, the primary forests of Singapore had largely been denuded by decades of unregulated and unchecked forest clearance for cash crop plantations and farming. Around this time, the colonial government began to take an interest in the state of the island's natural forests.

An 1883 report found that the few remaining patches of uncut forests were isolated and surrounded by wide areas of lalang grass and brushwood, growing on abandoned gambier plantations. These represented 10% of Singapore's original forest cover, the rest having been lost in less than 70 years of human intervention.

A Forestry Department was set up in 1884 to safeguard remaining forests by demarcating and protecting forest reserve areas from illegal timber harvesting and clearance. Labourers employed by the department also marked and cleared boundary paths, built bridges and replanted native trees on former gambier land within the reserves.

Three of the forest reserves were in the Jurong area — a 166.7ha area around both banks of the snaking Sungei Jurong, a 874.9ha zone at Sungei Pandan (the largest on the island) and a 612.7ha area around Sungei Blukang, in Tuas. These areas contained swathes of mangroves, which were some of the most biodiverse habitats in Singapore. Growing around the many rivers and tidal swamps of both areas, mangroves contained the much sought-after *bakau* timber, used for firewood and in charcoal production.

The leaves of the *bakau* trees, which tended to closet together, made for some extremely shady areas in Jurong, as Haji Shafie Mohammad Arif (b. 1943) remembered:

“I tell you, after 4pm, you scared to go into the kampong already. 4pm you know! You can't even see sunshine! Because of the bakau

trees. The leaves all come together, as if you were walking in a tunnel.”

As director of the Singapore Botanic Gardens in the late 1800s, Henry Norman Ridley managed the forest reserves and instituted one of the earliest schemes for sustainable timber management, with harvested mangroves allowed to recover for several years. However, management of the forest reserves later came under the charge of the Collector of Land Revenue, who allowed indiscriminate logging. By the early 20th century, all of the mangrove forests in Singapore had been stripped of their *bakau*.

By 1936, the only remaining forest reserve in Jurong was the Pandan reserve. Much of this area underwent redevelopment as part of Jurong New Town in the late 1960s, having lost its status as a forest reserve. Today, what remains are fringes of mangroves at the mouth of the Sungei Pandan, between the Pandan Tidal Gates and the Sungei Pandan Bridge.

The mangrove fringes still retain a marvellous diversity of flora and fauna, and visitors can spot and hear birds such as grey herons, striated herons, pied fantails, ashy tailorbirds, Asian paradise flycatchers and white-bellied sea eagles. In and between the mangroves and nipah palms, the keen-eyed can pick out mud lobsters, mudskippers, tree lizards, horseshoe crabs and dog-faced water snakes.



A stretch of mangroves at the mouth of Sungei Pandan today.

EVOLUTION OF LAND USE IN JURONG

Rubber and agriculture

With the gambier industry in Singapore waning in the late 1800s, a new cash crop began to dominate the plantation landscape, including in Jurong. This was rubber, introduced to Singapore and Malaya in 1877 after Henry Ridley brought *hevea brasiliensis* seeds from Brazil via Kew Gardens in the United Kingdom and planted them in the Botanic Gardens.

Ridley promoted rubber to planters in Malaya and Singapore, but the crop did not catch on due to its limited commercial appeal and maturation period of seven years. He persevered over the next two decades however, experimenting with various aspects of rubber planting and achieved a breakthrough with the herringbone method of tapping, which allowed cultivators to extract the rubber latex in a controlled fashion without killing the tree.

In the early 1900s, worldwide demand for rubber surged with the booming automobile industry requiring the product for pneumatic tyres. By 1920, half of the global production of rubber came from Malaya and much of this was sold through Singapore, making the island the rubber capital of the world. The rubber industry was the making of millionaires like Tan Kah Kee, Tan Lark Sye, Lee Kong Chian and Lim Nee Soon.

Unlike estate agriculture elsewhere in Asia at the time, which was largely dominated by Europeans, almost all of the rubber plantations in Singapore and Johor were owned by locals.

The Chinese often planted interim cash crops such as pineapple or gambier among the rows of rubber trees, and these crops that yielded their produce within 18 months generated cash flow while the rubber trees matured.

With the revenue from these interim crops, and smaller capital investments in their rubber plantations than that of their European counterparts, it cost Chinese planters around 150 Straits dollars per acre of their rubber estate. This was in contrast to European estates that could require up to four times the capital investment.

Rubber eventually replaced gambier as the go-to crop, and large rubber estates began to dominate the landscape in Jurong. Prominent business leaders who owned rubber estates in Jurong included Chew Boon Lay and Tan Lark Sye, and the Sembawang Rubber Plantations Limited company formed by Lim Boon Keng, Tan Chay Yan and Lee Choon Guan had holdings in the area. Members of the Chettiar community also owned estates here, including Chithambaram Chettiar Estate and Arunachalam Chettiar Estate near Kampong Sungei Jurong at the head of the river.

Chew's plantation, which had begun with gambier in the 19th century before shifting to rubber, was so extensive and prominent that it eventually lent its name to the Boon Lay area. Located behind Jurong Village on the 13.5 milestone of Jurong Road, the estate also spawned a Boon Lay Road.

Other rubber holdings in Jurong included the Bajau, Jurong, Lokyang, Yun Nam, Chong Keng,



A rubber plantation in Singapore, 1900s.



Singapore's first President Yusof Ishak, Puan Noor Aishah and Member of Parliament Chor Yeok Eng visiting a vegetable farm in Jurong, 1967.

Seng Toh and Lee Gek Poh estates. The islands of Pulau Pesek, Pulau Ayer Chawan, Pulau Merlimau, Pulau Seraya and Pulau Samulun also featured extensive rubber and pineapple cultivation alongside their kampongs, but there is little indication of their ownership.

The rubber estates drew more people to Jurong, providing employment and encouraging settlement. Ng Lee Kar recalled the word on the ground as the plantations expanded:

"The tenants in Jurong were predominantly Hokkien. Many were farmers, the others were plantation workers — rubber tappers or casual labourers employed to weed grass.

"The vast tracts of land needed weeding. Men were employed to do the job. If they agreed to stay in the rubber plantation, they would be given money. In the past all of us lived in attap houses. The towkay (business, or in this case plantation owner) usually provided us money to buy attap leaves to erect a house. Very often, the planter (would) willingly stay. All he needs to pay is a token sum of a few cents. The towkay hoped workers could stay there to save him the trouble to weed the grass."

Former shopkeeper Tan Kim Wah (b. 1911) also has memories of how the population in Jurong grew:

"(of Shui Dui Nei village) it must be someone with the surname Lin who started development there. Rearing fowl, growing vegetables and fruits. Their

relatives then come casually...in the past, it was very easy, those familiar with the landowner can tell him: 'I have relatives who want to come here and build a house.' Just inform him, he will also be happy. You build a house, rear chickens, rear pigs, rear ducks and the soil will be fertile...(it would be) good for the rubber trees. When we planted vegetables, we chose lower ground (near the plantations). (The water used in the plantation) could flow through and (help) irrigate our vegetables.

"People in Shui Dui Nei mostly planted fruits...I think about 70% to 80% of the people there planted fruits, those who planted vegetables were in the minority. There was a mix. Some who planted fruits had less livestock, while others went to do rubber tapping when they were free."

Jurong gradually became an important centre of agricultural production for Singapore after farmland in the Rochor and Kallang districts was redeveloped for other uses. With the island's population steadily growing in the 20th century, demand for fresh vegetables, fruits, pork and poultry swelled, and new farms took up land freed up by abandoned plantations as well as on the quickly vanishing patches of forest. An improved and more extensive road system also allowed farmers in Jurong to get their produce to markets elsewhere while it was still fresh.

As remembered by Ng and Tan, vegetable and fruit farms dotted the landscape and provided

a living for many families, with vegetable and fruit farmers also rearing chickens, ducks and pigs to sell. Fruit farms planted local favourites such as *rambutan*, *pulasan*, *pineapple* and *buah susu* (passion fruit), and some of these farms maintained the agricultural character of Jurong until the 1970s. Abdul Karim, who served his national service in the late 1960s, remembered his army unit scoring quick snacks of rambutans during field training in the Jurong area.

One crop that became associated with Jurong and spread wide throughout the island was *koo chye* (Chinese chives). As Tan recalled, *koo chye* farms near the Chongqing plantation at the 15th milestone produced the bulk of the chives consumed in Singapore:

“Koo chye for the entire Singapore comes from that place, there was very little coming from other places. Jurong 15th milestone was famous and there could be several hundred kilograms of koo chye harvested for sale each other. If people cooked char kway teow (noodles fried in dark soya sauce), frying the noodles with koo chye would make it very delicious. People like us use it to make koo chye kueh, also very delicious.”

While the improvement and expansion of roads in Jurong was carried out gradually throughout the 20th century, the progress was painstakingly slow at times. Even in the 1930s, an observer in *The Singapore Free Press* wrote that exploring the west coast of Singapore, including Jurong, was “far more (easy) by aeroplane than by road, for the simple reason that there are no roads.” Noting that property owners in the area had constructed roads at their own expense, the same writer added:

“Some short time ago, the government was responsible for the placing of about 1,000 Chinese fruit and vegetable growers on the low lying land north of the so-called road

between Pandan and Jurong rivers, and they have planted up well, but it is a nearly hopeless job for them to get their produce to market and especially was this so until the embankment was metalled by private enterprise.”

At that point in time, the villages on the coast and around the Sungei Pandan and Sungei Jurong, including Tanjong Balai, Pulau Damar Daut, Tanjong Kling and Pulau Samulun, all lacked road access. The residents in these places travelled mainly by boats including traditional Malay *koleks*, whether the children to the school at Tanjong Kling or farmers bringing their produce to the market at Pasir Panjang. The seaward trek to Pasir Panjang involved navigating choppy waters and an entire day’s journey, according to the *penghulus* (chiefs) of the kampongs.

Fishing and prawn farming

The fishing industry has long featured in the Jurong story, from the Orang Laut and



Tuas Village in Jurong, 1978.



Small cluster of coffeeshops, shophouses and seafood restaurants at the end of Tuas, near the sea, 1978.

Malay fisher folk on the *tanjongs* (headlands) overlooking the Samulun Strait to the fishing villages of Tuas. Some residents recall days when fleets of up to 200 fishing boats landed at Tuas, their catch bound for the fishing port and seafood shacks that sprouted nearby.

Tuas itself derives its name from the Malay word *menuas*, meaning to haul up fishing nets. The nets in question were used in a local method of fishing, in which coconut fronds and leafy branches were floated in the water with the nets hanging underneath. The setup was used in shady areas, with the shade attracting the fish and trapping them in the nets hauled up by the fisher folk in boats.

From the early 1900s, carp and prawn farmers carried out aquaculture in the rivers and water features of Jurong. Carp was introduced by the Chinese, who brought the practice from China, and involved five different species. Only the common carp was bred in Singapore, while the fry for the other species was obtained from China. The high-yielding carp farms were a popular food in Singapore, but gradually lost favour with fish farmers after World War II.



Prawn farmers at work in Jurong, 1960.



A fishing village in Jurong, 1956.

Prawn ponds were installed in muddy river estuaries and mangrove swamps, making the riverine areas of Jurong a perfect fit. Official estimates in the 1950s counted some 1,000 acres being used as prawn ponds in Singapore, and half of them were located in Jurong.

The Jurong ponds were among the most productive on the island as well, yielding up to 1,000 kilograms of prawns per acre compared to less than 45 kilograms per acre in Pulau Ubin. While prawn ponds could be constructed on land that was not suitable for agriculture, the problem of mosquito breeding was hard to overcome.

Around the rivers of Jurong, the Malays in fishing villages combined prawn farming with net fishing. Living in stilt houses with their boats tethered nearby, the fisher folk had the pick of the aquatic harvest, but often had to deal with flooding when the rivers broke their banks. In those times of inundation, the stilts that raised the level of their houses showed their worth.



Prawn farming, 1960s.

GROWTH OF COMMUNITIES

VILLAGES AND SOCIAL LIFE

While the Orang Laut and Malay villages on the coasts and rivers had been rooted in Jurong before the arrival of the British in 1819, the colonial period brought new settlers to the area. Among the first settlers to take on the backbreaking task of clearing forests and swamps for plantations and human habitation were the Hokkiens from Ann Kway (Anxi) county in China.

These early settlers were likely labourers on the gambier and pepper plantations, and who later drew their friends and relatives from their hometown to Jurong. The Ann Kway Hokkiens settled in small villages, usually organised by surname, and were known for their starfruit farms in Jurong. Some of these villages were at Lorong Ratna in today's Nanyang Technological University campus, around Jalan Boon Lay, the 16th milestone of Upper Jurong Road and in the Ulu Pandan area, then called Da Gang Nei. The last was settled by Ann Kways with the surname Chua, who cleared the forested area braving tigers, snakes and the crocodiles of the Sungei Pandan.

They also founded nine schools between the 7th milestone and the 18th milestone of Jurong Road, including Joo Long Public School, and a host of temples honouring a diversity of deities. Other Hokkiens in Jurong included those from the Jinjiang and Yongchun counties of China.

One of the first villages with a significant Ann Kway population was Hong Kah Village, also notable for its establishment in the early 1800s by Chinese Christians. The name of the village



Young villagers brushing their teeth using a water standpipe.

comes from the Hokkien and Teochew term for “bestowing a religion”, which was also the colloquial name for Chinese Christians.

The second most populous Chinese dialect group in Jurong was the Teochews, many with the surname Lin and hailing from the Jieyang province. The majority of Teochews lived at the 18th milestone in the west, and many were fishermen. Other occupations that the Teochews filled included plantation and fruit farm workers.

While villages and kampongs were usually established by a single community, the years often brought diversity. For example, Huat Choe Village between Jurong Road and Nanyang Avenue was originally predominantly Chinese,

but by 1957 the Malays there (276 people) outnumbered the Chinese (188 people).

Old maps and a street directory from 1966 provide a snapshot of the many villages and kampongs between the 8th and 18th milestones of Jurong Road before its redevelopment in the late 1960s:

Kampong Ulu Pandan

Located on the 10th milestone, this kampong derived its name from the pandan plant used for cooking and in the old days, to weave mats.

Kampong Tebing Terjun

The name of this kampong hints at a fascinating origin story. In Malay, the phrase *tebing terjun* refers to a dive off a cliff. To add to the intrigue, the kampong was sited right by a tributary of the Sungei Jurong with the macabre name of Sungei China Mati (Dead Chinese River).

Kampong Tanjong Penjuru

This kampong was located between the coast at Tanjong Penjuru and the Jurong forest reserve and its multitude of tributaries and streams. These waterways included Sungei Mak Pusah ('Difficult Mother River'), Sungei Sembilan ('Ninth River'), Sungei Sangkut Kail ('Tangled Hook River'), Sungei Bakau Rungkup ('Mangrove River'), Sungei Che Dris, Sungei Tanjong ('Headland River') and Sungei Karang ('Coral River').

In 1931, a newspaper report described Tanjong Penjuru as "a small kampong of 100 souls, Malay and a few Chinese, mostly fishermen. Here there has been laid out in excellent manner gardens..."

Haji Shafie Mohammad Arif remembered growing up in Tanjong Penjuru:

"I lived at Tanjong Penjuru, where Caltex (Chevron) is now located (at 210 Jalan Buroh). The place was called Kampong Tanjong Penjuru.

"I'm a 100% kampong man! Kampong Tanjong Penjuru consisted of mainly Malays. The Chinese usually operated the provision shop. Population-wise, only 200 people lived in the kampong, Very small. They were (mostly) fishermen, who lived by the sea. Prawn ponds belonged to the Chinese. The

Malays were fishermen. Even now, some still have their own boats — they maintain the fisherman lifestyle. They keep their boats at Sungei Jurong.

"My family members were fishermen. At the time, one kilo of fish is 20 to 30 cents. Now you can get in the market for \$7 to \$8. If you have a big boat, you can go far away and get bigger catches. Sometimes, a single cent also cannot get. Sometimes, (we earn) just enough for the family to eat. Anything extra, we sell."

Kampong Pulau Damar Darat, Kampong Tanjong Balai and Tanjong Kling

These three villages formed a crescent shape around the coastline between the mainland and Pulau Damar Laut. Between Tanjong Kling and Bukit Peropok (today's Jurong Hill) to its north, there were three islands standing in the midst of swamps and waterways like Sungei Peropok, Sungei Simpang Pak Chalong and Sungei Simpang Pak Bono. These islands were Pulau Setunas, Pulau Sekuching and Pulau Mah Midah.

In 1909, Pulau Damar Darat was described in *The Straits Times* as "a hillock rising up from a country rich in cultivation. Mangosteens, gambier, pepper, pineapples and durians are planted plentifully, and seem to find a ready sale among dealers in the neighbouring hamlets. Timber, some of remarkably fine growth, is to be found on all sides, while hills of laterite and, in all probability, containing granite are noticeable."

Tanjong Balai was in 1931 "a kampong of some 40 people, with no access to Singapore other than the sea", while Pulau Damar Darat held "about 50 Malays whose children have to row in *kolehs* (boats) to get to school."



Students on an excursion at Tanjong Kling, 1951.

Tanjong Kling, with a Malay school and police station, was one of the focal points of the area and had a population of about 500 in the 1930s.

Tuas Village

Tuas Village was located at the 18th milestone of Jurong Road, in today's Pioneer area, with Sungei Tuas, Sungei Che Mat Gun and Tanjong Tuas nearby. The village was said to have been founded in the 1880s, with gambier planter Zheng Wan Bao among the pioneers.



The Tanjong Kling police station, 1930.



Workers rolling up cane for a kelong in Tuas Village, 1970s.

By the 1940s, there were some 2,000 Chinese and Malay fishermen living in Tuas Village. Former Tuas Village resident Li Xi Mei remembered:

"There were little wooden huts with hills with coconut and fruit trees behind them, and forests. (Sungei Tuas) was only a hundred metres from my house. Whenever the tide was high, there was a 'swimming pool' extending from the front of my house to as far as the eye can see. We could fish, swim or row boats."

Lokyang Village

Located between the 15th and 16th milestones, this village likely took its name from a former plantation. The Jurong Estate stood to its west, and the Bajau and Yun Nam Estates to its north.

Kampong Sungei Jurong

Sandwiched in between the Chithamparam Chettiar Estate and the Arunachalam Chettiar Estate, this kampong was on the 11th milestone of Jurong Road.

Hong Kah Village

Established by Chinese Christians, this village stood at the 12th milestone. A little further up Jurong Road was Kampong Ulu Jurong, and the Jurong Brickworks. Like most of the other villages in Jurong, Hong Kah consisted of wood and *attap* houses. Unlike some of the other villages however, some of the houses in Hong Kah had cement floors, a sign of relative wealth.

Chinese houses hung a board (*zhao pai*) above their doorways, inscribed with the family surname and some with the details of their clan ancestry and village back in China. The houses were often attacked by termites and white ants, necessitating repairs and sometimes complete rebuilds.

There would have been little variation in the architectural styles across the kampongs of Jurong, apart from the coastal and riverine villages featuring stilt houses. What was common to both stilt houses and inland houses was the *attap* roof, made from the tough, sinewy leaves of the *nipah* palm, *rumbia* or *bertam*. It was only after World War II that the majority of kampong houses made the switch to the more expensive, but less flammable zinc roofing. Tan Kim Wah recalled:

"Most of (our houses) were covered with attap, it was after the war that more people used sha li (zinc) to cover. Wood houses, the walls were nailed wood boards, the roof was covered by attap. Most people after the war did not want to use attap to build houses, because attap was more dangerous. When (people were) careless sometimes fire could easily start, after that nobody wanted to use attap to build houses."

The numerous villages were served by a number of marketplaces, with perhaps the largest being at the 10.5 milestone. In the 1920s, the other markets were at the 12th, 13th, 15th and 16th milestones. Soh Ah Choo (b. 1949) remembered the comings and goings at the 10.5 milestone market:

"There was a market here for a long time, before they built a permanent market in the 1960s. People would bring their vegetables, like kiam chye (salted vegetables) and chye sim (mustard greens), pigs, chickens and fish from the villages in Tuas to sell. There was also food like noodles and snacks like kua ci (winter melon seeds) and soon kueh (turnip dumplings).



Attap roofed house on Jurong Road, 1950.

My friend was selling bao (buns), so I would help her make bak pao (meat buns) and sell them at the market. After Jurong was developed, many of the hawkers from this market moved to Yuhua Market (on Jurong East Avenue 1)."

Many of the provision shops sold animal feed and grain, catering to the farmers in the district. Some residents bought their vegetables, rice and other staples from the provision shops, as there were no wet markets in Jurong until after World War II. It was only from the 1920s that fresh pork was available every day at the

markets in the area, and despite the proximity of the fishing villages of Tuas, fresh fish was seldom available for sale — with the exception of *ikan bilis* (anchovies).

With Singapore long established as a centre of cross-border trade, even the seemingly humble provision shop in rural Jurong stocked vegetables and foods from other countries, including China. Of course, many residents would have been farmers themselves and their own vegetable produce and livestock filled their tables.

Most of the foods that reached Singapore from China then were dried or preserved, including the *cai poh* (salted dried radish bits) that remains an integral and familiar component of hawker favourites like *chwee kueh* (rice cakes with salted radish) today. Back then, common dishes on the tables of the Chinese in Jurong included soup with *cai poh* and fried black beans, as Ng Lee Kar reminisced:

"Many of our dishes included dried foods from China. All the workers in the plantations ate black beans and cai poh. There usually would be pork once every few days, but not even once a month was there any chicken to eat, unlike the current lifestyle where chicken is available every day. Personally I did not get to eat (chicken meat) more than a few times a year, only on big occasions with banquets. To me, eating chicken rice (whenever you want) is something that only started in the 1970s."

The markets and backyard farms of Jurong were not the only sources a hungry resident could turn to. Even though the distances between kampongs and even some houses could stretch for long kilometres under the unforgiving sun, enterprising peddlers went from door to door to sell biscuits, fruits, local snacks and fish purchased from the villages of Tuas. Ng remembered:

"That time there was no need for licenses. If you have anything to sell, you can freely take it to sell. You are a hawker, if you have anything then you can go to houses to see if anyone wants to buy. Those houses are scattered...(hawkers) have to walk very far before reaching one house. You keep on selling until night time or (until) you finish selling your things..."



Provision shop along Jurong Road, 1986.

"Hawkers also sold those things that children like to eat, like biscuits or fruits, all sorts. More people bought you zha kueh (dough fritters), seldom roti (bread). In the past, (not many) people ate roti, now all of us Singaporeans eat it. In the past roti was eaten by Indians or westerners, people like us from China very seldom eat it."

Colonial-era Jurong came under the purview of the Rural Board, and governance, services and infrastructure was all too often of an uneven quality, if they arrived at all. Ng recalled:

"The British were concerned with improving the infrastructure of the city, paying least attention to the rural areas... We too had to pay taxes. However,



Workers installing a water standpipe in Jurong in 1959.

we were not given the rights of a citizen. We applied for a public water pipe (standpipe or public tap) to be installed at the 15th milestone. How long did it take? We waited patiently for six years!"

NAVIGATING JURONG

Residents of other locales often express the sentiment that Jurong is "far". It is a vague concept that doesn't always hold water, given the relative size of Singapore in the first place. As a district however, Jurong spans almost the whole of the island's southwest sector, and getting around before the days of mass public transport and automobiles presented a challenge indeed. It was only from the 1930s that bus services reached Jurong; before that,

people moved goods on bullock carts, rode rickshaws, cycled or simply walked. And if Jurong is "far", the western slice of Tuas must represent the epitome of distance in Singapore.

Madam Jeam Lau Ah Lang reminisced:

"I was living in Tuas and my school was in Bukit Timah. I had to wake up at 5am just so that I could get to school on time. There (was) no proper transportation then and I had to cycle to and from school."

Another Tuas resident, Lee Kwan Siang, remembered:

"We had to cross the Tuas River by boat from where I used to live in order to get to the mainland. Sometimes if no boat was available, we had to swim across the river. An alternate route was a long and winding muddy track which turned into marshland during the rainy season."

The rickshaw pullers then, had quite a job, hauling passengers between the kampongs of Jurong. Ng marvelled at their endurance:

"One person could pull two people on the rickshaw, and he would not lose to a bicycle over short distances. But of course you could not run faster than the bicycle for long. In the 1920s, there were people that pulled their rickshaws all the way to the hilltop, some could pull their rickshaws for 15 kilometres and some pulled all the way to the outskirts of Jurong."

The Jurong Omnibus Service began operating in the area in the 1930s, but the service only ran

from the 7.5 milestone (where Jurong Road met Bukit Timah Road) to around the 10.8 milestone. The buses were smaller than what we are used to these days, ferrying up to seven people, and sported green and white livery. The Omnibus Service was one of the Chinese-owned bus companies that ran routes into rural areas of Singapore, into which the municipal-owned Singapore Traction Company did not reach. This route was considered the one that penetrated the furthest into rural Singapore at the time.

In March 1941, the Singapore Traction Company began a bus route between Finlayson Green (now Raffles Place) and Jurong Road. This service ran every 20 minutes from 7am to 9.40am and from 4pm to 6.40pm on weekdays, and between 12pm and 3pm on Saturdays. This was the first direct bus service between Jurong and the town area. After World War II, the Jurong Omnibus Service was bought out by the Green Bus Company, which ran a service between Queen Street and the 18th milestone in Jurong between 1956 and 1971.



The 'green' bus, 1954.

Where official infrastructure did not meet the needs of the people, the kampong residents filled in the gaps. Tan Kim Wah, who owned a provision shop and a coffee shop at the 15th milestone, recalled that that letters were not delivered door to door, but left at his shop for collection.

"In a rural area like ours, postal services were unheard of. Letters were sent to our provision shop. My, my, so many of them sent letters to my shop. The workers who lived in the vicinity would send their letters here. Then, when they came to my shop, I would hand them the letters. We were called Chop Eng Tai. On the letter, if they wrote Chop Eng Tai, Jurong, the post office would know the address. There was no need to write the shop number. When the postman saw the words, '41, 15 milestone Jurong', he would post the mail to my shop."

BEGINNINGS OF INDUSTRY

While early Jurong was mainly known for its agricultural character, there were a number of industrial ventures established from the early 20th century. Since at least the 1920s, a number of brickworks operated in the area, using rather rudimentary methods as Ng Lee Kar remembered it. The brickworks used cows or buffaloes to step on earth, turning it into a gluey paste. This was then hand-shaped by workers, before being baked in brick kilns. Early production was labour-intensive and Ng recalled factories turning out between 10,000 and 20,000 bricks each month.

Before World War II, brickworks in Jurong began using machines in the brick making process, greatly boosting production numbers. One of the best-known factories, the Jurong Brick Works near the 13th milestone, was producing around 750,000 bricks per month before the Japanese Occupation.

By the 1970s, Jurong Brick Works had become the largest private brick maker in Singapore with a capacity of more than three million bricks per month. Perhaps the most prominent brick kiln then was the Ba Gua (Eight Diagrams) Kiln, which operated a continuous fire for up to a month at a time. Renowned Singapore sculptor Ng Teng Eng also fired his works here in the

1950s, and the towering chimneys of Jurong Brick Works remained a landmark at Jurong Road, Track 22 until the closure and demolition of the brickworks in 2005.

While the brickworks in Jurong were mainly located between the 10th and 13th milestones, there were other kilns in the area that turned out pottery instead. These kilns were located between the 13th and 15th milestones, and the Gek Poh Village in this vicinity was well known as a place for pottery. The Gek Poh area, and Jurong in general, provided fertile ground for kilns in a literal sense — the viscous earth (known to the Chinese as 'nian tu' — sticky mud) vital to pottery and brick-making was easily found in Jurong.



A view of Guan Huat Dragon Kiln.



Front stroking the kiln.

Tan Teck Yoke, whose family bought the famous Dragon Kiln in 1965, remembered Gek Poh Village also being known as Dragon Kiln Village. While most of the village residents in the 1960s were Hokkien, there were seven or eight Malay families as well.

The Thow Kwang Dragon Kiln in Jurong, drawing on millennia of pottery tradition in China, was established by immigrants from Chaozhou in the 1940s. Earning its name for its fiery, almost dragon-like appearance when in full flow, the dragon kiln can reach temperatures of up to 1,260 degrees Celsius. It also enabled “fly-ash” or glossy finishes on the pottery, with ash or salt used for the “yao bian” (kiln change) effects.

The evolution of the products turned out at the dragon kiln and other nearby kilns is a reflection of Singapore’s economic history, going from clay cups for collecting rubber latex in the 1960s to bowls and flower pots in the 1970s and ornamental products such as souvenirs, pots and mugs in the 1980s. Today, Thow Kwang Industry and Jalan Bahar Clay Studios (the former Guan Huat Dragon Kiln) host Singapore’s last two surviving dragon kilns.

Beyond the brickworks, Chew Boon Lay’s canned food plant was said to be one of the first factories in Jurong. Between 1950 and 1958, the factory produced cans of *kaya* (coconut and egg jam), curries of the chicken, mutton and beef varieties as well as peanut butter. The factory stood on Jalan Ahmad Ibrahim in front of Jurong Bird Park, and later housed the first Jurong Town Corporation site office.

EARLY EDUCATIONAL INSTITUTIONS

With the Ann Kway Hokkiens forming a significant portion of the population in early Jurong, the community took the initiative to establish a series of schools from the 1930s. These schools, like many other Chinese village schools in Singapore, mainly taught Confucian classical texts like the Four Books and Five Classics. Before Mandarin became the medium of instruction for most village schools in the 1930s, the schools taught in various dialects corresponding to the village majority, from Hokkien to Teochew to Hakka.



Joo Long Public School was established in the 1930s and was housed in this shophouse on the 13th milestone of Jurong Road.

Chor Yeok Eng (b. 1930), a former Member of Parliament who studied at Tuan Cheng School (now Shuqun Primary School and Shuqun Secondary School) at Jalan Seh Chuan recalled:

"Back then, our textbooks placed great emphasis on human relations within and beyond the family. For example, one passage in the Chinese textbooks from Primary 1 reads: 'We are sitting in a row eating our fruits; one for you, one for me and one for the younger sister who has fallen asleep...' At that time, we also had a very strong sense of national identity, even though we were not yet a nation, the ideas of 'the fate of the nation rests upon everyone' and 'a home is where the nation is' had always been there, especially so among the Chinese-educated."

A proliferation of schools were established in Jurong in the 1930s, with the Joo Long, Joo Koon, Sin Nan, Lokyang, Pei De and Fu Hua schools founded by the Ann Kways. Most of these schools remain in existence, with changed names or having moved locations. While these schools were founded and funded by the Ann Kway Huay Kuan (clan association), their student populations were a mix of Chinese dialect groups.

Joo Long Public School is one example of these schools started by clan associations. Established in 1930, the school first held classes in a shophouse at the 13th milestone of Jurong Road. Its enrolment gradually rose and the school moved to Kee San Estate at Jalan Bahar in 1934. During the Japanese Occupation, the school building was damaged and classes were suspended. After the war, the community rallied to raise funds and rebuild Joo Long, with classes resuming in 1946. The school then moved to new premises at Upper Jurong Road in 1950.

With the population of Jurong growing after its development as a new town and industrial estate in the 1960s, the school needed to expand to accept more students. A two-night variety show was put on at the Happy World, helping raise funds for the school to grow. By 1982, Joo Long had an enrolment of 831 students. Two years later, Joo Long was converted into a government school and renamed Rulang Primary School.



Students having lessons in the outdoors, 1930-40s.

Courtesy of Rulang Primary School

Professor Jackie Ying (b. 1966), currently Executive Director at Institute of Bioengineering and Nanotechnology (IBN), studied at Joo Long in the 1970s. She remembered:

"Back in the 70s, Rulang was a kampong school, very different from the Rulang today. What stood out then was the strong school spirit. We had friends from very different backgrounds and students worked and played together. I still remember organising a study group to prepare for the PSLE. More than half of the class was involved and we spent a lot of time studying together, helping each other and it was the kind of friendship that made it a special place."

Schools established from the 'New Town' era of Jurong in the 1960s began to emphasise subjects such as mathematics, science and technical skills, as well as shifting to English as a medium of instruction. The nation was about to enter a time of rapid change, with the shifting economic tides demanding new capabilities and language proficiencies.

Having visited the farms, fishing villages and existing schools in Jurong in 1962, Prime Minister Lee Kuan Yew promised residents help to adapt to the changing times. The number one priority was to secure the futures of the sons and daughters of farmers and fishermen. At the end of his visit, Lee announced that a new secondary school would be built to prepare the younger ones for vastly different lives to the generations that had gone before.



Prime Minister Lee Kuan Yew greeting school children at Jurong Road during his tour of the area in 1962.

The following year, Jurong Secondary School was opened as the first school in rural Singapore to feature a bilingual curriculum and instruction. The opening was officiated by Prime Minister Lee. Joy Chew (b. 1950), who taught at the school at Yuan Ching Road in the 1970s, reminisced about this period:

"I was unprepared for the reality shock when I started out as an English and geography teacher in 1976 at Jurong Secondary. In my first semester there, I was assigned to teach English as a second language to a largely Mandarin and Hokkien-speaking class of 15-year-olds.

"Not only did the largely noisy male students stare at me and laughed at my brand of English, they broke out in Hokkien on several occasions to indicate that they 'could catch no ball' as I attempted to conduct my planned language lessons during my first week in class. It was a strong cue for me to adapt to their register of English, which I think I succeeded (at) after some less successful attempts.

"I later learned from more experienced colleagues that the school was undergoing a painful process of being transformed into a bilingual school that would eventually use English as the main medium of instruction."

While there were numerous Chinese primary and secondary schools by the 1950s, their students often found themselves in a quandary after graduation. Their options were to travel to China to further their education, as many did, or to apply to the University of Malaya. The university's medium of instruction was English however, and Chinese-educated students were often at a disadvantage.

As early as 1950, leaders of the Chinese community had the establishment of a university on their agenda. The installation of a Communist government in China in 1949 had rendered the option of Chinese universities politically untenable, lending calls for a Malayan Chinese university more urgency.

Leading these calls and backing them with finance was rubber magnate Tan Lark Sye, then chairman of the Singapore Hokkien Huay Kuan (clan association). At a meeting of the executive and supervisory councils of the Huay Kuan on 16 January 1953, Tan formally tabled a proposal for a Chinese tertiary institute, saying:

"We should not let the Malayan Chinese culture be destroyed, and we should preserve it and seek improvements...There are tens of thousands



Chief Minister David Marshall, Tan Lark Sye and Colonial Secretary Alan Lennox-Boyd view the work in progress of Nanyang University in 1955.

of students in our secondary schools; every year the graduates add up to impressive numbers. In earlier times they were able to return to China for further studies, now it is not possible. Universiti Malaya has agreed to set up a Department of Chinese Studies, but to date there has been no tangible action...To preserve our Chinese culture, we need to set up a Chinese university."

To kick-start the dream of an institution of higher learning that would also preserve and promote a Malayan Chinese culture, Tan announced a personal donation of \$5 million. He also signalled that the Huay Kuan would contribute 523 acres of land in Jurong, at the 14th milestone, for the institution to be known as Nanyang University.

With support from the Singapore Chinese Chamber of Commerce and 214 other Chinese associations, a preparatory committee for Nanyang University including representatives from the Teochew, Hakka and Foochow *huay kuans* was set up. With the dream in full drive, fundraising began in earnest and elicited wholehearted responses from across the spectrum of the local Chinese community. As is often fondly remembered by many, those who donated time and money included hawkers, multi-millionaires, dance hostesses and trishaw riders.

The first lessons at Nanyang University, pre-university courses, were held in 1955. In March the following year, 584 students began tertiary courses in the science, commerce and arts faculties, making Nanyang the first Chinese university outside China. Students from the former Soviet Union and Japan also arrived to study Mandarin, adding to the diversity of peoples in Jurong, while a Department of Malay Studies was also set up in 1968, drawing Malay students.

Beyond its regional impact, the university — nicknamed Nantah, a contraction of its Mandarin name Nanyang Da Xue — brought changes to the socio-economic

landscape of Jurong. With thousands of students and teachers working and living in the area, many Jurong residents obtained employment as workers at the university and domestic workers such as washerwomen.

In 1980, Nanyang merged with the University of Singapore to form the National University of Singapore, following the Sir Frederick Dainton Report, which recommended only one university and campus in Singapore. The government had asked the British academician to study the future of university education in Singapore. Sir Frederick's recommendation was based on the argument that there would be



Taxi Drivers raising funds for Nanyang University, 1950.

more opportunities for multi-disciplinary studies and larger departments of study with one university. Nanyang remains a milestone in local and regional education however, and a marker of community action.

Today, three focal points of the former Nanyang have been gazetted as a national monument. The original entrance to the university, the Nanyang Gateway Arch, features green glazed tiles and the words "Nanyang Daxue", the university's name in Mandarin inscribed by calligraphy Master Yu You Ren. The year 1955 is a reference to Nanyang's opening and first intake of students. The Arch now stands in front of the Yunnan Gardens community park.

The Library and Administration Building, also gazetted, was built with a contribution of



Opening of Nanyang University, 1958.

half a million dollars from Penang businessman Lim Lean Teng. Formal university classes began in March 1956 in this building. Lastly, the Nanyang University Memorial, at 42 Nanyang Avenue, was presented on 30 March 1958 to commemorate the completion of the first phase of Nantah's construction.



The Nanyang Gateway Arch.

TIDE OF CHANGE: WORLD WAR II



Joseph Brook David's house at Tanjong Balai was used as the 101 Special Training School in 1941.

101 SPECIAL TRAINING SCHOOL

As Europe burned and the inexorable march of World War II drew ever closer to Singapore, the days of idyll in Jurong wound into their twilight. Jurong, for so long a rural afterthought, was about to set the scene for momentous events, with ramifications that extended past the war. Perhaps the first harbinger of the changes that were to come was the establishment of the 101 Special Training School (101 STS) at Tanjong Balai.

The Special Operations Executive (SOE) had been formed in London in July 1940, primarily to spark and support resistance movements

in territories occupied by Axis forces. Their activities were clandestine and subversive in nature, and harvested valuable intelligence along the way. The first SOE mission set up outside England was the Oriental Mission, established in Singapore in July 1941 by Major Valentino St. J. Killery, Major Basil Goodfellow and Captain Jim M. L. Gavin.

With a proposed site on Pulau Ubin rejected on the grounds that it lacked freshwater sources, would require much jungle clearance and building and held a significant malaria risk, Gavin scouted for an alternative location and found Tanjong Balai, a headland on the west bank of the Sungei Jurong, near its mouth.

On the waterfront was a large, ornate bungalow previously owned by Joseph Brook David, a Jewish businessman who had made his millions in tin mining. While the bungalow was well-known for the parties thrown by David that attracted the wealthy of 1930s Singapore, Tanjong Balai was also an isolated location, accessible either by boat or a winding road through plantations and secondary jungle. All around were small islands smothered with jungle and mangroves, providing training grounds. It was perhaps the perfect place in Singapore to train spies, infiltrators and insurgents.

101 STS brought together civilians and military personnel from a diverse array of backgrounds. There were local Chinese, Malays, Indians and Eurasians, a group of the Burma Frontier Force, a Free French Section, civil servants from Hong Kong, tin miners from Thailand, an assortment of Swedes, French, Dutch and a single American. Within weeks of its establishment, there were some 150 officers, specialists and trainees at Tanjong Balai.

At the school, the would-be resistance fighters were trained in sabotage, espionage, small arms handling, explosives, communications including the use of signals equipment and the sailing of different types of small boats. They were to stay in territories occupied by the invading Japanese military, ensconce themselves in jungles or villages and conduct irregular warfare and propaganda missions against the Japanese.

Among the trainees were members of the Communist Party of Malaya (CPM), some of them released from prison to train at 101 STS. The CPM's proposal for the release of its members to form a military force to fight the Japanese was initially rejected by the colonial

authorities, but later accepted as the war situation grew dire. Captain Freddy Spencer Chapman, an officer at 101 STS, described the mainly Chinese communists as "probably the best material we ever had at the School."

The training at 101 STS included landing on and navigating the mangroves of Jurong, and realistic missions using local British military installations without the prior knowledge of the authorities. These, including the infiltration of heavily guarded ammunition dumps, incurred the ire of the military, but proved good practice for operations during the Japanese Occupation. Security at 101 STS was tight, with trainees mainly confined to their barracks, but as more and more civilians passed through the school, word of its existence began to get around.

With the Japanese at Singapore's doorstep in February 1942, the school was closed, with files and records burnt, training equipment crated and shipped to a new base in Rangoon. Some 101 STS trainees joined Dalforce, a fighting force drawn from the Chinese community and put together at the last minute. Other officers and trainees of the school combined to form Force 136, which would carry out a series of daring intelligence and sabotage operations in Japanese-occupied Malaya.

The CPM members melted into the jungle and formed the Malayan Peoples' Anti-Japanese Army (MPAJA), which also worked with Force 136 in its resistance missions. After the Japanese Occupation, the CPM turned its focus towards anti-colonial armed struggle from the jungles, leading to the period of insurgency known as the Malayan Emergency. A number of the CPM fighters during the Emergency had been trained and armed at Tanjong Balai, a turnaround from the days when they were allied with the British.



Kampong at Tanjong Balai, 1956.

The many faces of Tanjong Balai

These days, you won't find Tanjong Balai on a map of Jurong. The area has been subsumed into Jurong Port, but this headland at the mouth of the Sungei Jurong has seen some interesting times.

In the 1930s, Jewish tin tycoon Joseph Brook David built an opulent mansion in the midst of what was then a rural landscape at Tanjong Balai. The mansion featured marble flooring, at the time a favourite of millionaires, and splendid gardens. David hosted lavish parties at Tanjong Balai, with guests that included rajahs, sultans and the elites of colonial society.

These guests arrived by boat (usually from Jardine Steps, where Harbourfront is today), which was a much more comfortable trip than the land route on dubious roads through jungles and plantations. David's residence was described in a newspaper report from 1936 as "one of the most beautifully situated and isolated seaside bungalows in Singapore."

In 1941, the mansion was requisitioned for military use, with the 101 Special Training School drilling potential guerillas and intelligence agents there (see main text).

During the Japanese invasion of Singapore in February 1942, retreating British military engineers used explosives to blow up part of the concrete pier at the Tanjong Balai mansion, to hinder potential Japanese landings there. David was interned by the occupying Japanese forces, which also employed civilian labour to build a submarine base at Tanjong Balai. This was never completed however, unlike the sawmill in Jurong operated by the Japanese to provide timber for fortifications.

After the Japanese Occupation, David left Singapore by ship to recuperate in the Middle East, but died during the journey. One of his relatives converted and ran the aforementioned sawmill in Jurong as an open-air cinema, but David's mansion was bought by the Raja & Co firm for use as a hotel. Some 200 guests attended the opening of the South Winds Hotel in December 1948.

In 1949, the Miss Malaya beauty contest held at the South Winds drew "one of the worst traffic jams seen in the colony". This was one of the first beauty contests in the region, and the concept was so new and unfamiliar that it caused something of a social furore, with the Catholic Church objecting to the "exhibitionism" of the contest. Joan Darby from Kuala Lumpur received the title of Miss Malaya however, and this early event at Tanjong Balai was later credited for spurring the popularity of beauty contests in Singapore and Malaya.

The South Winds boasted a Hawaiian-style bamboo bar, open-air dance floor, horse riding, fishing, swimming, tennis and miniature golf among other attractions across "16 acres of the most exquisite scenery in Malaya". However, the hotel was acquired for \$200,000 by millionaire businessman and philanthropist Lee Kong Chian in 1951. Lee did not keep the hotel in operation, offering it to the government to house a tuberculosis centre or hospital.

By 1954, the Singapore Anti Tuberculosis Association (SATA) had raised enough funds to convert the hotel into a sanatorium for tuberculosis patients, some of whom were chronic sufferers of the disease, refused admission to government hospitals and left homeless. The SATA sanatorium was closed and demolished during the development of Jurong New Town in the late 1960s.



A 1945 map showing Tanjong Balai at the mouth of Jurong River.

back to a defensive line between the Kranji and Jurong rivers. Percival, expecting another major invasion, opted to hold his forces at their other locations and defend the "Kranji-Jurong Line".

The choice to not counterattack the Japanese on February 9, before they were fully established, was a decisive moment in the fall of Singapore. From then on, Allied forces were fighting only to delay defeat, with next to no chance of pushing the Japanese back. Virtually all hopes for the defence of Singapore had been invested in the Kranji-Jurong Line, an imaginary line drawn between the Kranji and Jurong rivers and running some 3.6km long.

Yet the defensive qualities of the line were nearly nonexistent, even though it was officially part of Malaya Command's defence plans. A last-ditch plan by Colonel J. H. Thyer to fortify the line was rejected by his superior, Lieutenant-General H. Gordon Bennett. The troops falling back to the Kranji-Jurong Line on February 9 found only a few gun emplacements, scattered trenches and a meagre number of anti-tank mines.

On the morning of February 10, four brigades stood nervously on the Kranji-Jurong Line. These were the 12th, 15th and 44th Indian Brigades, and the 22nd Australian Brigade pushed back by the initial Japanese advance. Another eight brigades were held in their positions elsewhere on the island by Percival in anticipation of an attack from another front that never materialised, showing that the GOC feared reserves of Japanese troops that did not exist.

To compound matters, where the troops on the Kranji-Jurong Line needed close coordination between the leaders of the four brigades and clear lines of communication with Malaya Command, there were only muddled orders, a lack of strong leadership and a pervasive state of confusion.

As Japanese troops charged the Kranji-Jurong Line on February 10, the actions of the demoralised 22nd Brigade AIF and their beleaguered leader Taylor were to again be pivotal. Taylor misinterpreted contingency plans, which called for a fallback to a perimeter around the city in case of defeat. Receiving orders from the GOC at 9am, he ordered a retreat to Reformatory Road (now Clementi Road), leaving a gaping breach in the Kranji-Jurong Line.

A domino effect saw the other brigades in the west also fall back, only forming a makeshift line of confused troops between Bukit Panjang and Pasir Panjang in the evening. The withdrawals brought recriminations and shouted arguments between the leaders of the Allied forces, even as some of their troops deserted the frontline and straggled into the city. An unsupported, all-too-late counterattack on the night of February 10 was smashed by the Japanese, whose tanks advanced to Bukit Panjang and Bukit Timah.

The lost opportunity for a counterattack on February 9, the crumbling of the Kranji-Jurong Line and the disintegration of Allied forces mirrored the collapse of the command and control of Malaya Command. Singapore finally fell on February 15.

BACKBONE OF THE NATION: JURONG IN THE SINGAPORE STORY



Then Minister for Finance Dr Goh Keng Swee addressing the inaugural Jurong Town Corporation (JTC) Board meeting in June, 1968.

INDUSTRIALISATION, JURONG AND THE MAKING OF MODERN SINGAPORE

Most of us in Singapore are familiar, if to varying degrees, with the industrial story of Jurong. Goh's Folly to Goh's Glory, from swampland to pillar of economic growth, industrial engine of modern Singapore — it was a story of triumph, and crucial in the survival of Singapore as an independent nation

in the early years. But perhaps because it was such a success story, we too often gloss over the Jurong story without truly understanding its place in the narrative of the nation.

It is in the details that the story of Jurong truly emerges, in between the hard figures of industrial production and the concrete and steel of infrastructure. Why an industrial estate at Jurong was necessary in the first place. Why

its viability was considered such a marginal prospect in the early 1960s that it attracted the nickname Goh's Folly. Why it took the threat of a tollgate to get companies to offer workers housing allowances to live in Jurong.

The story is of one and many; the determination and ideas of one man to change the lives of his compatriots, and the responses of the many who kept the industrial juggernaut rolling and that were equally vital in shaping the role of Jurong in the Singapore story.

So what was the big picture in the late 1950s that led to the rebirth of Jurong as a mammoth industrial estate? Perhaps the most pressing issue facing the newly elected People's Action Party (PAP) government in 1959 was a lack of jobs for a growing populace — a problem of economic and social dimensions. The unemployment rate was estimated at 14%, meaning that over 200,000 people were out of work. To compound matters, the population was growing some 4% each year.

While entrepot trade and associated services such as banking, finance and insurance had been the bedrock of Singapore's economy since the 1800s, the prognosis for its continued success was poor. As the new government's first economic plan, the *State of Singapore Development Plan, 1961-1964*, put it, there were "very limited possibilities of expansion" for entrepot trade in Singapore.

The high unemployment, dismal economic prospects of large swathes of the population and the looming decline of entrepot trade presented an economic picture that Dr Goh Keng Swee, the Minister for Finance, regarded as "wretched". His conclusion was not one simply arrived at through the cold analysis of economic data; growing up, Dr Goh had seen the effects of the Great Depression of the 1930s on his father, a rubber plantation manager. After the Japanese Occupation, while at the Social Welfare Department, he set up the 'Peoples' Restaurants' that helped feed the needy and later initiated a study of the income levels of the urban working class and issues of poverty.



Dr Goh Keng Swee.



The United Nations Industrial Survey Team, led by Dr Albert Winsemius (centre of photograph).

Dr Goh, a mind always looking for problems to solve, quickly arrived at an answer: industrialisation and the promotion of entrepreneurship, with the active participation of the government. This was a remedy also proposed by various international economic study teams, including the United Nations Industrial Survey Mission led by Dr Albert Winsemius (who later became economic adviser to Singapore) and a Japanese team.

The notion of turning Jurong into an industrial hub was not a new one. Brickworks had long been a feature in the area, while there had also been scattered factories like Chew Boon Lay's facility producing canned kaya, chicken, mutton and beef curries.

In 1952, a development guide by government planners envisioned the area around Kampong Damar Darat (roughly the area between Jurong Wharves and Jalan Ahmad Ibrahim today) as a satellite town to be named Bulim New Town.

The new town would be connected to nearby industries, and in 1956 an area of 190 hectares was proposed for an industrial town. The plan was not followed through until after a new government was elected in 1959, but some of its considerations did make their way into the thinking for Jurong New Town.

From a number of perspectives, Jurong appeared to be the perfect fit for Singapore's first shot at creating a major industrial town. The area was mainly rural, with much of the land already state-owned. The resident population was low, and farmers could be relocated to Lim Chu Kang. There was a natural deepwater harbour where a port could be developed, essential for raw materials to be shipped in and finished products to be sent out. A number of hills in the area could be levelled to provide earth for land reclamation of swamps and tidal areas.

Jurong New Town was the most ambitious project on the government's slate in the 1960s. The clearance of swampland, forested hills, prawn ponds and farms, and plantations began in September 1961 under the aegis of the Economic Development Board (EDB), which had a budget of \$100 million to coordinate the development. The first job was to clear a route to lay what would become Jalan Ahmad Ibrahim.

While the vision of Jurong as an industrial town belonged to Dr Goh and Dr Winsemius, a number of leaders at the EDB were among those who brought that vision to fulfilment. They

included the head of the EDB, Hon Sui Sen, and expatriates R. A. Sandford, the chief engineer of the industrial estate and Herbert A. J. Fryer, an Australian surveyor and planner who together with Hon plotted the layout of the new Jurong.

GOH'S FOLLY?

As the scale of the transformation at Jurong became widely known, there was no shortage of doubters challenging the viability of the project. There was the cost — a phenomenal amount would be needed to build the infrastructure of an industrial town from scratch, from roads to railways to land reclamation, from housing to industrial facilities.

Then there was the question whether the tiny state, still trying to shake off colonialism, roiled by frequent strikes and labour unrest in the 1950s and possessing no significant track record to speak of in manufacturing, could actually pull it off. An academic from overseas predicted empty factories and rusting infrastructure, millions of dollars thrown away in search of "Goh's Folly".

Even as the industrial estate was ready for production to begin in 1963, investors were voting with their money. In particular, local business leaders were generally more attuned to the mercantile trade and avoided investing in Jurong. In the early years, it was a struggle to convince investors to set up shop in Jurong, which would be the case until after 1967. Dr Goh spoke of the perception many had of Singapore's attempt to industrialise on a major scale:



Prime Minister Lee Kuan Yew surveying the site which would become Jurong Industrial Estate with Economic Development Board Chairman Hon Sui Sen, 27 October 1962.

"There was skepticism. First, it was a very new thing and we did not know much about it... People were saying we hadn't got it — no cheap labour, no markets, no skills, no know-how."

What Singapore could offer investors however, were fuss-free starts to production, with most of the required industrial infrastructure established by the government. Through the EDB, the government also extended tax incentives through the Pioneer Industries scheme, provided equity participation in ventures and export promotion. Conducive labour relations, secured through tripartite cooperation and a contrast to the bitter disputes between employers and workers in the 1950s, was also an important factor.

To get the first factory, an iron and steel mill, off and running, Dr Goh turned to Indonesian businessmen Goh Tjoei Kok and Tan I Tong. Tan (b. 1921), who later settled permanently in Singapore, recalled that they had initially planned to site their steel mill at Tanglin Halt.

"When we told Mr Hon (Sui Sen, the first chairman of the Economic Development Board) our plans, he said: 'Mr Tan, you want your permanent residence? Then don't start your mill in Tanglin Halt, start it in Jurong.' On hindsight now, the Tanglin Halt site would have been too small. We would have needed half of that estate. Jurong has space for expansion."

National Iron and Steel Mills (NatSteel) officially opened on 31 January 1964. Dr Goh observed in 1969:

"If, five years ago in 1964, any Singaporean had sufficient foresight to put in \$150,000 in National Iron and Steel, he would today be a millionaire."

There are other instances — to a name a few, Pan-Electric Industries, Sheng Huo, Prima Flour Mills, Jurong Shipyard. Jurong Shipyard had difficulty at the beginning in getting capital from people, many of whom thought the whole idea was quite crazy."

The first phase of Singapore's industrialisation involved the strategy of import substitution, and labour-intensive industries to create as many jobs as possible. The limited number of factories opening, the small size of the domestic market and the lack of a common market agreement with the Federation of Malaya meant however that the industrial sector made modest headway in solving the question of unemployment.

Producers of fertiliser, plywood, acid, animal feed, garments, joss sticks and wigs were all welcomed to Jurong. A leading manufacturer of *giam neng* (salted eggs) from Hong Kong was given VIP treatment by the EDB when it expressed an interest in starting a factory in the new town. By the end of 1963, some 1.8 million cubic meters of earth had been moved and 1,800 acres of land for industry prepared in Jurong. For that "mountain of labour", as Dr Goh put it, however, just two factories had started production in Jurong — NatSteel and Pelican Textiles. The two factories employed 90 workers.

Such was the need for investors to take a chance on Jurong that Dr Goh and the EDB left nothing to chance. To stoke a mood of buoyancy and a sense that Jurong was 'open for business', Dr Goh directed the EDB to arrange for him to open several factories each week and ensure wide media coverage for each.



Factories stand where swamps once were, 1960s.

Another daunting task was laid before the Board by Dr Goh: to organise a new factory opening ceremony every day for three months. A young EDB assistant, Chan Chin Bock (who was to later become the EDB's chairman) found himself with the virtually unmanageable job of orchestrating 90 opening ceremonies in as many days, at a time when there were not even nine factories open for business.

Chan and his EDB colleagues finally arrived at an inventive solution: they would hold an event when an investor signed on the dotted line, another when construction on the factory began and finally an opening ceremony when production started. Ngiam Tong Dow, then an assistant director at the EDB, mused that Dr Goh must have been inspired by the first emperor of

China Qin Shi Huang, who had his troops patrol the Great Wall continuously to create the illusion of a massive army.

The painstaking measures eventually paid off. Despite the absence of a common market, the manufacturing sector gradually established itself during the years Singapore was a part of Malaysia, adding some 10,000 jobs between 1963 and 1965. A confluence of economic factors, international and local, had made manufacturing in Singapore a more attractive prospect. Up to 1967, the industrial sector generated some 5,000 new jobs annually, a figure that was welcome but not sufficient to solve the nation's unemployment issues.

By the end of the 1960s however, there were around 15,000 new manufacturing jobs created each year, illustrating the rise of the sector. In 1969, there were 181 factories in production in Jurong with a workforce of more than 20,000, as well as another 89 factories in the works.

The foundation had been laid for the second stage of industrial development in Jurong, where skilled jobs and capital-intensive industries such as engineering, shipbuilding and electro-mechanical and chemical industries were favoured. Evolving as international manufacturing trends and the nation's employment needs changed, Jurong eventually became the largest free trade and export processing zone in Southeast Asia, a distinction it held for a long period. Pioneer companies in Jurong that are still running today include Sugar Industry of Singapore (SIS), Hercules Rubber & Chemical Industries (now Trelleborg Singapore) and Far East Shipbuilding Industries (now part of Keppel Offshore and Marine).

The industrial revolution in Jurong had thoroughly transformed its environment. Furnace worker Chng Suan Lui remembered:

"All I saw in the area were clay mountains and mud tracks. NatSteel was at the furthest end, near the sea."



Then Minister for Foreign Affairs, Mr S Rajaratnam, toured the Singapore Textile Ltd at Jurong during its opening, 1969.



Workers of Jurong Industrial Estate, 1963.

Office manager Chow Yee Sin, who worked in Jurong from 1964, said:

"The roads were full of pot-holes, some deep enough to swallow a wheel. In those days, you could smell earth and greenery as you travelled in Jurong. Now (in 1980), you whiff peanut oil here, biscuits there, chemicals elsewhere. And you see smoke all over."

Jurong New Town arose from Dr Goh's vision, but that vision was only made possible by the men and women who toiled day and night as a mighty industrial army. Workers endured pollution, a lack of amenities in the early years and some even had to pay out of their own pocket for basic work equipment such as gloves. Those who lived in Jurong had to make the trek to Bukit Timah to get to a bank, while workers who resided elsewhere could take up to one and a half hours to get to their workplaces.

Woo Lee Tuan (b. 1937) remembered an early version of car-sharing, with workers squeezing into pirate taxis:

"I used to work in a textile factory at Jurong Industrial Estate. Back then, there (was) still no road leading to the estate, and we had to go via Pasir Panjang Road or Jalan Jurong Kechil."

"As a result, many of us rode on unregistered taxis to get to work. These taxis operated in groups of four or five, and the vehicles were actually meant for transporting vegetables and other produce. It was quite an uncomfortable ride so the driver would let us sit on a piece of cardboard...they charged each person per ride and you could get off at any time, it was very convenient."

Other workers were provided with free transport. Haji Saleh bin Abdul Wahab (b. 1935), who worked at National Iron and Steel Mills, remembers:

"The company provided private buses from the 7th milestone. There was also the Green Bus. But the company provided transport for you even if you lived very far away like in Geylang."

Even office staff could not always count on more comfortable days during the birthing period of Jurong's development. Jessie Thng, who worked out of the JTC's makeshift offices in Taman Jurong during its early years, reminisced:

"There were no air-conditioners for the junior staff, only fans, with colonial furniture made by the prison industries. It was only in the 1970s that we got electric typewriters and calculators. There was no telex, no fax, no photocopying."

Lim Sak Lan (b. 1944), who was with the JTC during the second stage of industrialisation from the late 1960s, said:

"Then, we had to work in the midst of thick vegetation, we were pretty close to nature, under the shade of the trees. We needed Land Rovers to get around because the tracks were all rough. When we were at worksites, we made do with site canteens. There were places away from the sites, but they were shabby little coffeeshops and restaurants and a hawker centre."

For all the hardships, some found the growing up years of the new Jurong to be interesting days. One such person was Ng Kok Ching, who said:

"Personally, I prefer the 1970s. There was the excitement of being in a pioneer town, seeing the factories come up. It may have been difficult then, but it was also quiet and beautiful."

The labours of the men and women of Jurong were making a real difference in the survival of newly independent Singapore however, a fact many were keenly aware of. As an industrial pioneer in Jurong, Lim Lak Ee put it: "You are staying in Singapore. You are earning from Singapore. You sure support Singapore."

Workers also found time away from their labours to bond on the sporting field. Tan Suan Chyang (b. 1938) was one of those who forged friendships in this way:

"Unions were in charge of bonding the workers in Jurong Industrial Estate as these factories

were all new. They organised several basketball and table tennis games. I was in Camel Industries, the company based in Taiwan, which set up their own sports union. I played basketball.

“The sports unions were very popular in those days and we played with each other frequently. These games were at least five-a-side, some up to eight or ten-a-side. The games were friendly and were there to improve relations between unions. This gave us spiritual sustenance and accommodated to the schedules of the workers who stayed in the hostels. We built friendships between the other workers in different factories through this.”

Karen Lee (b. 1950) also remembers close friendships with her factory colleagues at the Singapore Woodlands Spinning Mill in Jurong:

“I still remember the early seventies when we (worked in) the factories. When we worked the night shift we would go to the hawker centre buy food we liked (and bring it) to the factories (for our) working colleagues. When we stayed in the (company) hostel, we were very close, you know. (Until today) I can really remember these people, even those who came from Malaysia. I learned the Malay language (as) we worked in the factories, and (my Malay colleagues) liked to invite (us) to their weddings, whether their relatives or whoever they will invite you.”



Female workers of Singapore Woodlands Spinning Mill.

Courtesy of Karen Lee

HOUSING AND BUILDING A LIVEABLE JURONG

Jurong has long suffered from a perception that it stands locked in a distant corner of the island, too far from everything else even on a little red dot like Singapore. This was the case in the 1960s, when even a plentiful supply of jobs in the new industrial town made little headway in attracting people to work and live there. As the second chairman of the Economic Development Board (EDB) Tang I-Fang recalled:

“A big problem then was getting people to work in Jurong. We spoke to a local businessman once and he asked us: ‘Do you know where we play football? We play at the Padang, in front of City Hall. To go even there, people complain that it is too far.’ What more Jurong, with no housing or amenities? Forget about it. If we could not attract workers, we could not attract investors.”



Three-room executive flats under construction in Jurong, 1973.



Teban Gardens was the third residential estate built by JTC, 1977.

Former EDB director Lim Ho Hup (b. 1929) remembered:

"To anticipate the build-up of population, we built something like 2,000 or 3,000 Housing Board-type flats (in the early years). After two, three years, very few (people) wanted to (live there). People said, 'No facilities! No barber!' But the barber says, 'There's nobody!' So we said, 'Okay, rent is free for one year.'

"Coffeeshop, no problem. Then banks, no banks wanted to go. Do you know what was the first bank that was set up in Jurong? The Bank of America. (EDB told them) 'Okay, we'll support you only if you go to Jurong. Local banks didn't want to go.

"Workers didn't want to (live in Jurong), you make \$200-\$300 a month, you stay with your parents in Queenstown to take a bus (to Jurong), it's cheaper. You don't pay your father (rent). If you (stay in Jurong), everything's on your own.

"We did a lot of things. We had these open air cinemas with all these corrugated sheets and all that. Rent free. We even got a few boats for people to row on the river. Let the workers row there on Sundays for free."

With factories and little else going up in Jurong in the early 1960s, workers were understandably hesitant to move there. Companies also declined to offer an incentive by paying workers housing allowances to reside in Jurong, preferring to ferry them by bus to work each day. The quandary drew a creative, if unorthodox response from Dr Goh Keng Swee. In April 1965, he had a tollgate built and threatened to charge \$50 a month for buses and lorries carrying workers to Jurong.

This brought the ire of unionists, and EDB officials worried that the move would sour the mood of investors. Employers instead began to provide housing allowances, and the gradual addition of more housing options and amenities solved the problem of stay-away workers. No toll was ever charged.

Tan Kwi Lin (b. 1940), the former managing director of Jurong Shipyard remembered:

"I lived in the Jurong flats — I was given an allowance of \$21.50 to stay there. It was very near the shipyard, but there were no facilities. My wife didn't mind though. She went to the market at seventh milestone in Bukit Timah once a week. There was also no entertainment. For leisure we would walk to the Jurong Lake or watch TV. Sometimes, we went to the open-air cinema for 25 cents for 50 cents each. Full of mosquitoes.

"It was also very hot and dusty, there were no trees and no grass. It was so quiet, the only sound coming from the pirate taxis. There were less than 20 blocks of flats in our area."

By 1969, the resident population of Jurong stood at about 16,000, living in flats and shophouses built by the Housing & Development Board (HDB) in Taman Jurong. The Jurong Town Corporation (JTC) took over responsibility for building and maintaining flats in 1969, and began to build executive and three-room flats to provide a wider array of housing choices.



Courtesy of Sandy Lee

One of the first few hairdressers in Jurong.



Courtesy of Housing & Development Board

The first few blocks of flats for Jurong residents were built in Taman Jurong, 1963.

More variety in flat sizes and designs followed, and the JTC was charged with the growth of Jurong as a residential town as well as balancing environmental and industrial pressures. By 1982, the responsibility for the residential aspect of Jurong was returned to the HDB.

The population of the new Jurong was lent some diversity by the multi-national makeup of those who worked in the factories and plants, as well as their families. Jessie Thng, who moved to Jurong in 1967, remembered:

“Our flat was just behind the JTC area office, near the Bank of America. You could walk around the whole place in 10 minutes.

“At home, we mixed a lot with Malaysian, Hong Kong, Taiwanese and Japanese workers. Since there was little to do in the evenings, some of the Japanese workers wanted to learn English, so a neighbour, a teacher from Jurong Primary School, and myself conducted classes for them. Other times, some of us would go up to Jurong Port to fish.

“I remember our first Chinese New Year there. Most of the foreign workers had gone home, leaving only a few of us. I really wanted to cry then!”

The JTC tailored its new land and factory development to ever evolving economic needs, and part of this also involved establishing new leisure attractions, amenities and industrial facilities, a number of which have become closely associated with the new Jurong.

An industrial town often bears an unrelenting steel and concrete face built around monolithic factories, plants and facilities. With the development of Jurong taking place in tandem with Singapore’s ‘Garden City’ vision in the 1960s however, there was a conscious decision to ensure a green side to the town.

At the planning stage, some 580ha of land, or 12% of the



The now iconic ‘H’-blocks at Boon Lay Gardens were some of the early residential units built in Jurong.

total, was slated for parks, gardens and other green spaces. The natural heritage of Jurong was also considered, with the upper Sungei Jurong area demarcated as a buffer zone between the industrial and residential areas. Tracts of trees, shrubbery and grass field also separated the two areas. These efforts added a green aspect to the industrial character of Jurong, while also preserving a slice of the area’s natural heritage.



The Jurong Lake area. Green spaces were planned to make Jurong attractive to reside in.

HERITAGE SITES IN JURONG



Taman Jurong Market and Food Centre.

On the following pages you will find social attractions, green spaces and industrial locations that were established during the development of Jurong from the 1960s, as well as places that still carry their legacies from farming and kampong days. A number of significant sites are highlighted with heritage trail markers, but other sites detailed only in this booklet are no less interesting and storied. Enjoy exploring Jurong inside out!

LEGACY OF OLD JURONG

HAWKER CENTRES IN JURONG

In the past, hawkers sold meals from mobile pushcarts and baskets. Although food was cheap and convenient, conditions were unhygienic and the stalls created congestion on already narrow roads. Many hawkers were

also unlicensed and able to evade regular checks on cleanliness. Responding to the situation, the government started to resettle food hawkers from the streets and alleyways of Singapore from the late 1960s. Hawker centres were built to house the thousands of hawkers ushered off the streets, and some early examples of these centres arose in the blossoming residential areas of Jurong.

Markets selling fresh produce and including some food stalls had earlier opened at Corporation Drive and Taman Jurong, but government records show that Singapore's first hawker centre built to house itinerant hawkers, was the Yung Sheng Food Centre at 3 Yung Sheng Road. Opened in July 1972, this food centre was colloquially named the '60 stalls' (六十档) market, referring to the number of



Night scene at the Corporation Drive Food Centre, 1975.

stalls in the Centre. Hawkers who successfully balloted for a stall were required to undergo medical tests, following a cholera outbreak at the time.

Other markets and food centres were also located in Jurong. Perhaps the most well-known for the quality of its food was Jurong Market I, which remained popular with diners even after a typhoid outbreak in 1975. Kamsani bin Haji Alias (b. 1960) recalled:

“The famous one in Jurong was Jurong Market I, many people knew about it. In the past, if you mentioned Jurong Market I, people would know about it. It was a very special place, you could get food there 24 hours a day. From Thomson, or from wherever people came, people would ask about Market I.”

Jurong Market I and Jurong Market II both stood on Corporation Drive, with Market I in the vicinity of Hu Ching and Yung Loh roads, while Market II was near where Taman Jurong Market and Food Centre is today. Jurong Market I was renamed Corporation Drive Market in 1979.

Yung Sheng Food Centre merged with the Corporation Drive Market and Food Centre, and renamed Taman Jurong Market and Food Centre. This new market and

hawker centre is located next to Taman Jurong Community Club along Yung Sheng Road.

HONG KAH VILLAGE

Formerly at 12th milestone, Jurong Road

In the mid-19th century, Christian missionaries of various denominations spread their faith among Chinese farmers, agriculturalists and plantation workers in rural areas such as Jurong. Reports from the disturbances of the Anti-Catholic Riots of 1851 indicate that there were villages of Chinese Christians in the area, but their names and exact locations have not survived for posterity.

One village of mainly Chinese Christians abided until the late 1980s, and its legacy remains in the names of schools, a community club, a flyover and a number of housing estates in the area. This was Hong Kah Village, previously located near the 12th milestone of Jurong Road.

The exact date of the village’s founding is not known, but Hong Kah traces its roots to missionary activities carried out by Reverend William Henry Gomes and Chok Loi-Fat from the St Andrew’s Church Mission. They began preaching their faith to farmers in the Jurong area in 1872, and by 1876 a Chinese Christian convert, Tay Hong Seng, contributed three acres of land for a church at the 11th milestone.



Yung Sheng Food Centre, 2000s.



Small scale tropical ornamental fish farm in Hong Kah Village.

St John's Church was completed in 1884, and held services in Hokkien, Teochew and Hakka. According to Lim Kwang Boon, who moved to Hong Kah Village in 1916, the village was established when parishioners approached church leaders for a place to live. Some of these parishioners had previously sold their land and returned to their hometowns in China, but came back to Singapore only to find themselves homeless.

The church's pastor applied to the colonial Land Bureau and was granted 60 acres of land. More than 10 families came together to form a village on this land, naming it Hong Kah Choon (in Teochew and Hokkien, Christian Village). Since the 1800s, Hong Kah had been a colloquial name for Chinese Christians.

According to Lim however, an official recording the name of the village mistakenly used the wrong Mandarin characters. Where the name should have read 奉教 ('hong kah', in Mandarin 'feng jiao'), the official wrote 丰加 ('feng jia') instead. This changed the meaning of the village's name to 'increasing abundance'.



Courtesy of St. John's Chapel

St John's Church and members, early 1960s.

Madam Toh Ai Lian spoke of life in Hong Kah Village before its redevelopment:

"When there were heavy downpours, the rain would seep through the roof. We had to put baskets or bowls to contain the rainwater.

"Hong Kah Village had a public school (Sin Nan Public School, later renamed Xing Nan Primary School), a temple, *mama* shops (provision shops often owned by Indians), a community centre and a clinic. Life was tough; (in my childhood) I had to wake up at 5am every morning to rear pigs and chickens. After that, I had to go to a well which is about 300m away from our house to fetch

water, I would do this six or seven times a day. At a tender age, I had to carry two pails (hung from a pole) across my shoulders. It was very heavy and I had to be extremely careful not to spill the water. Once a month, I had to help my mother to chop and gather wood from the forest.

“My family was very traditional and girls were discriminated against. I have never attended school before because only boys were allowed to go to school in my family. When I was a seven-year-old, my two elder sisters and I had to look after six younger siblings as well as manage the household chores. It was considered improper for girls to play with boys, so we did not have any opportunity to play *goli* (marbles), *capteh* (a shuttlecock game) or other games.

“The only leisure that I can (remember) was watching the Chinese opera shows during religious celebrations. The whole street would be lit up and the loud blasts (of music) from the speakers would draw almost the whole village to the opera. Long benches were provided and we (children) would have to go early to get a seat for our parents. Normally, children have to sit on the floor or stand by the side of the stage.

“I liked the togetherness in the kampong. All of us were just like one big family. We helped each other. For instance, if one of the families held a wedding, the whole kampong would be very much involved. Everyone will come and look at the bride and groom and present gifts to the family. These gifts were mainly food such as roast pigs, eggs and chickens, depending on individual families.

“What I did not like were the poor sanitary facilities in the kampong. The toilets were dilapidated, smelly

and unhygienic. We had to do our business in buckets that were full of worms and houseflies. A man would come and collect the buckets only once every two to three days. Though life in the kampong was tough, there were lots of fond memories that can never be wiped away.”

CHEW BOON LAY AND THE PENG KANG AREA

There are two place names that evoke memories of Jurong’s pre-industrial past. Today, Peng Kang and Boon Lay are road and estate names, but they hark back to a time when plantations of gambier and rubber dominated the landscape and provided the main reason for new settlers in the area.

Peng Kang derives from the Hokkien term for the processing of the cash crop gambier (*Uncaria gambir*), the leaves of which needed to be boiled in cauldrons for six to seven hours. What was left was a thick, pasty substance that was dried, moulded and cut into cubes or blocks. In colloquial Hokkien, subdivisions of land within the Peng Kang district were referred to by Cauldron One, Cauldron Two and so on.



Chew Boon Lay and his wife, Ong Cheng Neo, 1930s.

Finished gambier had medicinal uses and was often chewed with betel nut in Asia, but the industry reached its peak from the 1830s when gambier began to be used in the dyeing and tanning industries in Europe. Pepper (*Piper nigrum*) was often cultivated by Chinese planters alongside gambier, as the waste products from gambier processing could be used as fertiliser for the pepper plants.

By 1849, gambier and pepper made up 61% of Singapore's revenue from agriculture. There was a heavy toll for the unchecked and unregulated clearance of forests for gambier plantations, with some 90% of the island's primary forest cover denuded by the middle of the century. Gambier also exhausted the soil quickly, leaving infertile lands of brushwood and lallang, and by the late 1800s most gambier planters had moved to fresh grounds in Johor.

The Peng Kang name lives on in the Jurong area, with a Peng Kang Avenue and the infamous Peng Kang Hill in Pasir Laba Camp bearing the boom and bust legacy of gambier. A number of villages in Jurong were later established by rubber

plantation workers and their families, including Gek Poh Village and Lokyang Village (read more about Jurong's plantations on page 10).

An early entrepreneur who owned vast tracts of rubber land in Jurong was Chew Boon Lay. He arrived in Singapore in the 1870s from his hometown of Changchow (now Zhangzhou) in China, and established gambier and pepper estates in Jurong by 1885. Chew then converted these estates to rubber plantations in the early 1900s, and also cultivated fruits such as *duku*, *langsat* and *chiku*. His other businesses included barter trade and the Ho Ho Biscuit Factory set up in 1898.

Chew died in 1933 and was buried in Bukit Brown Cemetery. Some of the roads that existed in Jurong before its development as a New Town were named after Chew, including Boon Lay Road (which led from the old Jurong Road to Chew's estates and to the southern coast), and the Chin Chong and Chin Bee Roads (named after his grandsons). Today, a Mass Rapid Transit train station, a bus interchange, roads and the area to the southwest of Jurong Hill Park carry the Boon Lay name.



Chew Boon Lay's grave in Bukit Brown Cemetery.



Training session at SAFTI, Pasir Laba Camp in Jurong, 1971.

LEADING THE FORCES: THE SINGAPORE ARMED FORCES IN JURONG

Jurong's military heritage has been a storied one since before World War II. This continued in the 1960s, when the area featured prominently in the creation of a military force for independent Singapore.

Peng Kang Hill is a rise of earth only a select group of Singaporeans have seen and climbed. But many, many more have heard the semi-legendary stories of its unforgiving elevation, soldiers doing frog jumps up the hill or the classic *cheong sua* (charging a hill) in full battle order on its slippery, gravel-strewn slopes.

Among raw Basic Military Training recruits, concerned mothers or just about anybody who has heard a local soldier wax lyrical, the stories filter through, even if most will never see the hill on the officer training grounds of the Singapore Armed Forces (SAF). Even its name sounds like torture. But then that's the part of the folklore of Peng Kang Hill.

For decades, Peng Kang Hill and its companion elevations — FOFO Hill and Good Morning Hill among others — in Pasir Laba Camp have tested the endurance and determination of

the SAF's officers and specialists. James Tan Peng Huat was among the first batches of soldiers to be introduced to the delights of the hill in the 1960s. He recalled:

"When I joined the Armed Forces, I didn't know what the scope was, what the role was...it was totally new to me. The first thing they did was to put me on a military truck and take me to a camp, which happened to be SAFTI (the Singapore Armed Forces Training Institute) at Jurong, 16 and a half miles. That was the most disciplined, strictest camp in the whole of Singapore. (Part of the training included jumping up) a slope called Peng Kang Hill. The hill was very steep and you needed a lot of strength to jump upwards — not downwards you know!"

Brigadier-General Leong Yue Kheong remembered the hill in the 1970s:

"There were many ways to go up Peng Kang Hill. You could run up Peng Kang Hill, you could duck walk up Peng Kang Hill, you could crawl on all fours up Peng Kang Hill...I remembered we had to go up Peng Kang Hill three times in one morning. And three times meant three different ways: running up, on all fours, and then duck walk... Peng Kang Hill was a rite of passage for Officer Cadet School (OCS) and School of Infantry Section Leader (SISL) trainees."

The many methods of making it up the hill did have a dramatic effect on the leg muscles of some, as Major (National Service) Paul Supramaniam testified:

"Once you were used to running up Peng Kang Hill in boots, often with your Standard Battle Order (SBO) and helmet, to be able to just run in PT kit (physical training kit of a t-shirt and shorts) felt like you were flying! We were so fit, and we were so honed that when we were in PT kit, we felt like we could defy gravity! That was the most positive, exhilarating experience. Nothing else quite matched it, not even being commissioned!"

The sinew-straining, backbone-testing aspects of Peng Kang Hill and its nearby elevations made Pasir Laba the perfect place for a military proving ground. It was said that while recruits of many races including Malays, Chinese, Indians and Eurasians passed through the gates of SAFTI, all inside were of one colour - a deep sun-burnt brown.

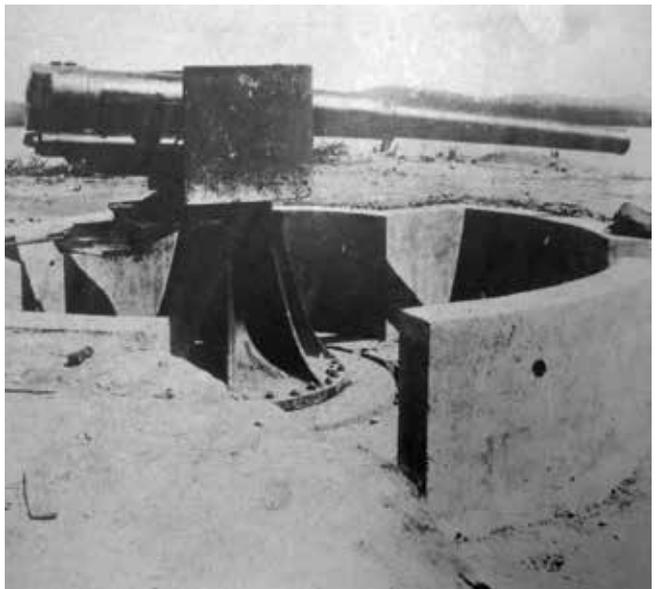
The area was a military focal point since the 1930s, when the colonial authorities installed a pair of artillery batteries at the end of Pasir Laba Road for coastal defence. The two six-inch guns, part of the Faber Fire Command, were intended to protect the western approach to Sembawang Naval Base from potential naval assaults.

During the Japanese invasion of Singapore in February 1942, the Pasir Laba Battery was used to shell Imperial Army troops embarking to cross the Straits of Johor. However, Malaya Command had ordered ammunition to be conserved for a drawn-out siege of Singapore, and the battery fired

only 40 rounds from the night of February 8 to 4.30am the next morning.

The Japanese then began to bombard the Pasir Laba area with artillery and dive-bombing planes. By 8.15am, the battery had been hit several times and the 44th Indian Infantry Brigade in the area was in retreat. Amid the confusion, Allied troops that were attempting to withdraw from Pasir Laba by sea were also hit by friendly fire, from the Fort Siloso Battery on Sentosa. Demolition parties arrived and by 6.30pm, the guns, magazines, lights and stores of the Pasir Laba Battery were destroyed to prevent the Japanese from using them.

Following Singapore's independence in 1965, the new nation needed to establish a formal training structure for officers to lead its armed forces. Existing regiments and battalions such as the First Singapore Infantry Regiment (1 SIR) had been led by Malaysians or British officers. The camp chosen to house the new Singapore Armed Forces Training Institute (SAFTI) was Pasir Laba Camp, in the western reaches of Jurong near the intersection of Upper Jurong Road and Pasir Laba Road.



Pasir Laba Battery before the war, 1930s.

SAFTI

500 Upper Jurong Road



Present-day SAFTI MI.

The first Instructors' Preparatory Course commenced on 15 February 1966 at the temporarily empty Jurong Town Primary School. With Pasir Laba chosen over Pulau Ubin and Pulau Tekong, the first intake of Officer Cadets began training on 1 June 1966 at Pasir Laba Camp, while permanent facilities were being built.

On 18 June 1966, SAFTI was officially opened by Dr Goh Keng Swee, then Minister for Interior and Defence. SAFTI's first Director was then—Lieutenant Colonel Kirpa Ram Vij, who was seconded from the civil service and had been a volunteer officer in the Singapore Military Forces (the SAF's precursor).

With the first group of 117 officer cadets graduating from SAFTI on 16 July 1967, the institute gradually grew its training capabilities. Starting off with the Officer Cadet School (OCS) and School for Infantry Section Leader Training (SISL), SAFTI added schools for artillery, armour, signals, combat engineer and other service arms in the 1970s. By the 1980s, some 2,000 graduates were passing through SAFTI each year and the institute saw a need to expand to cope with the increased training demands.

In 1987, plans for the new SAFTI Military Institute (SAFTI MI) to be located on an 88-hectare site within a stone's throw of Pasir Laba Camp were announced. SAFTI had grown into an integral part of the SAF's identity, and its acronym was retained for the name of the new institute. SAFTI MI was opened by Prime Minister Goh Chok Tong on 25 August 1995.

Where the old SAFTI generally trained officers for the army, navy and air force separately, the new institute brought training for the Republic of Singapore Air Force, the Republic of Singapore Navy and the Singapore Army together to enhance operational integration and understanding.



Defence Minister Dr Goh Keng Swee reviewing the first officers' commissioning parade at SAFTI, Pasir Laba Camp, on 16 July 1967.

The tri-service training philosophy is reflected in SAFTI MI's most prominent landmark, a 60m-tall three-sided tower guarded by a pair of stone lions previously mounted at Merdeka Bridge. The prominent 'Merdeka Lions' were donated to the Ministry of Defence in March 1988 and have been sited at the SAFTI Military Institute since 1995.



March-past of the first batch of 117 officer cadets at SAFTI, 1967.

The architectural layout of SAFTI MI emphasises triangular motifs, representing the three services. These motifs can be found in the institute's three-sided tower and the triangular Singapore Discovery Centre. Other landmarks include the commissioning parade ground and the 100m-long suspension bridge connecting SAFTI MI to the former SAFTI grounds in Pasir Laba Camp. Influences of local architectural styles such as Chinese monasteries, Malay kampong houses and Peranakan terrace houses, can also be seen in the buildings of SAFTI MI.

JURONG'S INDUSTRIAL HERITAGE

A number of industrial facilities built in the 1960s and 1970s have become integral facets of Jurong's identity, even if some of them are

no longer used for their original purposes. These facilities include the old Jurong Town Hall, Jurong Port and Jurong Shipyard as well as the old Jurong Railway, and feature as stops on our heritage trail.

FORMER JURONG TOWN HALL

9 Jurong Town Hall Road

The late 1960s had seen the demands of managing the industrial estate in Jurong grow exponentially. It was decided that the Economic Development Board (EDB) should concentrate on economic promotion, wooing and engaging investors and helping finance projects. To manage Jurong and other industrial estates, the Jurong Town



Jurong Town Hall today.



Jurong Town Hall as it was being constructed in 1973.

Corporation (JTC) was formed in 1968 by an Act of Parliament.

Constructed as the headquarters of the JTC, the Jurong Town Hall has been described as a building “deserving recognition as the island’s singular icon outside the Central Area”.

The JTC operated from temporary premises, including a former canning factory owned by Chew Boon Lay, for six years before moving into the S\$7m Jurong Town Hall in 1974. The Town Hall had been completed by Architects Team 3 in 1968, with Lim Chong Keat, who also designed the Singapore Conference Hall, as principal architect.

An elongated building reminiscent of a ship with two connected blocks of unequal length, the Town Hall’s a 58m clock tower with one of the largest digital clocks in the region is a landmark for visitors to Jurong.

Jurong Town Hall carried enormous symbolism as an expression of the nation’s confidence in industrialism as a pillar of development. Sitting on a vantage point, the building served as a panopticon and crown of the Jurong area, while the hard granolith finishes, heaviness of its inverted form and modular, angular patterns emphasise the industrial character.

A Garden of Fame on the grounds commemorates the visits of various dignitaries, with former Prime Minister of China Li Peng,

Sultan Hassanal Bolkiah of Brunei and former South Korean President Chun Doo Hwan having planted trees here. The garden is an expansion of an earlier garden on Jurong Hill where distinguished visitors planted trees.

By the turn of the 21st century, JTC had outgrown the Town Hall, and in 2000 moved to a larger building across Jurong Town Hall Road. The move to JTC Summit also saw the organisation change its name to JTC Corporation. The Town Hall was then occupied by iHub, a space for start-up companies.

The Town Hall’s history and iconic architecture was dignified with the granting of Conservation Status by the Urban Redevelopment Authority in November 2005.

JURONG PORT

37 Jurong Port Road

The natural deepwater harbour of Jurong, from Tanjong Gul to the waters around Pulau Samulun and Pulau Damar Laut, was one of the main reasons Jurong was selected as Singapore’s first industrial town.

Jurong Port stands on what used to be Kampong Pulau Damar Darat, Kampong Tanjong Balai and Pulau Damar Laut, to the east of the mouth of the Sungei Jurong. In 1963, wharves were constructed here by the Economic Development Board (EDB) to allow raw materials to be shipped in and finished products to be shipped out from the factories of Jurong.



Jurong Port, Shipyard and Jurong Island in the distance.

Officially beginning operations in 1965 with two ship berths, Jurong Port handled a diverse range of cargo, including steel plates, copper slag, clinker (stony residue from coal burning or furnaces), metals, cement, machinery, raw sugar, potash, grain, beans, seeds, industrial chemicals, scrap iron, timber and farm animals. The Port was run by the EDB, with management assistance from the Port of Singapore Authority (PSA), before coming under the charge of the Jurong Town Corporation in 1968.



Jurong Port, 1975.

Wang Swee Chuang (b. 1951), an operations manager at the port in the late 1970s, recalled:

“For a long time, we didn’t even have an office building. We had a site office provided by one of the contractors working on one of our projects. It was a wooden, zinc-roofed shack. We had to use public toilets.

“There were no proper carparks and our cars were often parked under conveyors carrying fertiliser, sugar — the cars used to get coated, and a major concern of officers in the port was car corrosion. But this is an industrial port, not like the Port of Singapore Authority (PSA) where things come in containers.

“Things (were) a lot more comfortable (after) we got our administration building. But the environment is still harsher for staff who work in the open. But some of them like it, the space, the sea breeze. Our staff are hardy men.”

With the expansion of Jurong Industrial Estate in the 1970s, Jurong Port also grew, adding deepwater berths and other port infrastructure. The port hit the million ton mark for cargo handled in 1970, and also started supply and support services for the offshore oil, gas and marine industries. In the 1990s, the port reclaimed land and constructed facilities on Pulau Damar Laut in a S\$200m project, adding

deepwater berths, a Cement Terminal and a causeway to the mainland.

A Container Terminal was started in 2001, as well as a warehousing complex. By the middle of the 2000s, Jurong Port began to handle general cargoes previously handled at Pasir Panjang Wharves.

JURONG SHIPYARD

29 Tanjong Kling Road

In the 1960s, part of the government’s economic strategy involved making Singapore a major player in shipping, shipbuilding and repair, second only perhaps to the Asian leader Japan. The ship repair facilities at the Singapore Harbour Board dockyard in Keppel Harbour



Jurong Shipyard, 1960s.

were also groaning under the strain of growing demand for shipbuilding and repair services.

Towards this end, the EDB worked with Japanese company Ishikawa-Harima Heavy Industries to establish and operate a shipyard at Pulau Samulun, with the EDB holding 49% of the shares. According to Joe Pillay, then chief of the Projects Division at the EDB, the deal with Ishikawa-Harima spurred interest from other Japanese manufacturers to invest in Jurong.

Jurong Shipyard was incorporated in April 1963 to construct, maintain and repair all manner of ships and vessels, and also housed workshops for the construction, manufacture and assembly of heavy equipment.

While Pulau Samulun, overlooking the ancient trade route of the Samulun Strait, possessed a natural deepwater harbour, there were also challenges to overcome before a shipyard could be built. Yip Yue Wai, who began work at the shipyard in his 20s, recalled:

“(There was) mud everywhere. There was no bridge linking the main island and Pulau Samulun. At the time, we used 44-gallon barrels to build rafts to enter and exit Pulau Samulun. Everything was inconvenient.”

Other workers made their way across by sampan, before a pontoon bridge was built, and water had to be transported from the mainland.

The kampong on Pulau Samulun, including a school, a clinic, a mosque and houses, was demolished and the villagers relocated by June 1964. A floating dock was used to start shipbuilding and repair services, while a drydock, slipway, quays, machinery shops and administration buildings were constructed.

Jurong Shipyard began operations in 1964 and in its first year, built 11 vessels worth more than \$5m. The first ship constructed there, the 160-ton *Tanjong Rambah*, was launched in December 1964 and by the time the shipyard was officially opened on 5 November 1965, it had already repaired 100 ships.

JURONG FISHERY PORT

Fishery Port Road

This fishery port established in 1969 at the former Tanjong Balai handles most of the fish imported into Singapore. The Jurong Fishery Port is also a marketing distribution centre for seafood, with a wholesale fish market and shops.

The Fishery Port had come about after port facilities were built at Tanjong Balai for a different purpose entirely. Lim Ho Hup, a former director with the Economic Development Board (EDB), recalled:

“(Singapore) used to have a barter trade area at the Telok Ayer Basin. A lot of barter trade (was) coming from Indonesia. They bring their copra, rubber and all that. It was not desirable that they should be doing the barter trade in the centre of the city. (At Tanjong Balai), the Japanese were trying to build a submarine base. So the thinking was: if it's good enough for a submarine base, it's good enough for a lot of ships.”

“The idea was to build that and fence it off for barter trade purposes. It turns out that by the time we built it, there was Konfrontasi (a period of political and economic freeze between Indonesia and Malaysia, which Singapore was a part of) and there was no barter trade!”

“We were wondering what to do with it, then the Primary Production (Department) people came up with the idea...to build (a fishery port) on the other side of the river. We had built a port for barter trade and the barter trade was not there...we convinced everybody (and) that (became) the first fisheries port.”

Besides vessels from Indonesia and those operating in the Indian and Pacific Oceans, the Fishery Port also receives seafood via trucks from Malaysia and Thailand, as well as by air from countries including Australia, Bangladesh, China, India, Myanmar, Taiwan and Vietnam. An average of 200 to 250 tonnes of fish is then sold at 110 market lots, with some 100 fish merchants licensed by the Agri-Food & Veterinary Authority of Singapore (AVA) for wholesale activities.

Between 2,000 to 3,000 fish mongers and retailers, as well as staff of eateries and seafood processing plants arrive each day to purchase prawns, crabs, lobsters, squid and popular species of fish including sea bream, mackerel, gold-banded scad, red snapper, pomfret, grouper and threadfin. The Jurong Fishery Port and Market are open to public visits.

THE JURONG RAILWAY

Ulu Pandan Park Connector

As the production of the Jurong Industrial Estate grew steadily from the late 1960s, planners sought another option besides Jurong Port for the transport of raw materials and the export of finished products. Their gaze turned north and the EDB worked with Keretapi Tanah Melayu (KTM, Malayan Railways Limited) to develop Jurong Railway at a cost of S\$5.9m. The Jurong line branched off from the main Malaysia-Singapore railway, and was the first new line built by KTM since World War II.



Railway lines leading to the wharfs in Jurong, 1960s.

The Jurong line was constructed between September 1963 and early 1966, with around 19.3km of track laid, and was officially opened on 5 March 1966 by Dato Ahmad bin Perang, the general manager of KTM and Hon Sui Sen, then chairman of the EDB and later Minister for Finance.

Starting from the Bukit Timah Railway Station next to King Albert Park, the Jurong Line ran through Pasir Panjang and ended at Shipyard Road, near the Mobil refinery. Three branch lines led to the National Iron and Steel Mills (NatSteel), the heavy industries section of the estate and to the wharves of Jurong Port.

Regular cargo services utilised the railway to transport clinker (a residue of steel mills and furnaces used to make cement) and timber from peninsular Malaysia into Jurong, and brought manufactured products the other way. Changing trends in logistics led to more efficient methods of transportation however, and the Jurong Railway ceased operations in the mid-1990s.

Since then, the unused railway tracks of the Jurong Line have been a haunt for explorers and wildlife enthusiasts. Walks along the tracks take in bridges across the Sungei Pandan among other crossings and can yield surprising flora and fauna in patches of land reclaimed by nature, as well as surrounding creeks, marshes and ponds.

JURONG AND SINGAPORE'S WASTE MANAGEMENT

A comprehensive waste management system has made Singapore the only nation in the world where all toilet waste is channelled into sewers, through the Deep Tunnel Sewerage System. A number of important facilities in the national waste management system are located in Jurong, including three 'waste-to-energy' incineration plants in Tuas.

At these facilities, solid waste is reduced to some 10% of its original volume, with energy also being generated during the process. The Tuas Incineration Plant was the second such facility in Singapore and completed in 1986 at a cost of S\$200 million. Tuas South Incineration Plant is the nation's largest, sitting on 10.5ha of reclaimed land, and incinerates 3,000 tonnes of refuse a day.

The first incineration plant built here through a public-private partnership is the Keppel Seghers Tuas Waste-to-Energy Plant, which treats some 800 tonnes of solid waste daily on a compact 1.6ha site. This plant can also generate about 22 megawatts of green energy.

Ash and non-incinerable waste is collected from plants and transited through the Tuas Marine Transfer Station, before being transported by tugboats to Semakau Landfill. Located in the midst of a crescent of islands including Pulau Senang, Pulau Pawai, Pulau Sebarok and the refinery island of Pulau Bukom, Semakau is the world's first man-made offshore landfill. The landfill stands on 350ha of reclaimed land, the result of a S\$610 million project completed in 2003.

Despite its use as a landfill, Semakau boasts a thriving marine eco-system with mangrove swamps that act as a biological canary in the mine, signalling any potential leakages of waste. In January 2015, more than 700 coral colonies naturally grown here were transported to the Sisters Island Marine Park.

Rare marine flora has also been found in lagoons on Semakau, including the giant Neptune's Cup Sponge, a species previously thought extinct worldwide before its rediscovery in 2011 near St John's Island. Neptune's Cup Sponges can grow more than a meter in diameter and height, and in the past were coveted by collectors and used as tubs for babies. Semakau is open to the public for selected recreational activities.



Oil refineries at Jurong Island, officially opened in 2000.

Toponymy of Jurong

Jurong Road

Jurong may derive from the Malay words *jerung* (a species of shark), *jurang* (a gap or gorge) or *jurung* (a corner).

Jurong Island

From January 1999, land reclamation to join 10 small islands to the south of the Samulun Strait was begun. These were Pulau Pesek, Pulau Pesek Kechil, Pulau Ayer Chawan, Pulau Sakra, Pulau Ayer Merbau, Pulau Meskol, Pulau Merlimau, Pulau Seraya, Pulau Mesemut Laut and Pulau Mesemut Darat. The S\$1.3 billion project was the largest land reclamation project in Singapore at the time.

Six districts on Jurong Island, now a petrochemical, petroleum and natural gas hub, reflect the names of the former islets: Pesek, Chawan, Sakra, Merbau, Merlimau and Seraya.

Jalan Ahmad Ibrahim

Named after Ahmad bin Ibrahim, a unionist and politician who was Singapore's first Minister for Health following self-government in 1959. He later became Minister for Labour, and passed away at the age 35 while in office.

Jalan Boon Lay

Named after rubber magnate Chew Boon Lay, who owned sizable tracts of land in Jurong (see page 47).

Jalan Peng Kang

Peng Kang was previously the name of a district on the west of the Sungei Jurong, and derives from the Hokkien word for the process of boiling gambier in its commercial preparation. This road was renamed Corporation Road in the 1970s.

Jalan Buroh, Jalan Jentera, Jalan Pabrik

Derived from the Malay words for labour, machinery and factory respectively, reflecting the industrial character of the area. The latter two were renamed Innovation Drive and Jurong Pier Road.

Jalan Perkakas

Perkakas is the Malay word for a tool or appliance. This road was renamed Chin Bee Road, after Chew Boon Lay's grandson. A Chin Bee Road ran off the old Boon Lay Road before the development of Jurong New Town.

Jalan Gudang

Derived from the Malay word for warehouses. This road was renamed Jurong Port Road.

Jalan Bandaran

Bandaran is the Malay word for municipal. Later renamed Pioneer Road, reflecting the Pioneer Industries tax incentive scheme that helped draw investment into Jurong Industrial Estate.

AROUND THE SUNGEI JURONG

Through the ages, the Sungei Jurong has been a major local landmark and the economic lifeblood of the community. The earliest



Aerial view of parts of Chinese Garden, Jurong Lake and Jurong West housing estates, 1985.

known pictorial representation of Jurong is of the river, a lithograph by the artists of the Perry Expedition on the American East India Squadron (see Early Accounts of Jurong).

The headwaters of Sungei Jurong were also a place where low-lying marshlands flooded with brackish water during high tides, creating a small ecosystem unique in Singapore. Flora and fauna here, including birdlife, would have been vibrant and rich in biodiversity, and the area remains a great place to spot seldom seen birds today.

Before the industrial development of Jurong, crocodiles were a common sight with travellers crossing the Sungei Jurong noting up to 12 crocodiles on its mudbanks. Old-timers of Kampong Tebing Terjun told the story of a midwife who was summoned to a night birth in Kampong Sungei Attap across the Sungei Jurong. In her haste to reach the delivery in time, she tried to help

the boatman by using hands to paddle the waters. Like lightning, a crocodile snapped off her hand, and the unfortunate woman was unable to continue her profession as a midwife. As late as the 1980s, there were signs in the Chinese and Japanese Gardens warning of crocodiles.

The Chettiar community in Singapore is more commonly associated with money lending, but a number of Chettiars also invested in plantations and property. In the early 20th century, Chettiar families owned two prominent rubber estates adjacent to the Sungei Jurong, the Arunachalam Chettiar and Chithambaram Chettiar estates at the 11th and 12th milestones of Jurong Road. Other Chettiars were also known to have owned pineapple and rubber plantations in Jurong.

From at least the early 20th century, a string of kampongs existed on both banks of the Sungei Jurong. Kampong Tanjong Balai stood at the mouth of the river, while Kampong Java Teban was on the east bank and villagers there ferried passengers travelling on the old West Coast Road across the river by boat.

Near the river's macabre-sounding tributary of Sungei China Mati, also on the east bank, was Kampong Tebing Terjun. Finally, Kampong Sungei Jurong was at the 11th milestone, near the river's headwaters.



Courtesy of Singapore Tourism Promotion Board



Chettiar moneylenders in their office, 1960s.

JURONG LAKE

During the development of the industrial town in the 1960s, EDB planners decided to convert the Sungei Jurong into a lake, rendering it easier to provide water for industrial purposes and create social and leisure amenities around the water. The upper section of the river was dammed in 1971, creating Jurong Lake. Rainfall in Jurong East and Jurong West is now channelled to the lake via canals and drains, turning it into a reservoir.



Kayaking activities at the Jurong Lake.

Jurong Lake Park was constructed on the west bank of the lake, while the Chinese Garden and Japanese Garden were established on two man-made islets. A third islet forms part of the Jurong Country Club golf course.

The Nature Society of Singapore has catalogued some 123 species of birds in the Jurong Lake area, including rarely seen birds such as the Grey-headed fish eagle, which breeds here and is nationally threatened.

For more on the recreational activities such as fishing available at Jurong Lake, as well as the natural heritage of the area, please visit <http://www.abcwaterslearningtrails.sg/web/jurong-lake.php>.

CHINESE GARDEN AND JAPANESE GARDEN

1 Chinese Garden Road

These two gardens are best remembered as well-loved locations for wedding photography in the 1970s and 1980s. The Chinese Garden has also hosted Chinese New Year and Mid-Autumn Lantern Festival celebrations.

Designed by Taiwanese architect Professor Yu Yuen-Chen, the 11.3ha Chinese Garden (Yu Hua Yuan) was built between 1971 and 1975. Its design principles were based on classical northern Chinese imperial architecture, in particular the Song Dynasty period (960-1279). Its major features include ornate bridges, pavilions and a seven-storey pagoda, some of which were inspired by the Summer Palace in Beijing.



The Chinese Garden at sunset.



The Japanese Garden.

The Chinese Garden was opened by Minister for Finance Hon Sui Sen on 18 April 1975 and drew half a million visitors in its first eight months. Later additions to the garden include the Bonsai Garden and the Live Turtle and Tortoise Museum. For more information, please visit <http://www.turtle-tortoise.com>.

Jointly financed by the Singapore and Japanese governments, the Japanese Garden was designed to the aesthetics of gardens in the Muromachi period (1392-1568) and the Momoyama period (1568-1615). The garden was constructed under the direction of Professor Kinsaku Nakane, a well-known figure in the design, restoration and scholarship of Japanese gardens responsible for gardens in China, the United States of America and Japan.

Featuring distinctly Japanese stone paths and Toro stone lanterns, rock waterfalls and a winding stream, the 12.14ha garden was opened by Minister for Defence Dr Goh Keng Swee on 16 February 1973. Also known by its Japanese name Seiwaen, the garden also contained some 500 tons of rocks from Japan worth more than \$150,000 and donated by the Japanese Chamber of Commerce, as well as some 5,000 Nishiki koi (carp) in its waters.

JURONG HILL

1 Jurong Hill

The highest ground in Jurong, this hill is also known by its Malay name Bukit Peropok. Before the development of Jurong New Town, there were a series of rivers and tidal swamps at the foot of Bukit Peropok on its south side, including Sungei Peropok, Sungei Simpang Pak Chalong and Sungei Simpang Gunong. Kampong Damar Darat stood to the hill's southeast, while other hills in the area included Bukit Sesop and Bukit Batu Berandang.

The second wave of transformation of Jurong in the late 1960s saw the establishment of recreational spaces and social amenities to leaven the heavy industrial character of the area. Parks and lakes were built as part of this effort, and it was decided that 12% of the land in Jurong Industrial Estate was to be set aside for green spaces.

In 1968, the Jurong Town Corporation (JTC) converted Jurong Hill into a park with a sunken garden, miniature waterfall and streams. A spiralling Lookout Tower was opened in 1970 at the top of the hill, and many remember a Japanese teppanyaki restaurant here. The tower offered visitors panoramic views of Jurong as well as Malaysia and Indonesia in



Jurong Hill remains as a green oasis amidst the industrial estate.

the distance, and families flocked to the hill as a place to relax and for children to explore the green spaces.

The hill also hosted a Garden of Fame where heads of state and other dignitaries planted trees to commemorate their visits to Jurong Industrial Estate. Those who have done so include Chinese leader Deng Xiaoping, British monarch Queen Elizabeth II, Japanese Crown Prince Akihito, President Suharto of Indonesia, Prime Minister of Canada Pierre Trudeau and President of Singapore Benjamin Sheares.

The first tree here was planted by Princess Alexandra of the United Kingdom in 1969, while the last was planted by economic advisor to Singapore and pioneer of industrialisation Dr. Albert Winsemius in 1984. A total of 30 trees were planted here between 1969 and 1984, before a lack of space saw a new Garden of Fame established on the grounds of the Jurong Town Hall.



Mdm Quah Kim Poh's family having a relaxing day at Jurong Hill. She remembers celebrating many Mid-Autumn Festivals at the hill in the 1980s.

Courtesy of Mdm Quah Kim Poh

JURONG BIRD PARK

2 Jurong Hill



An animal presentation held at the Bird Park, 1989.

One of the most well-loved places in Jurong, the Jurong Bird Park is Singapore's first wildlife park, and was the brainchild of Dr Goh Keng Swee. Impressed by a visit to a zoo with a free-flight aviary in Rio de Janeiro in 1967, he proposed the idea of a bird park for Singapore at the inaugural meeting of the Jurong Town Corporation in June 1968.

Jurong Bird Park occupies 20.2ha of land on the western side of the hill, with the park designed by John James Yealland, the London Zoological Society's Curator of Birds and J. Toovey, an aviary architect. The park opened on 3 January 1971 at a cost of S\$3.5 million.

Today, Jurong Bird Park has over 5,000 birds of 400 species, and continues to be a popular attraction for local and overseas visitors. The largest avian park in the Asia Pacific, the park also includes an avian hospital and an award-winning Breeding and Research Centre which offers visitors a glimpse into the growth process of the park's feathered residents. Here, incubation rooms, nurseries, weaning rooms and a food preparation room provide a behind-the-scenes look at the work of avian keepers and the early stages of a bird's life.

Other attractions include a nine-storey tall lory flight aviary, with nine multi-coloured lory species, the Waterfall Aviary housing more than 600 birds, hornbill and toucan exhibits, as well as habitats for penguins, macaws and flamingos. The bird park also carries out conservation and research programmes, including a project to increase the numbers of oriental pied hornbills on Pulau Ubin.

Former Jurong Reptile Park & Crocodile Paradise

Harking back to the days when gimlet-eyed, deceptively languid crocodiles basked on river banks in Jurong, the Jurong Crocodile Paradise opened in December 1988. One of the main attractions then was a man who for the benefit of visitors, would place a S\$10 note in the open jaws of a 400kg crocodile named Hulk and retrieve it with his mouth.

Located next to the Jurong Bird Park, the Crocodile Paradise was built at a cost of S\$10 million and housed 2,500 saltwater crocodiles. Later renamed Jurong Reptile Park, it grew into the largest such park in Southeast Asia with more than 50 species of reptiles including crocodiles, komodo dragons, snakes and tortoises. The park closed in 2006 and was remade into a retail and food destination.

PANDAN RESERVOIR AND SUNGEI PANDAN

Accessible from West Coast Road or Jalan Buroh

Before the industrialisation of Jurong, swampy ground around the Sungei Jurong and Sungei Pandan provided for the most productive prawn farming ponds in Singapore. Prawn ponds here could yield as much as a ton of the crustaceans per acre, far higher than ponds elsewhere on the island. Prawn farming sustained a number of kampongs and villagers, and continued until the mid-1960s.

In 1974, the Pandan Reservoir was built by enclosing the swamps of the Sungei Pandan estuary with a 6.2km earthen dyke. A tidal gate was built to allow freshwater from the river to enter the reservoir, and to loose excess water into the sea. Raw water from the reservoir is treated at the Choa Chu Kang Waterworks before being distributed in western Singapore.

The reservoir and river also serve as recreation sites, with the mouth of the Sungei Pandan having hosted the Republic of Singapore Yacht Club (RYSC) between 1966 and 1999. The RYSC was established in 1826 as the Singapore Yacht Club and is the oldest recreational or social club in Singapore, and the first yacht club in Asia. In 1999, it moved to West Coast Ferry Road.

Under the Public Utilities Board (PUB)'s Active, Beautiful, Clean (ABC) Waters programme, Pandan Reservoir underwent a renewal with the addition of water sports facilities. Activities such as canoeing and kayaking, rowing, sailing, sport fishing, radio control and electric boat sailing are available here, and the reservoir's amenities centre also houses the Singapore Canoe Federation.

Fringes of mangroves, once ubiquitous in the area, remain at the mouth of Sungei Pandan. These hubs of biodiversity are homes to a wide range of bird and sea animals (see page 13).



Teban Garden and Pandan Garden estates overlooking the Pandan Reservoir.

FORMER JURONG DRIVE-IN CINEMA

11 Japanese Garden Road

From raucous, generator-powered open-air cinemas in the kampongs to glamorous theatres in town, the movies have always occupied a special place in the hearts of Singaporeans. Mention Jurong and many film fans will recall the former open-air cinema on Yuan Ching Road.

The Jurong Drive-In Cinema, run by Cathay Organisation, was the first and only drive-in theatre in Singapore. The cinema opened on 14 July 1971 and movie lovers cruised in to catch the British comedy *Doctor in Trouble*. As the confines of the car provided a more romantic and private movie viewing experience than the usual theatres, the Drive-In proved to be a hit with young adults and couples.

Accommodating some 900 cars and 300 people in the gallery in front of the elevated, tilted 14.3m by 30.4m screen, Cathay ran screenings at 7pm and 9.30pm each day. Tickets cost \$2 for adults and \$1 for children, and movie soundtracks were played over 899 standing speakers as well as individual speakers attached to each car.

Ann Tan (b. 1963) remembered her experience watching a film at the drive-in cinema:

"The most memorable thing is that before the movie starts, the field near the screen would be where motorists race with one another... They would compete to see whose engine is better and the loudest. Usually we would reach slightly earlier and watch them compete, but they would all quieten down when the show was starting."

One of the most popular movies shown at the Jurong Drive-In was 1971's *The Big Boss*, starring Bruce Lee. The film broke the Drive-In's box office record, taking in \$12,000 in one night. Lam Chun See (b. 1952) recalled:



The Jurong Drive-In Cinema on opening night, 14 July 1971.



Families buying ice-cream from a vendor at the cinema.

"This movie was such a big hit that all the tickets were sold out in the regular theatres in town; and so in desperation, my brothers and I headed for the Jurong Drive-In."

While the novelty of the Drive-In drew large crowds early on, a host of factors detracted from the viewing experience. The sound system was poor and handling gatecrashers and unruly audience members proved to be a headache for the management, especially when there was a long line of cars waiting to enter the cinema.

By the 1980s, attendances had dwindled to some 200 viewers each night. Jurong residents also complained of motorcycle riders illegally using the Drive-In's grounds for circuit racing after the theatre had closed for the night. However, the final nail in the coffin for the cinema was the widespread availability of pirated videotapes. Cathay

closed the Jurong Drive-In on 30 September 1985, with only 50 cars present at the final two screenings. The former cinema grounds were later occupied by the Fairway Club.

FORMER TANG DYNASTY CITY

Junction of Yuan Ching Road and Jalan Ahmad Ibrahim

In the late 1980s, there were efforts by a number of parties to capture a slice of the movie-making business from Hong Kong, which was to be handed over by the British to China in 1997. One of these projects was the Tang Dynasty City, built on 12ha of land to the west of Jurong Lake in 1989.

Conceived and financed by Hong Kong tycoon Deacon Chiu, Tang Dynasty City positioned itself as a theme park recreating Chang'An (now Xian), the ancient Chinese capital of the illustrious Tang Dynasty period (CE 618-907). Notable features here included a replica of the Great Wall of China surrounding the park, life-sized replicas of terracotta warriors and Tang-style landscaping.

The park was to also contain three film studios, to make use of the period architecture and locations for movies and television series. However, these facilities were never completed and little film production took place here other than occasional appearances in local television dramas.



Jurong residents Mdm Chia Joon Lang and Mr Lee Ah Ba at the Tang Dynasty, 1990s.

Courtesy of Mdm Chia and Mr Lee

The project cost more than S\$100 million and opened in January 1992. While Chiu expected around 900,000 visitors each year, the park never became a big draw due to high admission prices and attractions that did not appeal to either tourists or locals. Tang Dynasty City closed in 1999 and after a number of aborted attempts at reviving it with a new concept, the park was demolished in 2008.

SCIENCE CENTRE SINGAPORE

15 Science Centre Road

The roots of the Science Centre Singapore lie in the decision to concentrate the focus of the National Museum of Singapore on art and history in 1969. Science and technology were also important fields for a nation aspiring to move up the industrial value chain, and an institution to educate and inspire the public in these areas was vital.

Parliament passed the Science Centre act in 1970 and a design competition for the centre was won by local firm Raymond Woo and Associates Architects. Their design was described variously as a spaceship, an inverted cup or a moon buggy, and a 10-acre site in Jurong East chosen to house the S\$20m Science Centre Singapore.

Officially opened on 10 December 1977 by Dr Toh Chin Chye, the Minister for Health and



The Science Centre Singapore.

former Minister for Science and Technology, the Science Centre Singapore became the first public education and exhibition institution of its sort in Singapore. It was also one of the first of such facilities in Asia. The Science Centre Singapore aimed to showcase exhibitions on the physical, life and applied sciences, technology and industry, thereby promoting and inculcating a love for scientific learning.

The Science Centre's 14 galleries house more than a thousand exhibits that have utilised interactive interfaces and inventive presentation techniques

to educate and entertain. More than 29 million have visited since its opening. The centre has also used outreach activities, especially targeting students and the young, to creatively explain scientific concepts and stimulate imagination.

In 1979, the International Council of Museums declared the Science Centre Singapore to be one of the top institutions of its kind in the world. Later additions to the centre have included the Omni-Theatre, Kinetic Garden, the Marquee (to host events and functions) and an Annexe Building for exhibitions and conferences.



Then Minister for Environment, Mr Ong Pang Boon, toured the Science Centre's Eco Garden during its official opening, 1977.

RELIGIOUS INSTITUTIONS IN JURONG

As the new Jurong took shape and the population of the area grew, religious institutions of the various faiths were established. Some were incarnations of the *suraus*, temples and churches that served the villagers of old Jurong, while others were fresh arrivals to the area.

MASJID HASANAH

492 Teban Gardens Road

This mosque has its roots in the 1960s resettlement of kampong residents from the islands that now make up Jurong Island. These were Pulau Ayer Chawan, Pulau Merlimau, Pulau Sakra, Pulau Seraya, Pulau Mesemut Laut, Pulau Mesemut Darat, Pulau Pesek, Pulau Pesek Kechil and Pulau Meskol.

Along with the kampongs, other community buildings on the islands including *suraus* (prayer houses) were demolished for industrial redevelopment. To rehouse and compensate the villagers, the Jurong Town Corporation (JTC) provided kampong houses in Teban Gardens.

In the late 1960s, the significant Muslim population in Jurong had to make their way to Masjid Hussein Sulaiman, in Pasir Panjang for Friday prayers. The need for a mosque in Jurong was clear, and the JTC funded the construction of Masjid Hasanah to replace the old *suraus* of the islands. The brick and timber mosque was completed in 1971 and was the first full-fledged mosque in Jurong.



Masjid Hasanah.

The surrounds of Masjid Hasanah changed from kampong houses to Housing & Development Board flats in the 1980s, and the community felt that a rebuilding of the mosque was in order. In 1989, the community raised S\$1.4 million and the rebuilding project commenced.

Construction delays and a fire prolonged the rebuilding period, and additional financial and material support was also lent by the Majlis Ugama Islam Singapura (MUIS) and 13 other mosques in Singapore as the cost of the rebuilding had risen to S\$6 million. Masjid Hasanah reopened on 19 May 1996.



The interior of Tong Whye Temple.

TONG WHYE TEMPLE

212 Jurong East Street 32

This temple that has stood in Jurong for more than 80 years bears a heritage carried across the South China Sea. Established in 1932 by Hokkien migrants from southern Fujian in China, Tong Whye Temple is named after a temple in their hometown of Quanzhou.

To invoke divine protection for the perilous journey by ship to Singapore, the Quanzhou migrants carried a statue of Guan Di Shen Jun (Guan Yu, a general of the Three Kingdoms period of AD 220–280 who was deified) and incense from the original Tong Whye Temple.

Arriving in Singapore, the Quanzhou villagers settled at the 10.5 milestone of Jurong Road, and the Guan Di Shen Jun was installed on an altar in an *attap* house. A permanent temple between two farms owned by the Hu family was built in 1932 to house the deity statue, and named Tong Whye Temple. Another temple of the same name was also established in Geylang by others from the same village in Quanzhou.

A stage for Chinese opera was built nearby, and the Pei De village school was established next to the temple in 1946. The school had close to 500 students in its heyday, but closed in the 1980s.

One of the most significant days celebrated by the temple is Guan Di Shen Jun's birthday on the 24th day of the sixth month of the lunar calendar. Tan Kim Leong, a temple official, recalled:

"In the past, whenever it was Guan Di Shen Jun's birthday, the whole kampong turned up for the celebrations. People would bring offerings of chickens and ducks to the temple. It was bustling and lively, and up to a thousand people turned up to watch the operas."

In 1967, the temple was moved to Track 17, Jurong Road to accommodate road widening. Track 17 was redeveloped for housing in 1981 and the temple moved to its present location.

TUAS TUA PEK KONG TEMPLE

118 Boon Lay Drive

Home to Chinese and Malay fishermen, Tuas Village was one of the earliest settlements in the area having been founded on the banks of the Sungei Tuas in the 1880s. Fishermen here used traditional net fishing methods, with the name of the village derived from the Malay word *menuas* or hauling up a net. At its peak, hundreds of boats plied the waters between western Singapore and Indonesia, bringing their catch to Tuas or Pasir Panjang.



The prayer hall of the Tuas Tua Pek Kong Temple.

In 1942, 39 residents of Tuas Village were killed by invading Japanese forces. This spread fear among the 2,000 villagers, and the Chinese in Tuas — some 70% Teochew and 30% Hokkien — sought spiritual succour. A group of eight villagers founded the Tua Pek Kong Keng in an *attap* hut, enshrining Tua Pek Kong, the God of Prosperity worshipped by Chinese in Southeast Asia.

The temple was moved to a brick and tiled roof building in 1954, before the industrial redevelopment of Tuas changed the landscape of the area in the 1960s and 1970s. Many of the villagers were resettled in Boon Lay, and the Tua Pek Kong temple was reopened at 118 Boon Lay Drive in 1987.

ARULMIGU MURUGAN TEMPLE

281 Jurong East Street 21

Established in 1993 and completed and consecrated in 2004, the Arulmigu Murugan Temple is the only Hindu temple in the Jurong area. The temple was built through the efforts of the community, which raised S\$4 million towards its construction. At its consecration in 2004, the temple drew more than 15,000 devotees.

Parts of the temple, including the intricately sculpted *rajagopuram* (the temple's main tower) in the Dravidian style, were worked by temple craftsmen from India. Today, the Arulmigu Murugan Temple services around 1,000 worshippers each day, with the figure rising to 3,000 over the weekends and higher during festivals like Deepavali. Most devotees are Hindus from the Jurong, Yuhua, Teban and Boon Lay areas, while there are also non-Hindu Chinese worshippers.

The temple's presiding deity is Lord Murugan, to which a six-foot statue is dedicated, and festival days are in his honour. Other deities enshrined here include Sri Vinayagar, Sri Durga, Sri Indumban, Sri Ambal, Sri Sivan, Sri Anjenayar and Sri Muneeswaran.

This is the only Hindu temple in Singapore to feature a *yagasalai*, a permanent fixture for prayers involving the use of fire. These prayers are performed for between 10 to 12 days each month. The Arulmigu Murugan Temple also distributes food to the needy on the last Saturday of each month and conducts religious classes for hymn recitals.



Arulmigu Murugan Temple.



Church of St Francis of Assisi.

CHURCH OF ST FRANCIS OF ASSISI

200 Boon Lay Avenue

In the 1950s, Catholics in the Jurong area had to travel some distance to St Joseph's Church at the junction of Chestnut Drive and Upper Bukit Timah Road. Fr. Joachim Teng, the parish priest of St Joseph's, then established the Chapel of Fatima in Tuas Village in 1958. This was a single-storey wooden chapel accommodating some 100 worshippers. The first priests at the chapel, including Fr. Thomas di Pasquale, were Italian Franciscans who preached in Mandarin to villagers, distributed food and provisions to the needy and provided free medical care.

Another chapel, the Taman Jurong Chapel, was set up in 1967 in a shophouse along Hu Ching Road to cater to workers in the industrial estate, including shipyard and plywood industry workers from Malaysia, India and the Philippines. Two years later, a third chapel was

built at Gek Poh Road near the 14th milestone of Jurong Road, before urban redevelopment in the 1970s saw the government acquire the land on which the Gek Poh and Tuas chapels were located.

Gek Poh Chapel and Taman Jurong Chapel were then merged to form the Church of St Francis of Assisi, with the church opening at Boon Lay Place in 1976. With its ties to Our Lady of Fatima (a title for the Virgin Mary) and St. Francis of Assisi, the church is among the few Catholic churches in Singapore to have two Feast Days dedicated to canonised saints.

The church was renovated and expanded in 2002, and today hosts a congregation of about 3,000. It holds services in English, Mandarin, Tamil, Malayalam and Tagalog, and continues its tradition of social service by offering free lunches on every day of the week except Sunday.

OUR MUSEUM @ TAMAN JURONG



The Museum by day.

We end our trail of Jurong with the first community museum in Singapore, Our Museum @ Taman Jurong, a vibrant space for community memories, heritage and art. Elements of Jurong's history and culture feature prominently in its exhibitions.

The museum's exhibitions are co-created with Jurong residents, schools and community organisations. Previous exhibitions have included art installations of residents and their connection to the changing landscape of Jurong, an imagined day in Jurong in the 1970s and an exhibition on schools in the area.

Apart from the rich local history and heritage that the museum features, it also has a

small library and activity corner that allows children to spend their afternoon at the museum reading a book or trying their hands on a craft activity.

Our Museum @ Taman Jurong is a collaboration between the National Heritage Board, Taman Jurong Citizens Consultative Committee, Taman Jurong Community Arts and Culture Club and the People's Association.

Our Museum @ Taman Jurong is open every Monday to Friday from 3pm to 9pm, every Saturday from 10am to 9pm and Sundays from 10am to 6pm. The museum is closed on public holidays. Admission to the museum is free. For more information, please visit <http://www.facebook.com/OMATTJ>.

BIBLIOGRAPHY

Books and journals

- Ann Kway Association. (1982). *Souvenir magazine of the 60th anniversary of the Ann Kway Association 1922-1982*. Singapore: Ann Kway Association.
- Arulmigu Murugan Temple. (2004). *Commemorative magazine*. Singapore: Arulmigu Murugan Temple.
- Baker, J. (2005). *The eagle in the Lion City: America, Americans and Singapore*. Singapore: Landmark Books.
- Barnard, T. (2014). *Nature contained: Environmental histories of Singapore*. Singapore: NUS Press.
- Burdon, T. (1955). *The fishing industry of Singapore*. Singapore: Donald Moore.
- Chapman, F. S. (1997). *The jungle is neutral*. Singapore: Times Books International.
- Chan, K. L. (1994, October). *Operation Gustavus: Clandestine network of Force 136*. Pointer.
- Cheong, C. (1993). *New frontiers: 25 years of the Jurong Town Corporation*. Singapore: Times Editions.
- Chia, L. S. (1988). *The coastal environmental profile of Singapore*. Manila: International Center for Living Aquatic Resources Management.
- Church of St. Francis of Assisi. (1976). *Jurong St Francis of Assisi opening day souvenir issue*. Singapore: Church of St. Francis of Assisi.
- Corner, E. J. H. (1978). *The freshwater swamp-forest of South Johore and Singapore*. *Gardens' Bulletin Supplement*, 1. Singapore Botanic Gardens.
- De Koninck, R., Drolet, J. & Girard, M. (2008). *Singapore: An atlas of perpetual territorial transformation*. Singapore: NUS Press.
- Dunlop, P. (2000). *Street names of Singapore*. Singapore: Who's Who Publishing.
- Economic Development Board. (1968). *The Jurong story*. Singapore: Economic Development Board.
- Frost, M. R. & Balasingamchow, Y-M. (2009). *Singapore: A biography*. Singapore: Editions Didier Millet.
- Gibson-Hill, C. A. (1954). *Singapore: Notes on the history of the Old Strait, 1580-1850*. *Journal of the Malayan Branch of the Royal Asiatic Society*. Singapore: JMBRAS.
- Goh, K. S. (1972). *The economics of modernization*. Singapore: Marshall Cavendish.
- Gough, R. (2000). *SOE Singapore 1941-42*. Singapore: SNP Editions.
- Hack, K., Margolin, J-L & Delaye, K. (Eds). *Singapore from Temasek to the 21st century: Reinventing the global city*. Singapore: NUS Press.
- Huff, W. G. (1994). *The economic growth of Singapore: Trade and development in the twentieth century*. New York: Cambridge University Press.
- Humphrey, J. W. (1986). *Geographic analysis of Singapore's population*. Singapore: Department of Statistics.
- Jackson, J. C. (1968). *Planters and speculators: Chinese and European agricultural enterprise in Malaya, 1786-1921*. Kuala Lumpur: University of Malaya Press.
- Kartini, B. Y. (1986). *Vanishing landscapes: Malay kampungs in Singapore*. Singapore: National University of Singapore.
- Koh, T., et al. (Eds.). (2006). *Singapore: The encyclopedia*. Singapore: Editions Didier Millet.
- Kong, L. (2007). *Singapore hawker centres: People, places, food*. Singapore: National Environment Agency.
- Lee, P. P. (1974). *Chinese society in nineteenth and early twentieth century Singapore: A socioeconomic analysis*. Ithaca: Cornell University.
- Lim, I. (1999). *Secret societies in Singapore*. Singapore: Singapore History Museum.
- Loh, G. (1995). *Jurong Shipyard Limited: What's behind the name?* Singapore: Times Academic Press.
- Low, S. C. (1955). *Gambier and pepper planting in Singapore, 1819-1860*. Singapore: University of Malaya.
- Makepeace, W., Brooke, G. E. & Braddell, R. J. S. (1991). *One hundred years of Singapore, Vol. 2*. Singapore: Oxford University Press.
- Menon, R. (1995). *To command: The SAFTI Military Institute*. Singapore: Landmark Books.
- Ministry of Defence. (2007). *40 years and 40 stories of National Service*. Singapore: Landmark Books.
- Murfett, M, Miksic, J., Farrell, B. & Chiang, M. S. (2011). *Between two oceans: A military history of Singapore from 1275 to 1971*. Singapore: Marshall Cavendish.
- National Archives of Singapore. (1993). *Kampong days: Village life and times in Singapore revisited*. Singapore: National Archives of Singapore.
- Oral History Department. (1990). *Recollections: People and places*. Singapore: Oral History Department.
- Savage, V. & Yeoh, B. (2013). *Singapore street names: A study of toponymics*. Singapore: Marshall Cavendish.
- Sandhu, K. S. & Wheatley, P. (1989). *Management of success: The moulding of modern Singapore*. Singapore: Institute of Southeast Asia Studies.

Sopher, D. E. (1977). *The sea nomads: A study of the maritime boat people of Southeast Asia*. Singapore: National Museum Publication.

Singapore guide and street directory. (1966). Singapore: Ministry of Culture.

Singapore Hokkien Huay Kuan. (2006). *Guardian of the South Seas: Thian Hock Keng and Singapore Hokkien Huay Kuan*. Singapore: Singapore Hokkien Huay Kuan.

St John's Chapel. (2004). *St John's Chapel: Celebrating 120 years of God's faithfulness*. Singapore: St John's Chapel.

Tan, S. S. (2007). *Goh Keng Swee: A portrait*. Singapore: Editions Didier Millet.

Tan, Y. S., Lee, T. J. & Tan, K. (2009). *Clean green and blue: Singapore's journey towards environmental and water sustainability*. Singapore: ISEAS Publishing.

Tong Whye Temple. (2010). *A commemorative issue of the 78th anniversary of the founding of Tong Whye Temple and the 30th anniversary of the conclusion of renovations (Mandarin)*. Singapore: Tong Whye Temple.

Tuas Tua Pek Kong Keng Management Council. (2012). *Tuas Tua Pek Kong Keng: A commemorative issue for the 68th anniversary of the birth of the temple and the 25th anniversary of the conclusion of temple renovations (Mandarin)*. Singapore: Tuas Tua Pek Kong Keng.

Turnbull, C. M. (2005). *A history of modern Singapore 1819-2005*. Singapore: NUS Press.

Uhde, J. & Ng, Y. (2010). *Latent images: Film in Singapore*. Singapore: Ridge Books.

Wong, H. S. (2010). *Singapore through 19th century prints and paintings*. Singapore: Editions Didier Millet.

Wong, Y. C. (2007). *Singapore 1:1: Island*. Singapore: Urban Redevelopment Authority.

Yee, A. T. K. et al. (2010). *The present extent of mangroves in Singapore*. *Nature in Singapore*, 3. Singapore: National University of Singapore.

York, F. W. & Phillips, A. R. (1996). *Singapore: A history of trams, trolleybuses and buses*. Surrey: DTS Publishing.

Yuen, C. et al. (1996). *Jurong journeys*. Singapore: The Oracle Works.

Newspaper articles

The Business Times (1977)

The Singapore Free Press (1837, 1854, 1848, 1887, 1931, 1948, 1951-52, 1957, 1959)

The Straits Times (1854-55, 1883, 1903-04, 1908, 1936, 1946, 1950, 1963, 1965-66, 1968-71, 1973, 1975, 1977-80, 1986-88, 2001, 2003, 2006-07, 2011, 2013-14)

Oral history interviews

Haji Saleh bin Abdul Wahab (Interview with National Heritage Board, 2014).

Haji Shafie Mohammad Arif (Interview with National Heritage Board, 2013).

Kamsani bin Haji Alias (Interview with National Heritage Board, 2014).

Lee, Karen (Interview with National Heritage Board, 2014).

Lim Ho Hup (Interview of Oral History Centre, National Archives of Singapore, Accession No. 002247, 2002).

Lim Kwang Boon (Interview of Oral History Centre, National Archives of Singapore, Accession No. 000917, 1988).

Mane, Francis (Interview with National Heritage Board, 2013).

Pillay, J. Y. (Interview of Oral History Centre, National Archives of Singapore, Accession No. 001583, 1995).

Ng, Benson (Interview with National Heritage Board, 2013).

Ng Lee Kar (Interview of Oral History Centre, National Archives of Singapore, Accession No. 000165, 1982).

Soh Ah Choo (Interview with National Heritage Board, 2015).

Tan, Ann (Interview with National Heritage Board, 2014).

Tan I Tong (Interview of Oral History Centre, National Archives of Singapore, Accession No. 002198, 1999).

Tan Kim Leong (Interview with National Heritage Board, 2013).

Tan Kim Wah (Interview of Oral History Centre, National Archives of Singapore, Accession No. 000212, 1983).

Tan Suan Chyang (Interview with Taman Jurong Community Club, 2013).

Tan Teck Yoke (Interview with National Heritage Board, 2012).

Too Peng San (Interview with National Heritage Board, 2013).

Woo Lee Tuan (Interview with Taman Jurong Community Club, 2013).

Online pages

Soo, S. E. (n.d.). Interview with Toh Ah Lian. Retrieved from www.hsse.nie.edu.sg/staff/blackburn/oralhistoryKampongtoHDBlife.doc

Masjid Hasanah. www.hasanah.org.sg

Church of St Francis of Assisi. www.sfa-parish.org.sg/history

Agri-Food & Veterinary Authority of Singapore. www.ava.gov.sg

Ministry of Defence. www.mindef.gov.sg

Jurong Bird Park. www.birdpark.com.sg

The Live Tortoise and Turtle Museum. www.turtle-tortoise.com

Science Centre Singapore. www.science.edu.sg

Singapore Infopedia. infopedia.nl.sg

Remember Singapore. remembersingapore.wordpress.com

The Long and Winding Road. thelongwindingroad.wordpress.com

Nature Society Singapore. www.nss.org.sg

Good Morning Yesterday. goodmorningyesterday.blogspot.sg

CREDITS

Jurong Bird Park
 JTC Corporation
 Rulang Primary School
 Science Centre Singapore
 Singapore Botanic Gardens
 St John's Chapel
 Taman Jurong Community Club
 Mr Benson Ng
 Mr Chew Kheng Chuan
 Mdm Chia Joon Lang
 Mr Francis Mane
 Mr Haji Shafie Mohammad Arif
 Mdm Karen Lee
 Dr Lai Chee Kien
 Mr Lee Ah Ba
 Mr Liaw Boon Eng
 Mdm Ong Chwee Im
 Mdm Quah Kim Poh
 Ms Sandy Lee
 Mdm Soh Ah Choo
 Mr T Rajantharan
 Mr Tan Kim Leong
 Mr Tan Teck Yoke
 Mr Too Peng San
 Mrs Yulianti Tan

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» PROJECT TEAM

Josephine Sin
Stefanie Tham
Lawrence Low

» PRIMARY RESEARCHER AND WRITER

Singapore History Consultants

» COPYWRITER AND FURTHER RESEARCH

Alvin Chua

» DESIGNER

Oxygen Studio Designs Pte Ltd

» PHOTOGRAPHER

Alex Heng

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GUIDE TO MARKED SITES

WITH LOCATION OF TRAIL MARKERS

"60 stalls" (六十棧) at Yung Sheng Road and "Market I" 3 Yung Sheng Road

Yung Sheng Food Centre, popularly called "60 stalls" (六十棧), was the first hawkker centre built by the Government to house resettled road-side hawkkers in the early 1970s. Together with the old "Market I", it was redeveloped over thirty years later to form today's Taman Jurong Market and Food Centre in 2005.

Around the Jurong River

1 Chinese Garden Road

Jurong River appeared in early maps dating back to 1828. The river was a major local landmark for villagers. In 1971, the river was dammed to create Jurong Lake, and three man-made islands were formed, housing the Chinese Garden and Japanese Garden.

Former Jurong Drive-In Cinema

Yuan Ching Road, outside Jurong Secondary School

Opened in 1971, the former drive-in cinema was the first of its kind in Singapore, and was a popular venue for families and couples. The cinema closed in 1985.

Science Centre Singapore

15 Science Centre Road

The Science Centre Singapore was opened in 1977 as an institution focused on inspiring and educating the public on science and technology. Two years after its opening, the International Council of Museums declared the centre to be one of the top institutions of its kind in the world.

Former Jurong Town Hall

9 Jurong Town Hall Road

The Jurong Town Hall served as the headquarters for the Jurong Town Corporation, a statutory board created to manage Jurong and other industrial estates. Its unique architecture and symbolic history in the industrialisation of Singapore gained it Conservation Status by the Urban Redevelopment Authority in 2005.

Jurong Railway

Ulu Pandan Park Connector, near Clementi Ave 4

To facilitate transport of goods to and from the industrial estate, the Economic Development Board worked with Keretapi Tanah Melayu (KTM, Malayan Railways Limited) to develop Jurong Railway.

Pandan Reservoir

11 Penjuru Road

Before industrialisation, Sungei Pandan was a swampy ground and prawn pond reserve. Pandan Reservoir was later built in 1974 and today serves as a water sports arena.

Jurong Hill

1 Jurong Hill

Jurong Hill is the highest ground in Jurong today, and was formerly known by its Malay name, Bukit Peropok. In the late 1960s, the hill was transformed into a recreational space. Visiting heads of state and dignitaries commemorated their visit to Jurong by planting trees in the Garden of Fame on the hill.

Jurong Port and Shipyard

1 Jurong Hill

The deepwater harbour of Jurong was one of the reasons why Jurong was selected as Singapore's first industrial town. The Jurong Port began operations in 1965 and handles a diverse range of cargo. The creation of Jurong Shipyard in 1964 allowed Singapore to establish itself as a major player in the shipping and shipbuilding industry.

SAFTI

Upper Jurong Road, outside Arena Country Club

SAFTI was officially opened in 1966 and served to build up Singapore's military forces following its independence. The institute moved to its current premises in 1995, and has grown to be an integral part of the Singapore Armed Forces' identity.

The Origins of Peng Kang and Boon Lay

Jurong West Neighbourhood Park, along Jurong West Street 62

Peng Kang and Boon Lay are two place names that stand out as reminders of Jurong's plantation past. 'Peng Kang' is a dialect term for processing gambier, and Chew Boon Lay was a prominent plantation owner who established his gambier and pepper estate in Jurong.

Hong Kah Village

Jurong West Street 42, outside Hong Kah Secondary School

Hong Kah Village was one of the early Christian villages to form in Jurong as a result of missionary activities by the St Andrew's Church Mission in 1872. The village existed until the 1980s. Today, its legacy remains in the names of schools, a community club and a flyover.