

100 YEARS

TROPICAL FOREST RESEARCH

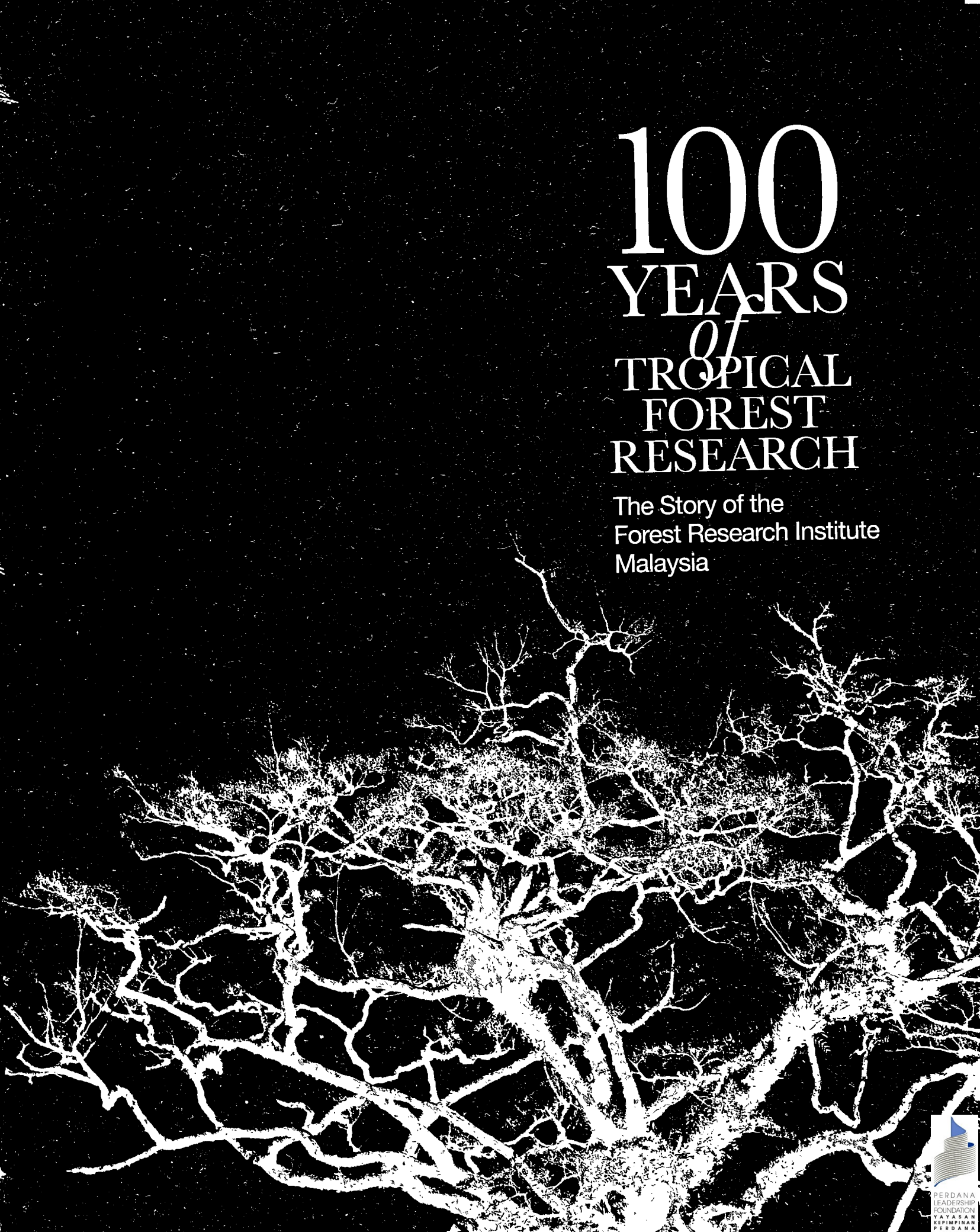
The Story of the
Forest Research Institute
Malaysia

Francis S.P. Ng

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GF(f)







100 YEARS *of* TROPICAL FOREST RESEARCH

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**Jelutong *Dyera costulata* with
new leaves emerging to replace
the old**



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2010



PERDANA
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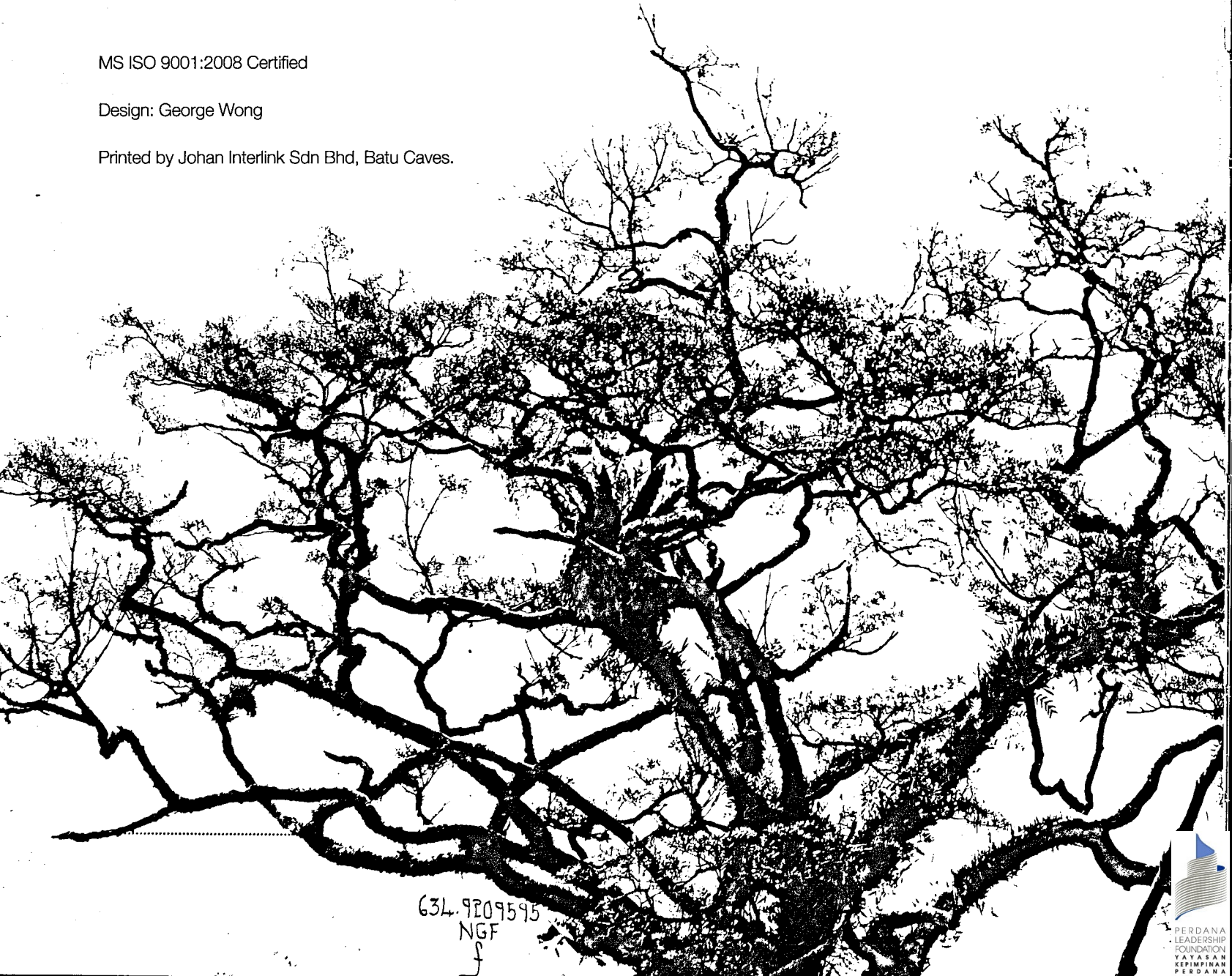
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**Tree tower at Ulu
Gombak, 1960s**

Foreword

The Forest Research Institute Malaysia (FRIM) is situated in tropical rain forest less than one hour by car from the centre of the Malaysia's national capital, Kuala Lumpur.

From this idyllic environment, the author guides us through the many events, developments, ideas and personalities that have made their mark on the institute and on tropical forestry. These events and developments include two wars, a major global recession, post-war reconstruction, a national emergency, independence from colonial rule, and the development of the railways, tin, rubber, oil palm, housing and energy industries. The ideas and personalities were from the beginning diverse and international. The early pioneers were trained in Britain, Germany and the United States and some had practical experience in India and Burma before coming to Malaysia. Malaysian forest scientists have themselves been trained in many different countries and FRIM has hosted visiting scientists from Germany, Japan and all over the world.

The role of forest research has been to develop knowledge and technology in relation to forests and forest products according to perceived needs. These needs have changed dramatically over time. For the greater part of history, the demands on forests have been for specific products, and the main concerns of forest management have been to promote such products as well as to ensure their sustained production. However, the rise and fall of the damar, gutta percha and jelutong industries illustrate the danger of thinking that the market for any given product can be forever. Even long-held concepts can be questioned and eventually discarded. Long rotations of 70 years, and the 'improvement' of natural forests through deliberate elimination of 'inferior' species were concepts that seemed reasonable when forests were extensive and human impacts small, but that time is past. It falls upon each new generation of forest scientists to chart new courses for the future. Research is a never-ending effort to find better solutions.

I would like to thank the author for writing this history for the occasion of FRIM's 25th anniversary, which coincides with 100 years of forestry research, much of which was carried out under the auspices of the Forest Department.

Dato' Dr Abd. Latif Mohmod
Director-General of FRIM





Pulai, *Alstonia* sp.

Preface

This history is based on published and unpublished sources. Published sources include (a) Reports of the Forest Administration (RFA) from 1901 to the present time (b) published papers in the *Malaysian Forester* (previously the *Malayan Forester*) (c) *Malayan Forest Records* (MFRs), and (d) previous histories e.g. Watson (1950), Yong (1992) and Wong (2001). Unpublished materials include (e) diaries, letters and other documents preserved in the FRIM library and in the Malaysian National Archives (Arkib Negara, here abbreviated as AN) and (f) personal communications with people who observed or participated in the events described. The present author was himself a staff member of FRIM from 1964 to 1990.

There is no exact starting point for this history. One hundred years is a convenient approximate figure. The Forest Research Institute Malaysia (FRIM) came into existence on 1 October 1985 by an Act of Parliament changing the status of the pre-existing Forest Research Institute (FRI). The FRI had itself had come into existence as an institute when its main building in Kepong was completed and occupied in 1929. Previous to that it was the Research Branch of the Forest Department. The Research Branch had come into existence with the appointment of F.W. Foxworthy as Forest Research Officer in 1918. Foxworthy had been appointed after a review of research in the Forest Department at the First Malayan Forestry Conference in 1915. The Forest Department was established in 1901 with the appointment of A.M. Burn Murdoch as Chief Forest Officer.

The historical mainstream, covered in the first chapter, traces the history of the Institute through the colonial period, World War I, the rubber boom, the great depression, World War II, the Japanese Occupation, the post-war recovery, the Malayan Emergency, Independence, and thereafter. Research themes are grouped into five separate chapters: natural forest management, wood-based industries, non-timber forest products, plantations parks and gardens, and biodiversity. Sidebars and boxes provide supplementary information and cross-linkages between chapters.

In its 100-year history, forest research has had its ups and downs, but because forest research is a mix of many parallel activities, a 'down' in one area has usually been compensated by an 'up' elsewhere. Among notable successes to which research has contributed substantially are the system for management of man-

grove forests, the rise of the furniture industry based on rubber wood, and the complete documentation of the 2830 species of trees of Peninsular Malaysia.

There have also been disappointments. It is perhaps significant that the best-funded, most visible and most directed of all forestry projects were the Pilot Plantations for Quick-Growing Industrial Tree Species and the Compensatory Plantation projects, both of which began with great fanfare but lapsed into obscurity when the early optimism could not be sustained. The most tangible contributions to knowledge, in the form of authoritative reference books and scientific papers, have often been the products of research carried out by self-motivated individuals with little fanfare and sometimes with little financial support. I hope this account will serve as a good introduction to the many case histories that make up the multifaceted story of forestry and forest research in Malaysia.

I would like to thank the Director-General of FRIM, Dato' Dr Abd. Latif Mohmod, for the opportunity to write this book. Dr Abdul Rahim Nik provided institutional oversight and guidance. The Malaysian National Archives, the library of FRIM, the photo-archival unit of FRIM, the library of the Royal Botanic Gardens Kew, and the library of Cornell University helped in tracing records. Dr S. Sasaki and Dr T. Mori provided information on Japanese research contributions in FRIM and Dr W. Killman did likewise for the German research contributions. Present and former staff members of FRIM especially Dr Saw Leng Guan, Tan Sri Dr Salleh Mohd Nor, Mr Yip Yoon Wah and Dr Wong Tuck Meng provided information through informal discussions. Dr Ruth Kiew, Mrs Elisabeth Chan and Dr Norini Haron read early drafts and provided early feedback. Professor Dato' Dr Wan Razali Wan Mohd reviewed the manuscript critically in its final stages. Ms Aslina Baharom made the first draft designs.

The photographs are mostly from the FRIM photo archives. The black-and-whites were mostly taken by staff photographers while the colour photographs were mostly contributed by members of the public in a recent photo-competition. I would like to thank all the photographers whose contributions are used here.

Abbreviations

- AN: Arkib Negara—the Malaysian National Archives.
FRI: Forest Research Institute, prior to 1 October 1985.
FRIM: Forest Research Institute Malaysia, on and after 1 October 1985.
GTZ: Deutsch Gesellschaft for Technische Zusammenarbeit—translated as The German International Enterprise for Sustainable Development.
IDRC: International Development and Research Centre (Canada).
JICA: Japan International Cooperation Agency.
JIRCAS: Japan International Research Centre for Agricultural Sciences.
MF: The Malayan Forester before 1963; the Malaysian Forester in 1963 and thereafter.
MFR: Malayan Forest Records.
MNS: Malaysian Nature Society (formerly Malayan Nature Society).
MUS: Malayan Uniform System—a system for improving the timber content of forests after commercial logging (see also RIF).
POW: Prisoner of War.
RAF: Royal Air Force (British).
RFA: Reports of the Forest Administration—the published annual reports of the Forest Department of Peninsular Malaysia, the actual titles of which differ from period to period because of changes in the name of the Department and the name of the country.
RIF: Regeneration Improvement Fellings—a system for improving the timber content of forests prior to commercial logging (see also MUS).
TARC: Tropical Agriculture Research Centre (Japan).
UNEP: United Nations Environment Programme

Note: Square brackets [] are used for inserting editorial comments within cited passages.



Chapter 1

The Historical Mainstream

Overview

Malaysia was formed in 1963 as a federation of thirteen states: eleven on the Malay Peninsula and two on the island of Borneo. The Peninsula part of Malaysia, now called Peninsular Malaysia, was 'Malaya' before 1963.

Each state of Malaysia has its own forestry department. The state forestry departments of the Peninsula are coordinated by a federal headquarters organization in Kuala Lumpur. Under this federal arrangement, which came into effect during the term of office of A.M. Burn-Murdoch as Chief Forest Officer of the 'Federated Malay States and Straits Settlements' in 1901 – 1915, it became the practice for senior forestry officers to be seconded to state service from a common federal service. The common federal service was referred to during colonial times as the *Malayan Forest Service* or as the *Forest Department*. Its formal name has been, at various times: the *Forest Administration of the Federated Malay States and Straits Settlements*, the *Forest Administration of Malaya*, the *Forest Administration of the Malayan Union*, and currently, the *Forestry Department of Peninsular Malaysia*.

The appointment of Burn-Murdoch had come about following a study by H.C. Hill on the state of forest administration, conservation and development in the Federated Malay States and Straits Settlements, carried out in May – July 1899. The study had been ordered by the Colonial Office, London. Hill was ranked second in the Indian Forest Service hierarchy, and after this report, he rose to the top, succeeding B. Ribbentrop in 1900 as Inspector-General of Forests India (Anon., 1903). In his two reports, one covering the Straits Settlements (Hill, 1900a) and the other covering the Federated Malay States (Hill, 1900b), Hill included a series of maps of the Straits Settlements and Federated Malay States that were the most advanced of that period, specially prepared for him by the Forest Survey Office of Bengal. Hill's most important recommendation (Hill, 1900a) was:



FRIM entrance

Opp page:
Inland forest viewed
from the air



"...if forest conservancy is to be properly carried out on a determined and lasting policy—and it is only in this way that any real progress may be looked for—I am strongly of the opinion that the Government must have the benefit of professional advice on the spot, and the works must be under professional inspection and direction. I propose, therefore that a Forest Officer, trained in Europe and with 8 or 10 years experience in Burma, should be appointed..."

**Opp page: Mahogany
Swietenia macrophylla
along Jalan FRIM, the
entrance road.**

The Governments of the Federated Malay States and Straits Settlements acted on Hill's recommendation almost immediately and obtained the services of A.M. Burn-Murdoch on secondment from the Burmese division of the Indian Forest Service. Burn-Murdoch was to establish the Malayan Forest Service, with headquarters in Kuala Lumpur, to coordinate the forestry departments that had already been set up in the Federated Malay States through the appointment of forest officers—A.B. Stevens in 1895 for Perak, B.H.F. Barnard in 1900 for Selangor, and A.L.M. Scott in 1900 for Negri Sembilan (Mead, 1935). The forests in the Straits Settlements, previously managed from 1883 to 1889 by the Director of Gardens (N. Cantley followed by H.N. Ridley) were also included under the new arrangement.

When Burn-Murdoch died in service in Klang in 1915, his successor, G.E.S. Cubitt, was also appointed on secondment from the Indian Forest Service.

In 1918, Cubitt recruited F.W. Foxworthy as Forest Research Officer. Before then, research had been carried out sporadically by forestry officers, including Burn-Murdoch himself, in the course of their administrative duties. In 1925, the research unit under Foxworthy was expanded into a Research Branch with four officers.

In 1926 the Research Branch moved into temporary buildings in its present campus in Kepong, where it began to establish experimental plantations. When the main building (now the 'Admin Building') was completed in 1929, the Research Branch was re-designated as the Forest Research Institute (Watson, 1950).

In 1985, the Forest Research Institute (FRI) became autonomous from the Forestry Department through an Act of Parliament, and was renamed the Forest Research Institute Malaysia (FRIM).

Prelude: 1901 – 1918

At the start of the 1900s, as viewed from a steamship travelling through the Straits of Malacca, the entire expanse of Malaya, covering a land area of 13,160,000 ha (50,800 square miles), was forested. This was how it looked to Sir George Maxwell, onetime Chief Secretary (Head of the British Civil Service)



**Tembusu *Fagraea fragrans*
along Jalan FRIM**

in Malaya, and author of the big-game hunting classic *In Malay Forests*. To Maxwell, the forests seemed eternal:

“Neither the season, nor the flight of time, leaves a mark on the forest; virgin in the days of which we cannot guess the morn, virgin in our days, virgin it will remain in the days of generations yet unborn” (Maxwell, 1907).

But the impression was deceptive. The seeds of change had already been sown in 1877, when the first rubber plants arrived in the Botanic Gardens Singapore, from Kew. Ten seedlings were sent up-country to Sir Hugh Low, Resident (Advisor to the Sultan) of Perak, who had them planted in Kuala Kangsar. The trees flourished and produced abundant seeds for distribution. The expanding motor car industries in the USA and Europe were generating a huge appetite for rubber tyres, exceeding the production of rubber from Brazil. The first commercial rubber plantation in Malaysia, of 7.65 ha (17 acres), was established in Malacca by Tan Chay Yan in 1896. By 1900, the area of land under rubber was nearly 2,400 ha, rising steeply to 960,500 ha in 1921 and 1,104,600 ha in 1973 (Barlow 1978).



Rubber enjoyed high prices and strong demand and could be produced continuously under intensive cultivation. In contrast, the high-value products of forests in the early decades of the 1900s were damar, gutta percha and chengal that occurred sporadically in forests at low intensities. Consequently, the more accessible of the lowland forests were progressively converted to rubber plantations, leaving the mangroves and less accessible or hilly forest areas to forestry.

The most extensive areas of mangroves are in Matang, Perak, facing the Straits of Malacca. Home to about twenty species of trees, and extraordinarily rich in fish and shellfish resources, the Matang mangroves were declared forest reserves in stages between 1902 and 1906 through the efforts of Burn-Murdoch. It was here that a system for forest management for sustained yield of wood was successfully put into place, which also provided for sustained yield of fish and shellfish.

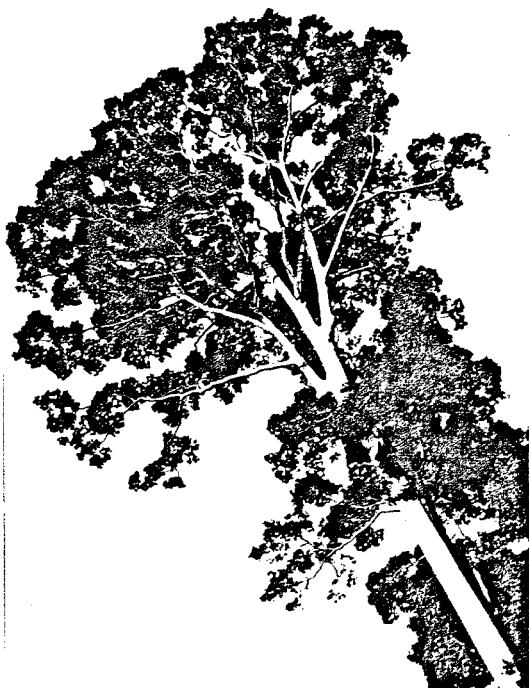
The inland forests of the Peninsula, however, provided a different kind of challenge. To begin with, they were found to be very much more diverse. In 1927, F.W. Foxworthy estimated the total diversity of trees in the Peninsula to be 2,500

Merawan siput jantan *Hopea odorata* along Jalan FRIM

The Founders of the Institute

Three people—G.E.S. Cubitt, F.W. Foxworthy, and J.G. Watson—were responsible for the planning and establishment of the Forest Research Institute. Then, because of extensive disruption and damage suffered during World War II, there was a reconstruction period during which A.V. Thomas played the most prominent role. Finally, when the Institute became autonomous in 1985, its re-branding as the Forest Research Institute Malaysia (FRIM) was led and inspired by Salleh Mohd Nor.

**Opp page:
The newly completed
Administration Building,
1929 on deforested and
impoverished land facing a
water-filled former tin mine**



species. He also found that a single acre of good lowland forest could contain over 100 species of trees. Of flowering-plants, the botanist E.J.H. Corner (1940) estimated the total number to be 8,000 species. When the first modern inventory of trees of Malaya—the *Tree Flora of Malaya*—was completed in 1989 (Ng et al. 1990), the total number of species of trees was confirmed at 2,830 species. The total number of flowering plants will only be confirmed when the Flora of Peninsular Malaysia Project (Kiew et al., 2006) is completed.

The immense diversity of species in the inland forests was a serious liability. Wood is perishable in the humid tropics, and people trusted only chengal (*Neobalanocarpus heimii*) and a few other indigenous species to be reliably durable under all conditions. The timbers that consumers were willing to pay a good price for were either indigenous chengal or imported teak. This greatly exasperated G.E.S. Cubitt, the second head of the Malayan Forest Service:

“Efforts have been made to encourage the use of less known but serviceable indigenous timbers. There should be no need to import teak for furniture, while for other purposes the number of timbers ordinarily employed is undoubtedly capable of very large increase. Prejudice and ignorance are to blame for the fact that not a dozen timbers are in regular demand and Government must accept its share of responsibility for the ignorance that prevails. The writer believes he is correct in saying that the only timber that has gained a reputation during recent years is resak [now known as balau], which was deceitfully delivered to the Railway Department as chengal and has since been proved to yield a very serviceable sleeper.” (RFA 1917).

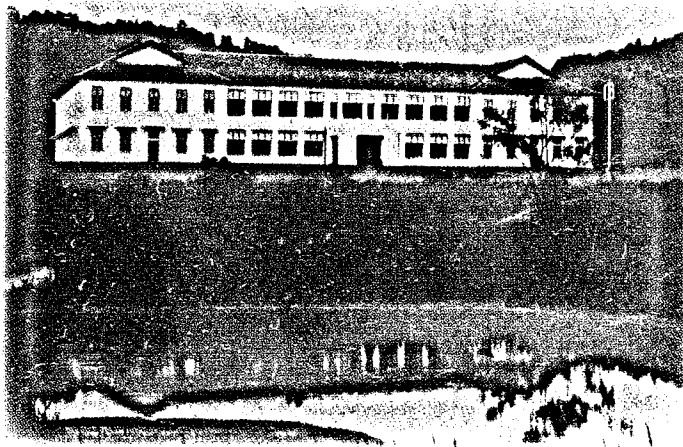
To Cubitt, the best mechanism for countering ignorance and prejudice was scientific research. Cubitt had just arrived in Malaya on secondment from the Indian Forest Service, where he had been Assistant Inspector-General of Forests. Soon after his arrival in 1915, Cubitt assembled all the eleven senior forestry officers then serving in Malaya for a six-day meeting—the First Malayan Forestry Conference—in which the state of knowledge was reviewed and many topics were identified for research (Anon. 1916). However, World War I (July 1914 – November 1918) was raging in Europe and the Department was weakened when several officers left to enlist in the British armed forces. They did not return until the war was over (Watson, 1950).

To get research moving, Cubitt initiated a search for a scientist who could fill the position of Forest Research Officer. Cubitt had no time to waste. The person had to be someone exceptionally experienced and capable. The search led to Dr. F.W. Foxworthy, then a well-known American forest scientist in the Philippines. The success of the search was announced in the 1917 by Cubitt in glowing terms:

“Towards the close of the year the appointment of Forest Research Officer was offered to Dr Foxworthy, for several years the head of the Forest

School and the Investigation Division of the Bureau of Forestry in the Philippines. It is hardly too much to say that this is the most important step taken by the Government since the founding of the department, which is to be congratulated on securing the services of an officer whose knowledge of the timbers of the Indo-Malayan regions is probably unrivalled. Forest economical research can now be systematically organized at least five years earlier than was last year thought to be possible, and the knowledge gained will undoubtedly enable a much fuller use to be made of the timber resources of the country than is at present possible." (RFA 1917).

It was an extra-ordinary coup by Cubitt, and it was highly unusual for the British Colonial Service to offer such an important post to someone outside the British establishment.



The foundation years: 1918 – 1942

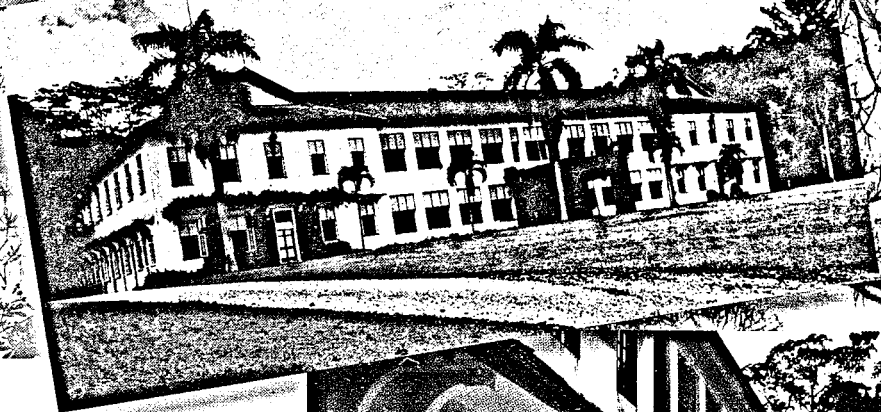
Dr. F.W. Foxworthy took office as Forest Research Officer in 1918 in a room in the Forest Department's headquarters in Kuala Lumpur on Court Hill. The headquarters occupied part of the old Supreme Court building that had given the hill its name. This site is now occupied by the headquarters building of Malaysian Banking. For four years, Foxworthy was the only person assigned officially to research.

Research on reforestation had been started even before the arrival of Foxworthy, in the 'Circular Road Plantations', now incorporated into the Royal Selangor Golf Club. In about 1921, it was decided to search for a larger place outside Kuala Lumpur for more extensive forest plantation experiments and also for establishing a school for training local uniformed forestry staff, i.e. Forest Rangers, Foresters and Forest Guards. On 2 June 1921, Foxworthy and Cubitt examined Bukit Sungai Puteh Reserve in Selangor but found it unsuitable. On 30 June 1921 they examined a place at Serdang, near the Department of Agri-

G.E.S. Cubitt

G.E.S. Cubitt was seconded on 17 April 1915 from the Indian Forest Service, where he was Assistant Inspector-General, to head the Malayan Forest Service after the death of its first head A.M. Burn-Murdoch. When his term of secondment ended, Cubitt was retained on a permanent basis and served until his retirement on 13 December 1929. Cubitt built up the case for the appointment of a Forest Research Officer. He then obtained approval to do something extraordinary—recruiting this officer, F.W. Foxworthy, from outside the British establishment. Cubitt nurtured the growth of research from a one-man unit to a Research Branch and then to a Forest Research Institute. He had the satisfaction of seeing the new Institute in Kepong built and occupied just before he retired. Cubitt's views on forestry in Malaya were published in 1920 in a review entitled *Wood in the Federated Malay States; its Use, Misuse and Future Provisions*. Upon his retirement it was noted that the "recognition by Government of the importance of forest research was one of Mr. Cubitt's greatest achievements" (RFA 1929). Cubitt's greatest disappointment was perhaps the failure of the so-called Palong Scheme devised by himself, Foxworthy and Kent for upgrading the timber industry with the most advanced technologies of that time. Cubitt retired to England and busied himself with local council matters. He died in Winchester on 17 September 1966 at the age of 91 years (Strugnell, 1967). Cubitt served 14 years in the Malayan Forest Service.





culture's plantation trials, and were not impressed. Then, on 1 October 1921, Foxworthy found what he wanted. He recorded in his diary:

"October 1. Saturday. Went out to Kepong village early this morning and went over some of the area between the village and Bukit Lagong Forest Reserve, with the DCF [Deputy Conservator of Forests] Selangor and Mr. Swan of the Land Office.

Much of this area has been worked for tin and has reverted to Government. The whole area visited this morning is State land and the inhabitants are squatters, some of whom are market gardeners. The area is watered by three small streams, which have their source in the Reserve and are said to furnish an ample and dependable supply of good water. There are two low belukar [secondary growth] covered ridges, which would furnish fine building sites, with good drainage, plenty of air, and a fine prospect. The soil on the area seems to vary from good to very poor, and, with the steep slopes in the Reserve, just behind, would give an opportunity for widely varying types of forest planting. The place is distant about 8 miles [12.8 km] from Kuala Lumpur and is easy of access by road or rail.

Altogether it is much the best site for the forest school and nurseries that I have yet seen."

Ampang was considered in 1922, but Kepong remained the preferred option.

In 1922, Captain H.W. Woolley was appointed Assistant to Foxworthy, followed in 1925 by R.H. Whitty as Silvicultural Assistant (also designated as Reconnaissance and Plantation Officer) and P. Phillips as Forest Economist (RFA 1925).

H.W. Woolley (Anon. 1960) was a veteran of World War I and had been decorated with the Military Cross for valour. After the war, he took his forestry degree



The Administration Building, 1951

The Administration Building, 2010

**Opp page:
F.W. Foxworthy in the forest**

Overleaf: Waterfall in FRIM





F.W. Foxworthy

Trained in the USA, with degrees from De Pauw (BSc 1899) and Cornell (PhD 1904), Foxworthy went to the Philippines (then a US territory) in 1905. He was Botanist in the Bureau of Science in 1905 – 1911 and Wood Technologist in the Bureau of Forestry in 1911 – 1917. He was also Associate Professor of Dendrology at the University of the Philippines. He was head-hunted by Cubitt for the post of Forest Research Officer in the Malayan Forest Service and began his service in Kuala Lumpur on 11 January 1918. After his initial appointment of two years, Foxworthy was retained as a permanent officer and served until he retired on 3 July 1932. After retirement, he was a forestry consultant, living first in Miami, Florida and later in Berkeley, California. He died in Berkeley on 4 February 1950 at the age of 73. An impressive man with military bearing

at Oxford and came to Malaya in March 1921, where he served in the forest departments in Perak, Pahang, Johore, Negri Sembilan and Malacca. Woolley did not stay long in research and was not mentioned in the list of officers of the newly established Forest Research Institute in 1929.

R. H. Whitty (according to Watson, 1950), was an ex rubber-planter who had joined the Forest Department during the 1921 depression. As Reconnaissance and Plantation Officer he was involved in the survey of the grounds at Kepong.

P. Phillips (according to Watson, 1950), a graduate of the Forestry College in Dehra Dun, was tasked as Forest Economist with the responsibility of promoting the minor (non-timber) forest products. He was replaced by J.G. Watson in 1926.

Towards the end of 1925, the Government of Selangor approved the grant of land in Kepong to the Forest Department. This is recorded in Foxworthy's annual report for 1926:

“The British Resident [Advisor to the Sultan] of Selangor agreed, in the latter part of 1925, to our use of some 800 acres [324 ha] of land, about one and one-half miles [2.8 km] back of Kepong village, for our experimental plantations, forest school and investigation work. It was also agreed that certain adjoining parcels of land, partly covered by mining leases, should be assigned to us, whenever the leases should expire. Portions of the tract are very rugged and a good map was needed. The Survey Department was asked to prepare the map and did so, the field work for the map being completed in April and the finished map being available in August.

There were a good many squatters on the land and we wished to be sure that there would be a place for them to go and that their removal would not interfere with the food supply of Kuala Lumpur. Accordingly, the Reconnaissance and Plantation Officer went with the Collector of Land Revenue and the Penghulu to look into the matter. This was in December, 1925. We were assured that suitable places for the squatters were available not far away and that their removal would, in no way, interfere with the food supply of Kuala Lumpur. The people were notified that no further temporary occupation licenses would be given to them for this land and that they would have to vacate by the end of 1926, unless we should agree to their remaining.

Development work was started in May with the aid of some Malays from Temerloh District. These men built a house for themselves, a storehouse for seeds and tools, and started the preparation for a nursery. Quite a number of the squatters wished to work for us and some of them were employed to break soil, prepare nursery beds, and to build a fence. Planting began in July and, by the end of the year, about 100 different kinds of seed had been planted. Twenty-five thousand seedlings had been transplanted, and field planting had begun. A nursery of 3.6 acres [1.5 ha]

was enclosed by a stout fence and 330 nursery beds were prepared and planted. It was necessary to have a road to get supplies in and a suitable line which had been used as a cart track was found. It crosses five mining leases and one piece of State land before entering our land. The holders of the mining leases crossed were seen and agreed to our preparing and using an access road through the parcels covered by their leases. They expressed willingness for us to use the road so long as we wished, provided it was understood that it was a temporary road. They reserve the right to mine across the road whenever necessary, but agree first to provide us an equally good road. The access road is a little over one mile long and the distance from Kepong village to our nursery is about one and one-half miles. Our access road was not completed and in shape for motor traffic until late in the year. There was a great deal of trouble from kerbau [water buffaloes] and bullocks and it was necessary to build a barbed wire fence along most of the outer boundary, a distance of about three and one-half miles [6.3 km]. This fence was completed in December at a cost of \$3,924.77." (Foxworthy in RFA 1926).

The FRI area was declared by Government on 1 October 1926 as a 'reserve for public purposes' in Gazette Notification No 5449 (RFA 1926). It was re-gazetted as an extension of the Bukit Lagong Forest Reserve in 1934 (RFA 1934).

The FRI land consisted of flat low areas and fairly steep hills. The low areas had been mined for alluvial tin while the lower slopes of the hills had been terraced for growing vegetables. Kepong was then a major supplier of vegetables to the growing town of Kuala Lumpur, hence there was concern over whether the eviction of the farmers would affect the food supplies for Kuala Lumpur. The community in Kepong was multi-ethnic. The *penghulu* was the Malay headman of the district. The farmers were Chinese and the keepers of cattle were Indians. On the hills was a community of indigenous forest people, the *Orang Asli*, who grew durians. Up to the 1960s, the separate communal activities were still evident in the Kepong area. The *Orang Asli* community has provided three generations of men, starting with Soh anak Tandang, to work in the Forest Research Institute, in botanical exploration and plant collection.

Kepong provided the new Forest Research Institute with the opportunity to carry out a very large number of plantation trials under challenging conditions. The effort has been recorded by J.G. Watson (1935):

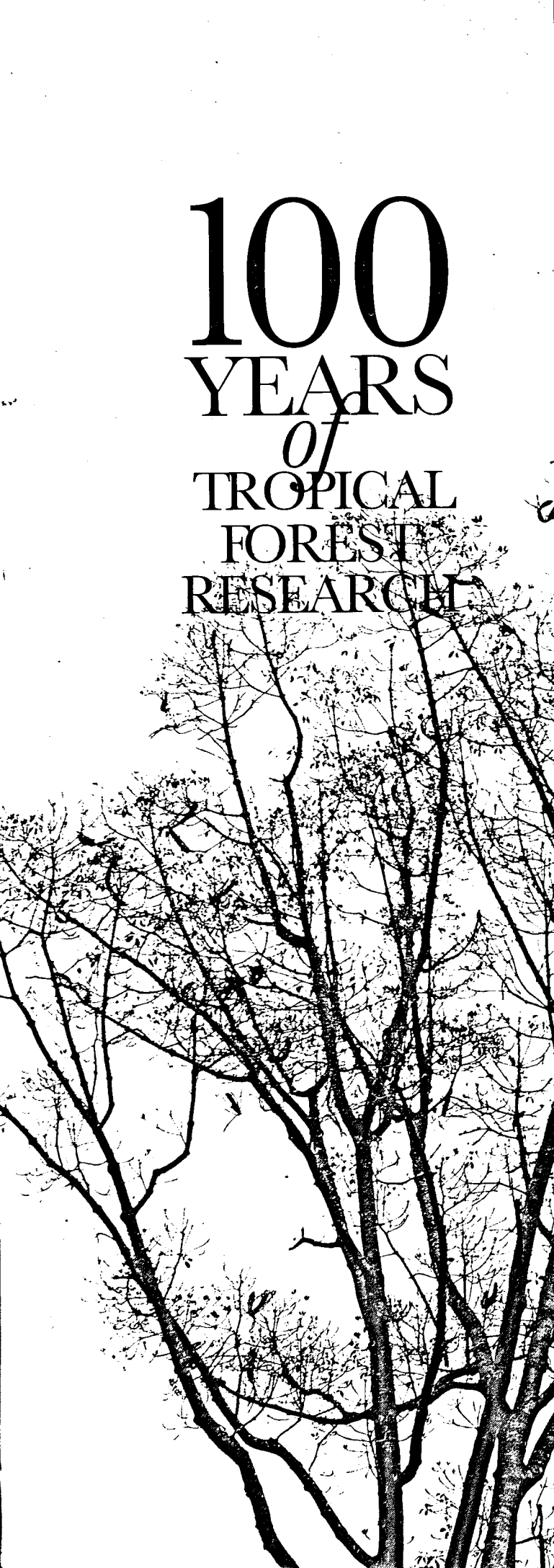
"The areas available for planting consisted of abandoned mining land that had first been cleared of forest, then mined by Chinese open-cast and gravel pump methods, resulting in portions of it being covered with the overburden and refuse removed from the mines, then grazed by cattle, cultivated by Chinese vegetable gardeners, and abandoned and grazed again until whatever merit the surface soil may have had was leached well out of it. The

and neatly trimmed beard, Foxworthy was always smartly dressed, even in the forest. On formal occasions, he wore a jacket with a row of cigars in his breast pocket. He was held in high social esteem in the European community in Kuala Lumpur and served as President of the elite Lake Club in 1931 – 1932 (RFA 1932; Anon. 1950). Foxworthy launched the Malayan Forest Records and was responsible for five of the first 10 numbers: MFR 1: *Commercial Woods of the Malay Peninsula*; MFR 2: *Minor Forest Products of the Malay Peninsula*; MFR 3: *Commercial Trees of the Malay Peninsula*; MFR 8: *Durability of Malayan Timbers* (with H.W Woolley) and MFR10: *Dipterocarpaceae of the Malay Peninsula*. Foxworthy served 14 years in the Malayan Forest Service.

Soh anak Tandang

Following page: The Information Centre





100 YEARS *of* TROPICAL FOREST RESEARCH

The Forest Research Institute Malaysia (FRIM) is situated in tropical rain forest less than one hour by car from the centre of the Malaysia's national capital, Kuala Lumpur. From this idyllic environment, this book guides us through the many events, developments, ideas and personalities that have made their mark on the institute and on tropical forestry. The historical mainstream, covered in the first chapter, traces the history of the Institute through the colonial period, World War I, the rubber boom, the great depression, World War II, the Japanese Occupation, the post-war recovery, the Malayan Emergency, Independence and thereafter, and the development of the railways, tin, rubber, housing and energy industries. Research themes are grouped into five separate chapters: natural forest management, wood-based industries, non-timber forest products, plantations parks and gardens, and biodiversity.

Among notable successes to which research has contributed substantially are the system for management of mangrove forests, the rise of the furniture industry based on rubber wood, and the complete documentation of the 2830 species of trees of Peninsular Malaysia. Concepts in tropical forestry, including those providing the rationale for the system of Regeneration Improvement Fellings, the Malayan Uniform System, the classification and marketing of tropical timbers, and many others, are brought together and integrated into a comprehensive picture.

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