

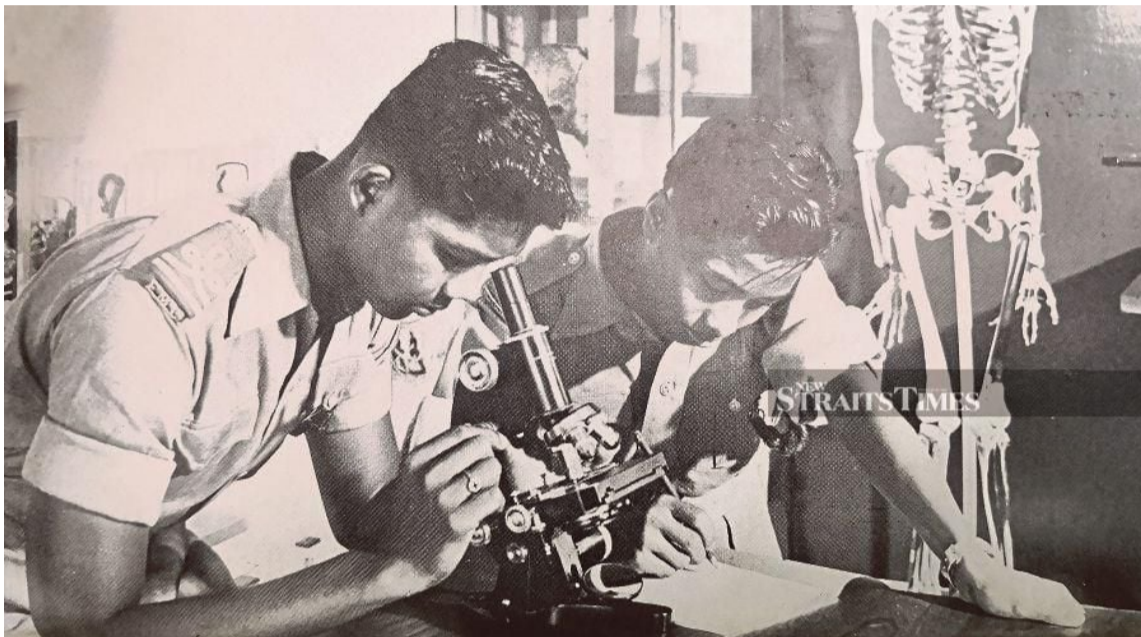


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Malaya led the way in medical research

By [Alan Teh Leam Seng](#) - June 16, 2021 @ 9:10am



Advances in healthcare were also bolstered by preliminary studies conducted by other researchers, like those from the Royal Malay Regiment. - NSTP/ALAN TEH LEAM SENG

There was a general feeling of overwhelming relief when Datuk Seri Dr Adham Baba recently announced that plans were in the pipeline for Malaysia to develop its own Covid-19 vaccines.

This development is definitely a step in the right direction against the raging pandemic, and is literally a shot in the arm to help accelerate the country's National Covid-19 Immunisation Programme (NIP), while giving us a fighting chance to achieve the much-yearned herd immunity goal by year-end.

With the burden of vaccine development falling on the able shoulders of researchers from the renowned Institute for Medical Research Malaysia (IMR), it is timely to take a walk back in time and relive the momentous health-related milestones achieved at this much revered Kuala Lumpur establishment.

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Malayan preventive medicine.

Just decades earlier, great leaps were achieved in the field of microbiology when Louis Pasteur proved for the very first time that diseases were caused by pathogens. That monumental breakthrough quickly led to the accurate identification of germs causing debilitating diseases like typhoid fever, tuberculosis, diphtheria and cholera.



The discovery of malaria and the ability of mosquitoes to carry germs by French physician Charles Laveran and Scottish doctor Patrick Manson, respectively, led Ronald Ross in India to conclude that the winged insect acted as a vector for the disease that was plaguing many tropical countries including Malaya.



Bottling anti-malaria drugs at the Institute for Medical Research for distribution in rural areas of Selangor. - NSTP/ALAN TEH LEAM SENG

By the early 1900s, the rising tide of breakthroughs saw the establishment of numerous leading tropical medicine schools in Europe, and the tide of ground-breaking discoveries that soon followed brought the study of diseases to newly-established colonial outposts scattered throughout the tropics.

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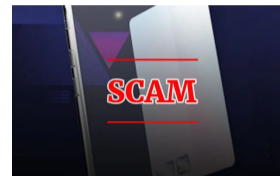
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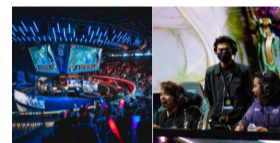


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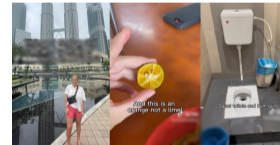
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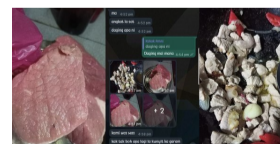
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preventable was further reinforced by the strong leadership provided by Frank Swettenham, the then resident-general of the newly formed Federated Malay States (FMS) of Selangor, Perak, Negri Sembilan and Pahang.

Apart from being the prime moving force behind many successful economic developments in Malaya, Swettenham was also a visionary colonial administrator, who saw the need for having a competent medical research centre to serve the people.

Prolonged periods of sustained and efficient research took root soon after February 1900, when the resident-general founded the Pathological Institute in Kuala Lumpur. This laboratory, which later became known as the IMR, began initiating plans to prevent and cure highly lethal scourges that were the bane of many Malaysians.

UNKNOWN ILLNESSES

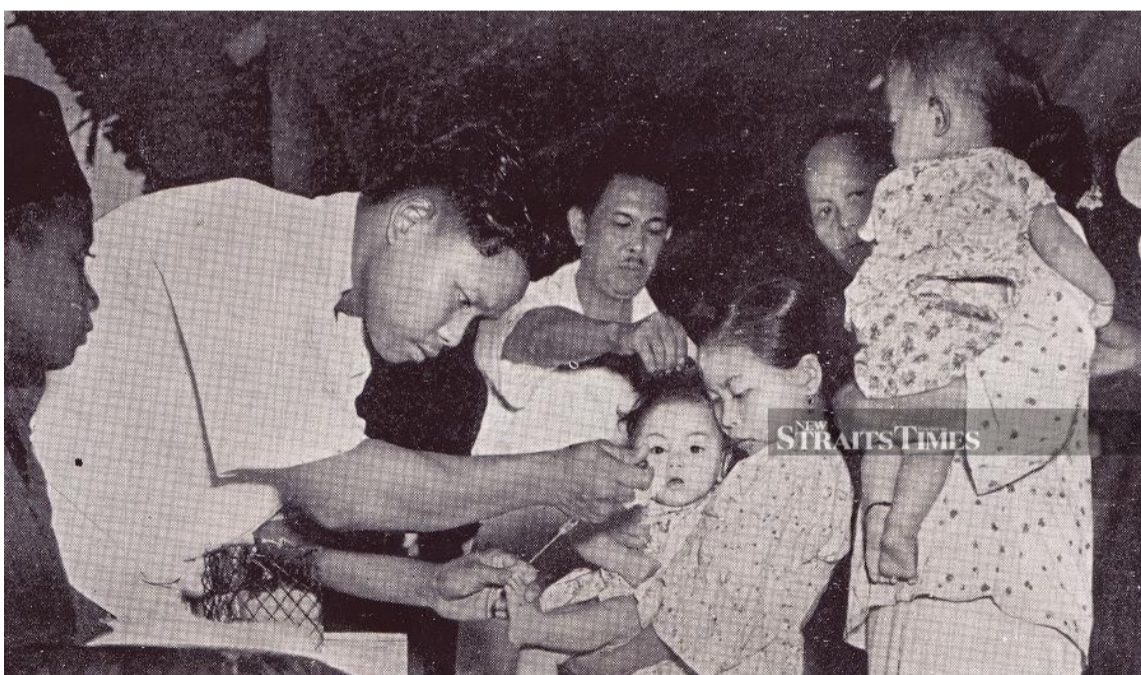
With a rapidly mushrooming immigrant population, Swettenham was well aware that severe outbreaks of beri-beri and malarial fever could shut down new mines, plantations and even ports and towns, bringing the economy to its knees.

Like Covid-19 today, those diseases were shrouded in much mystery to researchers during those early days of medical science.

Back then, it was common sight to have paralytic beri-beri victims limping along the streets of Kuala Lumpur with their curious high-step and unsteady gait.

Fatality was high, with many among the less fortunate dying at an alarming ratio of one to every six patients.

Beri-beri began spreading like wildfire throughout Malaya during the last quarter of the 19th century. It was particularly prevalent among young Chinese immigrants and, at that time, nobody had any clue of its origin.



A technician taking blood samples from infants for microscopic examination. - NSTP/ALAN TEH LEAM SENG

The first hint to the cause came from Java, where two Dutch researchers successfully induced a disease similar to beri-beri in fowls by feeding them polished rice.

Dr William Leonard Braddon, the Negri Sembilan government surgeon at that time, acted on the lead and concluded with conviction in his 1907 book that the disease was caused by eating polished rice.

Malayan medical research, it was glaringly flawed by assuming that polished rice contained a poison from which other forms of the staple were free of.

That misunderstanding was exacerbated when two early researchers at the Pathological Institute made the wrong assumption that beri-beri was an infection caused by germs!

Beri-beri only receded into insignificance two years later, when IMR directors Dr Henry Fraser and Dr Thomas Stanton tackled the problem from new experimental angles.

They pointed out that the disease was merely caused by thiamine (vitamin B1) deficiency, and the bran of unpolished rice was rich in that particular form of vitamin B.

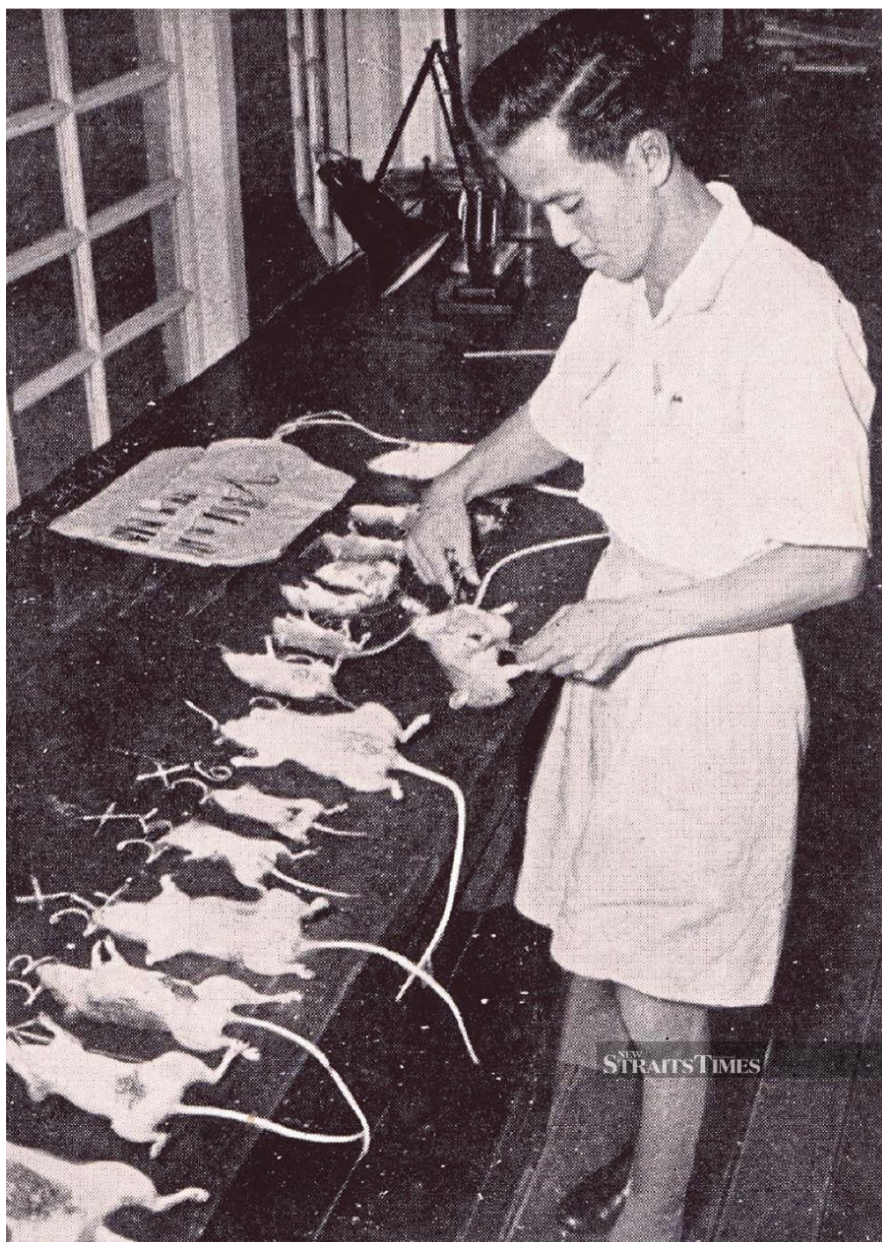
MALARIA SCOURGE

Compared with beri-beri which loomed large in Malaya for some four decades beginning from the 1880s, the more lethal malarial fever scourge had an unenviable longer reach into unrecorded past.

It all began at the turn of the 20th century, when the Selangor state surgeon Dr Malcolm Watson started work on malaria control following a serious epidemic that floored many Klang residents.

With full government aid and a \$30,000 Sanitary Board grant to drain waterlogged swamps, Watson initiated mitigating measures that were met with resounding success both in Klang and Port Swettenham.

By 1907, Dr Watson resigned from government service and began devoting more time and study towards malaria. He collected invaluable data and gained new insights into the disease by serving as medical adviser to many rubber estates that were rapidly opening up all over Selangor.



infected area in the late 1940s. - NSTP/ALAN TEH LEAM SENG

Working at a time when there was near complete ignorance of the different Malayan mosquito species, Watson successfully sought out the culprit that acted as vector for the malarial pathogen and began devising effective methods to interrupt its life cycle through breeding prevention and stopping the larvae from reaching adulthood.

Watson strongly encouraged drying up mosquito breeding sites by using underground pipes to eliminate surface water retention, keeping seawater off the land by building bunds, and the destruction of young larvae with oil.

His effective techniques and their splendid success record were published in 1911 by the Liverpool School of Tropical Medicine. Apart from blazing a trail for succeeding generations to follow, his book also laid down basic principles of malaria control, which remained unchallenged for many decades.

FIRST IN THE WORLD

These pioneering achievements gave Malaya pride in laying claim to the honour of being the first country in the world to have successfully applied knowledge on malaria transmission mode towards its eventual effective control.

Even before the Americans had actually commenced related work at the Panama Canal, anti-larval methods had already been successfully employed in checking the ravages of the disease throughout Selangor.

In the early 1930s, these successful control strategies were further bolstered by German advances on synthetic malaria remedies like Mepacrine in 1932.

Known by its trade name Atabrine, this powerful drug suppressed or destroyed the malaria-causing parasites in humans so effectively, that many exciting possibilities of prevention began to open up soon after its introduction.



Mobile clinics were among the facilities provided to the people in rural areas in the 1970s. - NSTP/ALAN TEH LEAM SENG

Much of the early work on the suppressive abilities of Mepacrine were conducted in Malaya, either at IMR or by experienced medical practitioners in the long suffering malaria-infested states of Kedah and Negri Sembilan.

Burma (today Myanmar) during World War 2, other effective methods to stem this epidemic had been well established and widely practised in Malaya.

During the wartime years, the two already established strategies of attacking malaria were further enhanced by the production of a potent insecticide known simply as DDT.

Unlike countries that did not suffer enemy occupation, Malaya only managed to capitalise on this novel invention after the Japanese Imperial Army troops surrendered to returning allied forces in September 1945.

Malayan research on insecticides during the post-war years rapidly made up for lost ground.

Within just a short period of time, DDT use, along with suppressive drugs and Watson's anti-larval methods, were effectively aligned on a common and widening front that helped turn the tide against Malaya's most serious and damaging insect-borne disease.

MALAYA HONOURED

While conducting further research on the early role played by IMR, it soon becomes obvious that there once existed far more deadly diseases to individual victims than malaria.

One such example was the mite-borne infection, which a former director of the institute, Dr William Fletcher, termed as tropical or scrub typhus.



IMR's ground-breaking research on scrub typhus was acknowledged in this 1976 stamp to commemorate the institute's 75th anniversary. - NSTP/ALAN TEH LEAM SENG

Known for centuries by peasants in the river valleys of Japan and identified in the Dutch East Indies (now Indonesia) since the turn of the 20th century, scrub typhus was thoroughly investigated in Malaya when Dr

debilitating disease in 1924.

A train of prolonged studies at IMR capitalised on this important pioneering work done on typhus fever in Malaya.

Subsequent research conducted in the years prior to World War 2 by Dr R. Lewthwaite and Dr S.R. Savor laid a solid foundation to the eventual eradication of this disease.

The introduction of a new antibiotic Chloromycetin in the post-war years dramatically reined in the scrub typhus menace once and for all.

The newly formed Federation of Malaya was given the honour of conducting extensive field trials of the medicine, which was essentially the by-product of a mould commonly found in the soil. In 1948, a group of United States Army Medical Research Unit researchers led by Dr Joseph Smadel arrived in Kuala Lumpur with a closely-guarded bag containing half a kilogram of substance representing the entire world's supply of Chloromycetin.

With the invaluable help of IMR researchers, the medicine proved its worth beyond doubt by bringing much welcomed relief to affected populations living in the countryside around Kuala Lumpur. The successful conclusion of the trials in Malaya led to the mass production of the medicine and its distribution worldwide.

The decades leading to the present saw well trained and qualified Malaysians taking over the helm of IMR. This gradual change in leadership helped the institute to expand its role and continue living up to the proud tradition of making significant contributions in the field of biomedical research, as well as various other key medical disciplines.

Since then, world-class IMR research efforts have continued to contribute significantly towards advancing knowledge, understanding, treatment and control of many major tropical diseases in this country and throughout the region.

Today, IMR focuses primarily on research, specialised diagnostic services, training and technical consultancies. With well-equipped laboratories serving as National Reference Centres for confirmatory diagnosis of infectious diseases, it is hoped that this proactive role will contribute significantly towards the development of our very own Covid-19 vaccines soon.



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