

The History of the College of Medicine and Tan Teck Guan Buildings

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Abstract

For 60 years from 1926, the College of Medicine Building (COMB) was the centre of medical education in Singapore. The history of medical services and medical education is intimately intertwined, with the history of the COMB and the Tan Teck Guan Building. This article reviews the history of the 2 buildings.

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Introduction

“There are few buildings which feature as significantly in the history of medical education in Singapore as the Tan Teck Guan Building (1911) and the College of Medicine Building (1926),” – this was how Dr Kwa Soon Bee, the then Permanent Secretary for Health and Director of Medical Services, described the buildings in his foreword in the publication¹ to commemorate their reopening in 1987.

For 60 years from 1926, the College of Medicine Building (COMB) was the centre of medical education in Singapore. The history of medical services and medical education is intimately intertwined with the history of the COMB and the Tan Teck Guan Building (TTGB).

The Medical School

In the early 19th century, Singapore’s first doctors came from Britain and India. The doctors were all generalists, not specialists. As the population increased and the medical services expanded, steps were taken to train local men. From 1870, suitably qualified young men were sent annually by the Government to the Madras Medical College to train as Assistant Surgeons. They were bonded to serve the Government on their return.

The first proposal to start a medical school in Singapore was made in 1889 by Dr Max Simon, the Principal Civil Medical Officer. The School was to have been established in 1890, but no candidate could pass the entrance examination; while in 1891, only 2 passed. Since it was not feasible to start a school with 2 students, the plan was abandoned, and young men continued to be sent to Madras.

In September 1904, a second and successful attempt was made. Representatives of the Chinese and other non-European communities, led by Mr Tan Jiak Kim, petitioned the Governor of the Straits Settlements (SS), Sir John Anderson, for the establishment of a medical school. Mr Tan Jiak Kim was the first president of the Straits Chinese British Association, which was formed on 17 August 1900, and was the forerunner of the Peranakan Association. Sufficient funds (\$87,077.08) were raised, of which the largest amount of \$12,000 came from Mr Tan.

The work of this group is remembered in 2 historical plaques on the side pillars of the main entrance to TTGB (Fig. 1). The medical school was founded on 3 July 1905 and was called the Straits and Federated Malay States Government Medical School. The Medical Library was first housed in the students’ reading room within the Medical School, which was converted from the vacant old Female Lunatic Asylum in Sepoy Lines (at a cost of \$1000; \$10,000 of the funds were spent on equipment, and \$60,000 went to scholarships for students).

The School entrance was a gate with iron bars, and its whitewashed walls were topped by iron spikes.² A pavement led from the iron gate to the entrance of a covered passageway. On either side of the pavement stood a two-storey building, which housed the warders. The windows of the school building and the few other buildings were fitted with iron bars and spikes. Beyond the entrance, on the right, was a small building used as a lecture room, where lectures on osteology, physiology, botany and hygiene were given. Behind this, a bigger building housed the

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Fig. 1. A close-up of the historical plaque on one of the pillars at the entrance of the TTGB.



Fig. 2. The Tan Teck Guan Building, December 2004.



Fig. 3. The foundation stone of the COMB.



Fig. 4. The Doric colonnades of the COMB.



Fig. 5. The central doorway of the COMB, with a bas-relief of a Roman eagle.



Fig. 6. Grand staircase in the main lobby of the COMB.



Fig. 7. Palm trees fronting the COMB.



Fig. 8. The National Heritage Board plaque marking the TTGB as a national monument.



Fig. 9. The National Heritage Board plaque marking the COMB as a national monument.

Government Analyst, which was not part of the School. To the left of the entrance, there was a wooden bungalow, which housed the principal's office, his clerk's office, and two rooms serving as a reading room and a rest room for students. Behind this, separated by a narrow lawn, there was a large building used for dissection. Yet further back, there was a similar-sized building, which was to be used as the physiology lecture room in 1906 when equipment like microscopes were ready. Chemistry and Physics were taught in the government laboratory at the corner of Hill Street and Coleman Street (where the Hill Street Central Fire Station is now located).

At the opening ceremony on 28 September 1905, Sir John Anderson (the Governor of the SS, 16 April 1904 to

2 September 1911) spoke thus to the first batch of medical students:

“I am sure you will realise the best hopes of the Government and the community. It is to you that the Government looks especially. You are of the East, and to you they look, to break down the walls of native prejudice and overcome his ignorance. You have access as the Westerner has not, to the inmost household in the East, and it is a very real battle that will have to be fought, and I think, with the training you will acquire here, you will go forth well equipped and determined to win in the real spirit of the profession. And in a few years' time, you will overcome them and the community will reap the benefit by an increasingly healthy population, a diminishing death rate and improved conditions of life everywhere.”

At the time, Dr DK McDowell was the Principal Civil Medical Officer. Dr GD Freer, who was the Colonial Surgeon in Penang, and one of the first two house surgeons appointed to the General Hospital (GH) in Singapore in 1890, was appointed Principal of the Medical School, and he taught Anatomy. Dr RD Keith was appointed Physiologist and Assistant Pathologist. Most of the teaching, however, was carried out by doctors in the government service, army doctors and general practitioners. The Medical School was also permitted, under the Morphine and Poison Ordinance, to issue a Pharmaceutical Licence.

In 1906, the Medical Student's Recreation Club was set up to offer sports facilities. The Club used a piece of ground at the present Railway Station as its sports ground. Many of the students in the first batch were keen cricketers,³ but it

was only in 1908 that the School could field a full side, which performed well.

In 1907, introductory classes in clinical medicine and clinical surgery were held at the GH. A new lecture theatre with 120 tiered seats was built at the Medical School. In 1907, students began to learn practical pharmacy at the Government Outdoor Dispensary at Kandang Kerbau Hospital (KKH), and gynaecology at 2 wards for prostitutes. In 1908, the students began learning clinical medicine at the GH and minor surgery at Tan Tock Seng Hospital (TTSH, or the Rumah Miskin in Balestier; TTSH at Moulmein Road had not yet been built) because it was better staffed, where they were under the charge of Dr GA Finlayson (who was Government Pathologist from 1905 to 1926). Ophthalmology was taught by Dr FW Moore at TTSH. Major EM Pilcher taught clinical surgery.

There was a good deal of surgical training at TTSH; by 1910, 583 operations had been performed, the technique of spinal anaesthesia was being used and iodine disinfection of the skin was being used for operations. Back at the GH, the students were reported to be of considerable assistance in the microscopic diagnosis of malarial fevers and other minor laboratory work, partly because the majority of the house surgeons arriving from Britain had no knowledge of tropical diseases and could not speak the local languages. Students had to attend to 20 cases of midwifery, but there were not enough cases because the Asian population at the time disliked going to the maternity hospital. In 1907, the Government Analyst's laboratory shifted to Sepoy Lines.

By 1909, classes had been conducted in all the subjects of the curriculum. On 3 February 1909, Dr Freer was transferred to Selangor as Senior Medical Officer. Before he left, the medical students presented to Dr Freer a farewell scroll contained in a beautiful silver holder. The whereabouts of the scroll is unknown. The silver scroll holder is cylindrical, and 10½ inches long with a diameter of 3 inches. It was made in Canton, China and is beautifully chased with magpies among prunus blossoms and branches. An undated inscription on the silver scroll holder reads:

“To / Dr G.D. Freer / From / The Students / Medical School / Singapore”.⁴

In 1915, there were 59 graduates; 117 in 1920 and 233 in 1930. In 1916, the General Medical Council of the United Kingdom (GMC) recognised the LMS for admission to its roll. At the time, local graduates of the Medical College could only look forward to careers as Assistant Apothecary, Hospital Dresser and Sub-Assistant Surgeon. They could not become medical officers, a post reserved only for Europeans. The locals were called “Asiatics” by the Europeans.

In 1911, a new building – the TTGB – was added to the medical school. It was built from funds donated by a Chinese benefactor, Mr Tan Chay Yan, in memory of his father, Mr Tan Teck Guan (sometimes spelled as Tan Teck Gein). This building served as the administrative block, containing the Principal's and clerk's offices, the new Medical Library, reading room, a lecture room and a pathology museum. The TTGB building has a Georgian façade with neo-classic details. The main entrance is embellished with an ornate archway supported by Doric columns, with Ionic columns on the upper level (Fig. 2).

In 1912, the medical school received a large donation (\$120,000) from the King Edward VII Memorial Fund started by Dr Lim Boon Keng. On 18 November 1913, the name of the school was changed to the King Edward VII Medical School in recognition of this, and the fact that the school was established during the reign of King Edward VII. In 1919, the GMC warned the College of possible de-recognition if standards of teaching and examination were not maintained. The Government in Singapore contributed more resources and soon professors were appointed. In 1921, the name was again changed to the King Edward VII College of Medicine to reflect its academic status.

In 1920, approval was given to build a new College building, designed by Major PH Keys. The foundation stone was laid on 6 September 1923 (Fig. 3). The new building was officially opened on 15 February 1926 by the Governor of the SS, Sir Laurence Nunns Guillemard. After the completion of the COMB in 1926, the TTGB was occupied by the Department of Anatomy, and an extension of the building housed the dissection room.

The first floor of the COMB housed the Council Chamber, the Principal's Chambers, administrative offices and department offices, a museum (Keith Museum, which later housed the Medical Library located in the centre of the first floor, in a room 80 by 26 feet) with courtyards on either side (with one courtyard near the pond of the Singapore Medical Council), the Department of Biochemistry and a student laboratory, and the Department of Materia Medica (Pharmaceutics and Pharmacy). The mezzanine floor was part of the Library. Services provided by the library were rather limited. Students were only allowed to take out certain books on long-term loan as personal textbooks, as books were rare commodities in those days.

On the second floor, there was a main lecture hall (later the New Lecture Theatre), two lecture rooms (later the Allen and Farris Lecture Theatres), the Department of Biology, and the Department of Bacteriology and its Bacteriology Student Laboratory. Level 3 housed the Department of Physiology. There was no central staircase; instead there was a pair of staircases leading to the mezzanine floor.

The building's design, the work of architects Keys and Dowdeswell, is reminiscent of classical Greek monuments such as the Acropolis in Athens. Allegorical bas-relief sculptures and moulding on both sides of the façade depict the teaching and practice of medicine. These were conceived by the Italian artist, Cavaliere Rudolfo Nolli (who designed similar ornamentation on the façade of the Supreme Court building) and executed by Mr J Sharpe Elliot. The building is fronted by 11 sculptured timber doors. The sculptures are surrounded by moulded plastered architraves with a circular motif. These doors stand behind the fluted columns of the Doric colonnades. (Fig. 4). Over the central doorway is a bas-relief of a Roman eagle that classically signifies a civil or official building (Fig. 5).

In 1924, the College was briefly closed.⁵ The closure reflected, in parts, the anti-colonial attitude in Malaya, grouses between the European staff of the College and the GH and the principal Dr GH MacAlister, and a lack of dialogue between the European administrative staff of the College and the students. The precipitating event was a trivial one, which eventually led to the students boycotting a social event in which the Governor would be giving away sports prizes. The College Council, however, took the view that in absenting themselves from a social function, the students had insulted the Governor, and thus His Majesty the King. The College was closed and the students were expelled from the hostel. Later, some non-hostelite students apologised to the principal, and the College was reopened. A Commission of Enquiry set up by the College maintained that the students had indeed insulted the King, and meted out severe punishment to the students. One student was expelled from the College, a few were suspended for 1 year, many for 6 months, and all those due to sit for examinations were barred from doing so.

The Department of Bacteriology was established in 1925, led by Professor A Neave Kingsbury.⁶ Besides teaching, routine bacteriological diagnosis and vaccines production, research work was also performed on viral diseases and leprosy.

In 1926, the College and its hospitals were inspected by Sir Richard Needham, the Inspector of the GMC. In his report, he told the GMC that the graduates should be given the MBBS because of the high standard of the College. He wrote: "*In as much as the Singapore diploma is in no way inferior to the recognised MBBS degree, the letters 'LMS Singapore' frequently give the wrong impression, at all events to the public, of the professional status of the holder. In course of time no doubt a university will be established in Singapore which will provide for the students of the College an MBBS degree.*"

In 1926, Dr JC Tull succeeded Dr Finlayson as the next Government Pathologist. He was also the honorary

physician to the Governor of Singapore. A chair in Pathology was created at the King Edward VII College of Medicine, and was concurrently held by Dr Tull until his retirement in 1936.

In 1928, the SS Government appointed its first pharmacist, Mr T Roebuck, at the GH, and the Medical College appointed him as its lecturer in pharmacy. In 1929, the School of Dentistry was established in the College, and produced its first dental graduate in 1933.

The 1929 class of the medical students was the first batch to undergo the 6-year medical course initiated at the recommendations of the GMC. Then, Mr BM Jones was the Professor of Clinical Surgery, Mr K Black the Professor of Surgery, Dr Young the Professor of Bacteriology, Dr Kay-Mouat the Professor of Physiology, Dr RB Hawes the Professor of Medicine, and Dr JS Webster the Professor of Radiology. Among the graduating students were ES Monteiro, Benjamin Sheares (born 12 Aug 1907, Dr Sheares became Malaya's first local professor of obstetrics and gynaecology in 1951, and Singapore's second President in 2 January 1971, an office he held until his death on 12 May 1981), N Amad, RG Gunatillika, Lim Eng Cheang, Benjamin Chew (founder of the Singapore Anti-tuberculosis Association), and AW Moreira. In 1930, Mr PJ Verghese was appointed as the first full-time medical librarian, and the Medical College Union resurrected the student magazine *The Medico*.

In 1933, Sir Richard Needham again inspected the College, and again he reported its high standards to the GMC.

In 1934, the Registration of Pharmacists Ordinance was passed, establishing a Pharmacy Board. When the Ordinance was enforced in 1935, 42 persons were registered as pharmacists. In October 1935, the College introduced a Diploma in Pharmacy course. The course consisted of 1 year of full-time study followed by a pupillage of not less than 3 years (this was modelled on the Chemist and Druggist Qualifying Examination of the Pharmaceutical Society of Great Britain). In the 1935, the School of Pharmacy was established. All the teaching was done by Mr Roebuck and Mr AF Caldwell, who had arrived in 1935 and who were also running the GH dispensary. The Pharmacy School closed during the Japanese Occupation. After the Occupation, Mr Roebuck retired in 1947 because of poor health and Mr Caldwell became Head until 1959. In 1947, Mr James Hanam joined the department. In 1949, all the teaching staff of the Pharmacy School relinquished their non-teaching hospital duties. In 1951, Mr TH Elliot joined the Department. He started the *Malayan Pharmaceutical Journal* in 1952.

In 1936, Dr Tull was succeeded as Professor of Pathology by Dr JA Cowan, who held the position briefly until

1937. The next Professor was Dr HO Hopkins, who held the position from 1937 to 1941. In 1938, the Dental Clinic Building was completed at the present site of the Singapore General Hospital (SGH) and served as a teaching department. Around this time, the Dental School comprised 1 professor (EK Tratman), 1 lecturer (JW Softley), 2 tutors in dental surgery (Henley Wong, Tay Teck Eng) and 1 instructor in dental mechanics (GH Stephens). In preparation for the war, a maxillofacial unit was set up at KKH by Dr Tay. (Tan Sri Dr Tay later became Chairman of the Council of the University of Singapore and the Singapore Cancer Society.) In 1936, Col Dr John William Scharff was appointed Lecturer in Public Health, and introduced a health and sanitary survey of the rural village as part of the curriculum. A public health museum was started by Dr Scharff in 1937. That year, the first hospital for the treatment of bone and joint tuberculosis, the St Andrew's Orthopaedic Hospital, was opened in the East of Singapore.

In 1937, doctors were just beginning to understand the aetiology of cardiac beri beri (vitamin B1 deficiency). Professor ES Monteiro described how thiamine chloride was first used in Singapore as a cure and as proof of the aetiology.⁷

The Japanese Occupation Years (February 1942 to September 1945)

Medical education was interrupted by the Japanese invasion of Malaya in 1941. (When it was clear that the Japanese would soon arrive in Singapore, the College brought forward the March Final Examination to January 1942, and this allowed 5 doctors and 5 dentists to qualify.) During the Japanese Occupation of Singapore and Malaya (February 1942 to September 1945), Singapore was renamed *Syonan* (or *Syonanto*, meaning “Brilliant South”) and Malaya was called *Malai* (or *Marai* or *Marei*).

During the Occupation, the Japanese Armed Forces commandeered the GH for their own casualties, and the GH became the main surgical centre for the Japanese army and navy in South East Asia. The medical department was under the charge of Dr K Ando who had graduated from the Kingd Edward VII College in 1912. Sadly, medical services in Singapore broke down, disease became rife, and deaths mounted. For example, the effects of typhoid fever and diphtheria during the Japanese Occupation were described by Professor ES Monteiro.⁷

The KKH became the main civil hospital and was renamed *Chuo Byoin* and became known as the Central Civil GH. The maternity service was scaled down to one ward. It was manned by local and Japanese staff (with Dr Benjamin Sheares as the deputy Medical Superintendent). Two Japanese dentists (Dr Murakami and Dr Itoh) were posted to take over the maxillofacial unit in the hospital, and the

expatriate dentists were made prisoners-of-war. TTSH was initially used as a military hospital by the Japanese, but after one year, it became a civil hospital and was renamed *Hakuai Byoin*, and functioned as a subsidiary general hospital to KKH. When accommodation was inadequate, schools were used as hospitals for the wounded.

First-aid posts were set up in various buildings, manned by a Medical Auxiliary Service (MAS). The MAS was formed by the government before the outbreak of war, from a nucleus from the St John's Association and Brigade. Local graduate doctors who were in private practice joined their government colleagues to tend to the injured in the hospitals. Two doctors were reportedly killed by shelling at KKH while attending to casualties. After the Japanese invaded, local doctors treated the local population in KKH (*Chuo Byoin*), TTSH (*Hakuai Byoin*), and the Mental Hospital (*Miyako Byoin*).

The chaos in the first few months in these civilian hospitals was gradually replaced by some semblance of order due to the efforts of the medical personnel. Equipment and drugs became very scarce. Students of the College, who had been in their clinical years when the Japanese invaded, received clinical instruction from the hospital doctors and dentists. Occasional clinico-pathological meetings were held at KKH. The Mental Hospital and Alexandra Military Hospital⁸ were used by the Japanese.

The medical school at the College of Medicine was closed by the Japanese on 16 February 1942, who used it as the base for the Japanese Army Medical Corps to receive war casualties. The local hospital doctors and dentists were allowed to hold examinations for 22 medical and 7 dental students, and they received diplomas issued by the Japanese Military Administration). Some students dispersed; some homeward while others to strike out and make a living for themselves.

The students who went homeward upcountry had to obtain written permission from the Japanese High Command. A delegation led by Aziz Omar (later Dato Dr) went to the Municipal building and obtained group permits. The Penang group comprised 13 students, and Dr Cheong Mow Lum wrote an account of their return to Penang in 1973.⁹

Later, the Japanese used the COMB as a serum and vaccine institute. In April 1943, the Japanese Military Administration established the *Marai Ika Daigaku* (Syonan Medical College) at TTSH (renamed *Hakuai Byoin*, *Syonan*). When the Syonan Medical College first opened, all former students of the King Edward VII College of Medicine were accepted, and a total of about 200 students became *ika daigakusei* (medical students), 100 from Malaya and Singapore and 100 from Indonesia, nearly all from Sumatra. There were only 2 teachers, a primary school

teacher named Ozaki and a physical instructor named Kameyama. Students did not learn anything about medicine, but instead were taught how to sing the *Umi Yukaba* (Seafaring, a military song) and *Kimigayo* (the Japanese National Anthem), how to bow deeply in the direction of the Imperial Palace in Japan, and physical exercises. Even then, there was an attempt to start ragging, but this was apparently quickly given up because the Dutch-speaking Sumatran students objected to it with razors drawn.

The Japanese then shifted the Medical School to Malacca GH in February 1944 where it functioned (all the teachers were Japanese) till the end of the Japanese Occupation in September 1945.¹⁰ The warden of the Medical College in Malacca was Dr Keigo Shima, who was a surgeon, and said to be a fine gentleman who never raised his hand to anyone. Dr Shima was said to have a wry sense of humour, illustrated when he found a student with a nurse near the mortuary in the Malacca GH after lights out. He shone the torch, and when he identified the person concerned, he said “Sonna tokora demo” (Even in such a place).¹¹

Dr Shima also had a flair for handling undergraduates. The students had hard-labour sessions on Sundays. This consisted of felling a rubber plantation to plant tapioca, and was supposed to take place from 2 to 4.30 in the afternoon. The Japanese teachers would make the students start exactly at 2 pm and not end earlier than 4.30 pm, and so the students would take their time to chop down the trees, chopping down about 8 trees per session. When it was Dr Shima’s turn to supervise, he asked the students what the average number of trees chopped was. When told that it was 8, he pointed to 8 trees and said that they could leave after they had finished chopping down those trees. The students chopped down the 8 trees within an hour, and had the rest of the afternoon off for an outing to town, which was said to invariably include a visit to a casino. After the war, Dr Shima became professor of orthopaedic surgery at the University of Hokkaido. Dr Chee Phui Hung, one of the students then, said that they remembered Dr Shima as a doctor and not as a member of the Japanese Occupation forces.

After World War II

When World War II ended, the period of the British Military Administration (September 1945 to April 1946, headed by the Military Administrator, Lord Louis Francis Mountbatten) was one of urgent improvisation and rehabilitation. All hospitals, clinics and public health services were re-established on an emergency basis immediately. KKH remained the Civil GH until 1 July 1946, when it resumed as the only obstetrics and gynaecology hospital serving Singapore.

The COMB was returned to the College authorities on 1

April 1946, and the College was reopened on 17 June 1946. The 29 medical and dental students who received diplomas from the Japanese Military Administration during the Occupation had to sit for fresh examinations, and all of them passed in 1946. From 1941 to 1955, the Chair of Pathology was vacant. Pathology teaching was undertaken mainly by Dr C Subrahmanyam (who was Government Pathologist from 1947 to 1954) and Dr T Balasingam (Senior Lecturer in Pathology in the College and later University). Dr LS da Silva and Dr RA Cumming assisted in the teaching of Pathology in the College during the first 2 postwar years. (Dr da Silva subsequently became the Government Pathologist in 1954, and was succeeded by Dr K Shanmugaratnam in 1957.)

After the medical school opened, the FMS Hostel was also reopened. To provide additional accommodation for the students, some other places were acquired. The first to be converted was the Lay Superintendent’s Quarters for 11 students, then the Sepoy Lines Golf Club for 25 students. In 1947, the TTSH hostel was opened for 100 students. An old bungalow in Paterson Road was converted for 36 preclinical students. In 1948, a Japanese building in the College sports field was converted into an annex of the FMS Hostel for 14 students, and was called the Stables. (In 1953, the Dunearn Road Hostel opened to replace Paterson Road Hostel. In 1955, the FMS Hostel and the TTSH hostel were demolished.)

The Medical Library, which had been left intact during the war years, was reopened, and shifted to the ground floor of the COMB in 1947. Mr George Ee was appointed officer-in-charge of the Library. The Dental School also set up a small library around this time. The rehabilitation of the Pharmacy School was particularly difficult because the laboratory had been stripped of all benches and equipment by the Japanese, and had been converted into a cold room, which was dismantled in 1947. In 1947, a young Mahathir bin Mohamad entered the portals of the King Edward VII College of Medicine. Here, Tun Dr Mahathir was to meet his future wife, Tun Dr Siti Hasmah bte Haji Mohd Ali.

In 1949, Professor Tratman described in the *Singapore Dental Journal* a previously unrecorded anomalous form of mandibular premolar, first described by Mr MO Leong, LDS, at an August 1946 meeting of the Malayan Dental Association.¹²

To understand what happened next in the history of medical education and services, it is appropriate to briefly review what happened to the SS after the war. The British forces returned in September 1945 and Singapore came under the British Military Administration. When the period of military administration ended in March 1946, the SS was dissolved. On 1 April 1946, Singapore became a Crown Colony. Following the Rendel Commission, which reviewed

Singapore's constitutional position, Singapore attained self-government in June 1959. In May 1961, Malaya proposed a merger between the Federation of Malaya, Singapore, Sarawak, North Borneo and Brunei. Singapore approved the merger by a referendum on 1 September 1962. Malaysia was thus formed on 16 September 1963, and consisted of the Federation of Malaya, Singapore, Sarawak and North Borneo (now Sabah). Brunei opted out.

In the 1940s, the GH faced many problems, mainly a shortage of doctors, nurses, paramedical personnel, and medical equipment. Admission was restricted to the acutely ill patient, and hospital stays were kept as short as possible. The Maternity Wing of the GH at Sepoy Lines was closed, and all obstetric and gynaecological patients were transferred to KKH (in 1946 there were about 5000 births, in 1947 about 7000, and in 1949 over 10,000). This caused a problem to medical students because, up till then, most of the practical obstetric work of students had been carried out at the Maternity Wing. Medical students then had to attend to a given quota of 20 cases. The GH offered grants to pregnant women willing to be delivered by medical students. In 1948, the Casualty & Outpatient Services was set up in the GH.

Up to this point in time, there was no system of medical or surgical units. Medical officers and specialists might have to travel up to 4 miles a day to visit their patients in various wards in the hospital complex, and some patients did not get the attention that they would otherwise have received. This situation, where there were no medical and surgical units, was severely criticised by a delegation from the GMC. The health authority thus decided that patients of each specialist and his house staff would be grouped into contiguous wards irrespective of class. Thus, a system of medical and surgical units was instituted in 1947 in all hospitals, and each Unit had its own Head.

In the GH, there were 3 surgical units (A, B, D), an Ophthalmic Unit (making Ophthalmic Surgery the earliest subspecialty to be recognised in Singapore) and 2 adult Medical Units (I and II). (A third Medical Unit, the Children's Unit, was formed only in 1965.) Surgical Unit A was headed by a Professor from the Medical School, while Surgical Unit B was headed by a senior government consultant surgeon, who also had to do ENT work. In 1951, Surgical Unit D became an Orthopaedics Unit, and was later divided into 2 units – O and C – in 1956. In 1957, the ENT Unit became the ENT Department.

The British civil administration decided to take the opportunity to develop medical services. A 10-year Medical Plan was drawn up and approved by the Legislative Council in 1948. That year, the Rotary Tuberculosis Clinic in TTSH was built.

In the 1950s, the resources of the hospitals, and in

particular those of the GH, were being stretched to the limit, dealing with increasing numbers of inpatients and outpatients, as the population of Singapore grew. Overcrowding in the wards was a very serious problem, and inpatients were occupying verandahs and corridors.

The Medical Plan was implemented in 1951. Special funds were also allocated for the fight against tuberculosis, and BCG inoculation was introduced. Existing hospitals were expanded, and new clinics were built for outpatient, maternal, child and infant services. Various ordinances regarding public health were enacted.

The government realised that organised well-equipped outpatient departments would enable a large number of patients to be treated without having to admit them. Thus, the medical units in the GH began to form Specialist Outpatient Clinics for general medical cases, endocrinology, neurology, respiratory medicine and haematology.

In 1953, the foundation stone for a new Extension Wing of KKH was laid at Hampshire Road, across from the Old Wing in Buffalo Road, and this opened in 1955. The two wings were fondly known as the Tekka Hospital. By this time, there were over 22,000 births in Singapore. (The labour wards of the 2 wings witnessed a record of just over 1 million births from 1955 to 1997.) The old KKH building now houses offices of the Singapore Land Transport Authority, adjacent to the Little India MRT station.

In 1953, the Medical Registration Ordinance was enacted, and housemanship was made compulsory. In 1954, electroencephalography was introduced to the GH. That year, at KKH, a Domiciliary Aftercare Service (DAS) was started to cope with the high demand for beds. The DAS looked after women who had been discharged, 24 hours after delivery.

In 1955, a Paediatric Unit of the GH moved into the newly completed Mistri Wing, built with funds provided by Mr NR Mistri. That year, Singapore was awarded the Kettering Shield for having the best Maternal and Child Health Service in the Commonwealth. Carotid angiography was used for the first time in 1955 at the GH. In August 1955, at KKH, the Domiciliary Delivery Service (DDS) was introduced. Women who had received antenatal care at the hospital were given the option of hospital delivery or home delivery, after their homes were assessed and deemed suitable for delivery. In September, the service saw the delivery of its first baby. The new Extension Wing at KKH saw an increase in beds, new operating theatres, an X-ray department, and clinics for women and children.

The 1960s and 1970s

In 1959, Singapore attained self-government, and the urban health services (Municipal Health Department) were assimilated into the Government Medical Department to

form the Ministry of Health (MOH). Mr Ahmad bin Ibrahim was appointed the Minister for Health. In 1960, the MOH incorporated the City Analyst's department into the Government Analyst's department to provide a more integrated chemical service in Singapore. The formation of the MOH marked the 1960s as a period of reorganisation and consolidation of hospital services. Central control was established. In the 1960s, health services were consolidated, with the start of open-heart surgery, coronary care and haemodialysis. In 1963, 5 honorary consultants were appointed to the GH from amongst specialist doctors who had retired from government or University service, or who had gone into private practice. They were Professor BH Sheares (Obstetrics and Gynaecology) (later President of Singapore), Professor ES Monteiro (Medicine), Professor Yeoh Ghim Seng (Surgery) (Head of the University Department of Surgery, 1955 to 1962, and later Speaker of Parliament), Mr Seow Li Jin (ENT), and Dr Robert Loh (Ophthalmology).

The late 1960s saw marked improvements in the standard of living, urban renewal, and industrialisation, and large leaps in medical technology and science. The year 1961 saw the separation of Singapore's first Siamese twins – Karen and Kate – on 12 December, at the SGH, by Professor Yeoh Ghim Seng and Mr Choo Jim Eng. In 1962, KKH was reorganised into 3 training units – the University Unit and Training Units A and B. The 3 units concentrated on complicated cases and the training of doctors, while the Maternity Home Unit undertook the bulk of routine delivery. As a result of the reorganisation, posts in the Training Units were recognised by the Royal College of Obstetricians and Gynaecologists in 1963. (KKH's University Unit moved to the National University Hospital in 1985.)

In 1963, Singapore's first cardiac laboratory was set up at the GH. In 1964, a new Emergency Unit was opened and a radioisotope laboratory was established. Singapore's first open intra-cardiac repair of an atrial septal defect using cardio-pulmonary bypass was done on 28 January 1965. Also that year, Professor Wong Hock Boon of KKH's Paediatric Unit, and Dr WR Brown, a Research Associate of the Hooper Foundation, completed their work on kernicterus in Singapore, which led to the screening of newborns in Singapore for glucose-6 phosphate dehydrogenase (G6PD) deficiency. In 1967, a Coronary Care Unit was established at the GH. Singapore's first renal transplant was done on 8 July 1970 on a 29-year-old female with chronic pyelonephritis.

In 1968, the first 2 patients with chronic renal failure were started on regular haemodialysis at the GH. The Department of Radiology was divided into 2 separate departments, Diagnostic Radiology and Radiotherapy. That year, the GH was renamed the Outram Road GH.

By 1970, the time was ripe for specialisation, and a Committee on Medical Specialisation was set up by the Minister for Health, Mr Chua Sian Chin, to recommend a programme of development of specialties as would meet Singapore's needs, and to make the republic an internationally pre-eminent centre for treatment, training and research. The Committee recommended the development of 5 subspecialties, namely neurosurgery, cardiothoracic surgery, plastic and reconstructive surgery, paediatric surgery, and renal dialysis. The Committee recommended that the specialties be developed as independent Units, but should be grouped together in a hospital complex for economic, administrative and functional reasons. The Committee noted that for these subspecialties to develop, there would be a need for concurrent development of related specialties in the fields of radiology, anaesthesiology, laboratory services, gastroenterology, urology, intensive care, immunology, genetics, haematology, and nuclear medicine, although not as separate Units.

As a temporary measure, the Neurosurgery and Cardiothoracic Units were developed in TTSH under Mr Tham Cheok Fai and Mr NC Tan, while the Burns and Plastic Surgery Unit was developed in SGH under Dr Wong Kum Leng. The Paediatric Surgery Unit was later established under Mr VT Joseph, while Nephrology and Renal Dialysis came under the charge of Dr Lim Cheng Hong. A 10-bed Dialysis Unit was set up at the GH in 1970. The withdrawal of the British Forces from Singapore in 1971 gave the Ministry 2 hospitals – Alexandra Military Hospital (renamed Alexandra Hospital) and the Naval Base Asian Hospital (renamed Sembawang Hospital). In 1978, the SGH Accident and Emergency Department handled its first mass casualty disaster when a Greek tanker, *Spyros*, exploded. Thus, the 1970s saw the establishment of surgical subspecialties.

In 1972, the Ministry of Environment was set up to take charge of environmental health, and the MOH could now concentrate its resources on hospital services, primary health services, dental services and support services. In 1975, Dr Toh Chin Chye was appointed Minister for Health (until 1981). In 1976, building of the Institute of Dental Health started, which was temporarily occupied by the MOH in 1978. In 1976, the Government Analyst Department at Sepoy Lines was renamed the Department of Scientific Services, to reflect the wide range of new services that had been incorporated in the department, namely, radiation, microbiology and chemical engineering, and was transferred to the MOH in 1983.

Earlier in 1971, the Government had appointed a firm of consultant planners to determine the requirements for hospital services over the next 20 years, to provide a plan

to meet these requirements, and to advise on the redevelopment of the SGH. They produced a report in April 1972 and, in November, the Government gave its approval for the construction of a new hospital in the Outram Road area. In 1975, the foundation stone of the new SGH was laid. On 12 September 1981, the new 8-block SGH was officially opened by the then Prime Minister, Mr Lee Kuan Yew. The commissioning of SGH was completed in 1983 when the Supplies Department and the Linen Supplies Unit were transferred to Block 8. The new SGH cost \$194 million, excluding land costs. Thus, the SGH as we know it today is the fourth general hospital to be built at the Sepoy Lines locality.

The Fate of the College of Medicine Building and Tan Teck Guan Building

In May 1982, when it was decided that the Faculty of Medicine and School of Postgraduate Studies would move to the Kent Ridge Campus, the MOH was determined that the COMB should not be demolished and should continue to have an important place in medical history. In 1983, the Preservation of Monuments Board recommended that the COMB be preserved for posterity. In August 1985, the Preservation of Monuments Board recommended that the TTGB also be preserved.

In May 1984, the MOH obtained approval from the government to restore and renovate the COMB and TTGB. Indeco (Pte) Ltd was appointed project consultant. Renovation works began in November 1985. A grand staircase was added to the main lobby in the COMB (Fig. 6.) A staircase had been included in the original plans of the COMB, but had never been built. The beautifully coffered ceiling of the 300-seat Auditorium has been made in the mould of the original ceiling, which had previously been damaged by fire. The ceiling is enhanced by ornate ribs with classical motifs. A modern open office was created, together with meetings rooms and an exhibition hall (which now houses the Operations Group, formed after the SARS epidemic).

The original TTGB structure was constructed mainly of timber trusses, floors and joists, sitting directly on brick. The timber roof and second floor timber floor had to be replaced with steel structures as they were badly infested by termites. Timber window frames infested by termites were replaced with new matching wooden frames. The roof tiles were replaced with matching new ones imported from France. The internal granite staircase and balustrade were retained, but two brick walls were removed to allow greater flexibility for office installation. Renovations were completed in April 1987 at a cost of \$14.4 million.¹³ The gross floor areas after renovation were 11,564 square metres for the COMB and 604 square metres for the TTGB.

The palm trees fronting the COMB are said to be as old as the building itself (Fig. 7). The *Borassus Flabeillifer* (Palmrya Palm) trees are believed to be from Sri Lanka or India, and were planted around the time the COMB was established in 1926. Below each palm is a metal plate, with its scientific and common name and the year of its planting, 1931.¹⁴ Facing the COMB, the right tree is male, and the left tree is female, and they are about 20 metres tall. Palmrya is the main source of toddy in India. In the evenings, the Asian Palm swift, *Cypsiurus balasiensis*, can be found flying around the trees.

The MOH moved into the COMB and the TTGB in July 1987, together with the Academy of Medicine and the College of General Practitioners (now the College of Family Physicians). Each of these organisations were allocated 460 square metres of space on the ground floor. The Academy and College had their Postgraduate Medical Library at the mezzanine level of the COMB, which had a floor space of 405 square metres.

The Academy of Medicine was formed in 1957. The founding members included Professor Gordon Arthur Ransome, the first Master, Dr Benjamin Henry Sheares, the second President of the Republic of Singapore and Dr Yeoh Ghim Seng who later became the Speaker of Parliament. Following the separation of Singapore from Malaysia on 9 August 1965, the Academy split into their respective autonomous Academies. The Singapore Academy was incorporated as a company limited by guarantee in 1977. In 1986, the Academy secretariat shifted from the Alumni Medical Centre to temporary premises at Harrower Hall on College Road, while the COMB was renovated. In 1987, the Academy shifted into the COMB, with the MOH granting the Academy an initial 10-year tenancy. In 2001, the main secretariat was formally relocated from the COMB to its new home at the Runme Shaw Building at 142 Neil Road, with a Specialist Training Secretariat at the Academy's branch office at the NUS, Kent Ridge. When the Academy moved to Neil Road, the library was dismantled and the office space was taken up by the MOH.

The College of General Practitioners of Singapore was formed in 1971 by a group of family physicians in Singapore who wanted an institution to enshrine and promote the values and ideals of family medicine. Among the founders were Dr Sreenivasan and Dr Wong Heck Sing (Dr Wong later became Deputy Chairman of the Public Service Commission). The name of the College of General Practitioners Singapore was officially changed to the College of Family Physicians Singapore in November 1993.

Before WWII, the Government Medical Department had been housed at Fullerton Building. During the war, the

Japanese sited it at the Municipal Building (Tokubetsushi). During the British Military Administration, the Department moved back to Fullerton Building, and then to Palmer Road in 1955. In 1978, a fire broke out in the Palmer Road Building. It lasted for an hour, and destroyed the back of the first 2 floors. The MOH moved temporarily to the Institute of Dental Health in Hyderabad Road, then to Cuppage Centre in 1979, and to the COMB in mid-1987.

In October 1988, the Minister of Information and the Arts (now the Ministry of Information, Communication and the Arts) approved the gazetting of the COMB and the TTGB as national monuments, which was published in the Government Gazette on 2 December 2002, as the Preservation Of Monuments Act Chapter 239 Order 2002 No S609, protecting the historic piece of land known as part Lot 369 Mukim 1.

In June 2003, the National Heritage Board installed the plaques marking these buildings as national monuments. The plaque outside the TTGB reads: “*Gazetted as a National Monument on 2 December 2002. Philanthropist Tan Chay Yan funded the construction of this building in 1911 in memory of his father, Tan Teck Guan. It became part of the King Edward VII College of Medicine, which had its origins in the Straits and Federated Malay States Government Medical School. The latter, founded in 1905, was the first tertiary institution to train local students in western medicine. The Georgian architecture of this building is enhanced by Doric columns and neo-classical accents.*” (Fig. 8)

The plaque outside the COMB reads: “*Gazetted as a National Monument on 2 December 2002. The College of Medicine Building, opened on 15 February 1926, was part of the King Edward VII College of Medicine. Here, local students were trained in western medicine. Philanthropists Tan Jiak Kim and Tan Chay Yan funded the construction of this neo-classical style building designed by Major P. H. Keys. The bas-reliefs were designed by Italian sculptor C. R. Nolli to depict healing.*” (Fig. 9)

Today, because of the foresight of the government and the MOH, the COMB stands in its original splendour, with its façade restored. These two grand historical buildings now house the MOH headquarters, the Singapore Medical Council, the Singapore Dental Council, the Singapore Nursing Board, the Specialist Accreditation Board, and the College of Family Physicians. The Singapore Pharmacy Board occupies Harrower Hall.

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