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#### **REVIEW ARTICLE**

# History and development of ophthalmology in Taiwan



Yu-Chih Hou <sup>a</sup>, Gale A. Oren <sup>b</sup>, Muh-Shy Chen <sup>a,c</sup>, Fung-Rong Hu <sup>a,\*</sup>

- <sup>a</sup> Department of Ophthalmology, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan
- <sup>b</sup> Kellogg Eye Center, Department of Ophthalmology and Visual Sciences, University of Michigan, Ann Arbor, MI, USA
- <sup>c</sup> Department of Ophthalmology, Cardinal Tien Hospital, College of Medicine, Fu Jen University, New Taipei City, Taiwan

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#### **KEYWORDS**

evolution; history; ophthalmology; Taiwan Western medicine was first introduced to Taiwan by medical missionaries in the mid-19th century. Modernization of medicine was systematically transplanted to Taiwan in the Japanese colonial period, and ophthalmology was established third among hospital departments, following internal medicine and surgery. Dr Hidetaka Yamaguchi, an ophthalmologist, was the first head of the Taihoku Hospital, later known as National Taiwan University Hospital (NTUH; Taipei, Taiwan). Ophthalmologists during the colonial period conducted studies on tropical and infectious eye diseases. After World War II, ophthalmologists at NTUH played an important role in medical education, residency training, studies, and teaching. Dr Yan-Fei Yang established the Taiwan Ophthalmological Society in 1960 and instituted its official journal in 1962. Dr Ho-Ming Lin established the Department of Ophthalmology at the Tri-Service General Hospital in the 1950s and the Veterans General Hospital in the 1960s. Taiwan ophthalmologists eradicated trachoma by 1971. Cataract surgery and penetrating keratoplasty were initially performed in the 1960s. Currently, there are about 1600 ophthalmologists in Taiwan conducting an estimated 120,000 cataract surgeries and 600 corneal transplantations annually. Many subspecialty societies have been established recently that serve to educate Taiwanese ophthalmologists and to connect with international ophthalmic societies. Taiwan ophthalmologists continue to contribute to the advancement of ophthalmic knowledge globally. Copyright © 2016, Formosan Medical Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/bync-nd/4.0/).

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E-mail address: fungronghu@ntu.edu.tw (F.-R. Hu).

<sup>\*</sup> Corresponding author. Department of Ophthalmology, National Taiwan University Hospital, 7, Chung-Shan South Road, Taipei 10002, Taiwan.

1026 Y.-C. Hou et al.

#### Introduction

Taiwan is also known as Formosa, meaning "beautiful island," as named by the Portuguese cartographer, Lopo Homem, as he first laid eyes on this previously uncharted green island in 1544. Later, the island was invaded and ruled by several foreign powers over the next 400 years. 1,2 The course of medicine in Taiwan was profoundly influenced by its destiny of frequent changes in sovereignty over the years and can be roughly classified into three periods: precolonial period, Japanese colonial period, and postcolonial period. Internal medicine and surgery initially were the two major disciplines of established medical practice in Taiwan, but ophthalmology as a specialty received substantial attention later on because of its unique characteristics. Taiwanese ophthalmology was significantly influenced by Japan and the United States, and subsequently, ophthalmology played an important role in Taiwanese medical history.

#### Precolonial period

#### Early history

Early accounts of the Formosan aborigines by outsiders mentioned bathing in streams as the main treatment for sickness<sup>3</sup>; however, witchcraft and herbs were recorded as the prevalent treatments for an extensive period. The early Chinese immigrants also brought with them their own practice of traditional Chinese medicine. In 1624, the Dutch landed at Anping Harbor, Tainan in Southern Taiwan. The doctors from the Dutch East India Company may have been the first Western doctors in Taiwan, but, unfortunately, no record of their medical practices remained.

#### Missionaries

Missionaries, combining medicine with religion, contributed a great deal to the furthering of medical services in Taiwan. In 1865, the first Presbyterian medical missionary, Dr James L. Maxwell (1836—1921), arrived from England and began preaching and practicing medicine in Tainan. Dr Maxwell introduced Western medicine to the island and established the first ward-based hospital in southern Taiwan.<sup>4,5</sup>

Reverend George Leslie Mackay (1844–1901) arrived from Canada in 1872 and, with the help of several doctors, established medical and dental services in Northern Taiwan. He continued his work in Taiwan until his death in 1901. The Mackay Memorial Hospital, established in 1912, was named in his honor.<sup>6,7</sup>

Dr David Landsborough III (1870—1957) from Scotland, who arrived in Taiwan in 1895, established a hospital in Changhua where he devoted 40 years to his mission. Dr David Lansborough IV (1914—2010), born in Taiwan, continued his father's work for another 28 years.<sup>8</sup>

Dr Gushue-Taylor (1883—1954) arrived in 1912 from England and spent more than 30 years caring for patients at both British and Canadian medical missions in Taiwan. He and his wife established the Happy Mount leprosy colony in northern Taiwan in 1934.

These and many other medical missionaries played an important role in the provision of healthcare. William Campbell, a Scottish Presbyterian missionary, founded the island's first school for the blind at Tainan during that era. Their associated hospitals have evolved into the three large Christian hospital chains in Taiwan. While they may have been the first to introduce Western medical practice to Taiwan, the systematic modernization of medicine came later.

#### Japanese colonial period

#### Westernization of healthcare in Taiwan

A half century of Japanese colonial rule began in 1895 when Taiwan was ceded to Japan by the Ch'ing Dynasty, China. Japan strove to turn Taiwan, its first colony, into a showcase to demonstrate parity with the Western imperial powers<sup>1</sup>: subsequently, the Japanese medical education and healthcare system were transplanted to Taiwan during this period. In effect, the entire style of care was systematically transformed from Chinese medicine to Western medicine. In 1897, there were 1046 traditional Chinese medicine practitioners; by 1945, only 97 remained. 10 Infectious diseases were rampant at that time, including dysentery, malaria, typhus, cholera, small pox, measles, and trachoma.<sup>2</sup> Great strides were made in improving public health for the island, including building water and sanitation systems, mandating compulsory immunizations, and dealing with epidemics and contagious diseases, etc.<sup>1</sup>

#### First hospital in Taiwan during Japanese period

After Japanese troops entered Taipei (Taihoku in Japanese), the "Japanese Taiwan Hospital" was first established in the Dadaocheng district of Taipei City on June 20, 1885. Initially, there were only two departments (internal medicine and surgery), serviced by 10 medical doctors, nine pharmacists, and 20 nurses, all of whom came from Japan. 12 In 1896, a total of seven hospitals were set up among the initial four districts of Taiwan. Dr Shinpei Goto, a politician with a medical background who served as Civil Governor between 1898 and 1906, is considered to be the father of the Taiwan modernization. As the head of the Home Ministry's Medical Bureau and the Taiwan Government General (TGG) medical advisor in 1896, he invited Dr Hidetaka Yamaguchi, an ophthalmologist, to be the first head of the "Taipei Hospital" and the first president of the TGG Medical School. The wooden "Japanese Taiwan Hospital" was renamed "Taihoku Hospital," and in 1923 it was rebuilt in attractive red brick. It's now known as National Taiwan University Hospital (NTUH; Figure 1).

## First medical education in Taiwan during Japanese period

The only institution of medical education during the colonial period was the TGG Medical School, which was established in Taipei in 1899. Thirty-seven years later, it was renamed Taihoku Imperial University Medical School, and is

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