

Book Review

Malayan epidemiologist Dr. Wu Lien-Teh: The forgotten hero. A review of *Plague fighter: The autobiography of a modern Chinese physician* by Lien-Teh Wu. Penang: Areca Books, 2014. (Original edition published in 1959, Cambridge: W. Heffer & Sons Ltd.) 667 pp.

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Battling deadly viruses has been a constant challenge in the history of humankind. Epidemics large and small have surfaced at intervals to create havoc in one or more countries in the past. The scale and severity of the Covid-19 pandemic are unprecedented, affecting more 140 million people worldwide with 3 million deaths to date.

The Pneumonic Plague that broken out at the Russian-China border and ravaged large swathes of Manchuria in 1910 was highly destructive and a challenge to public health management. This autobiography of Malayan epidemiologist Dr. Wu Lien-Teh reveals the life and inner thoughts of a remarkable doctor. First published in 1959 by W. Heffer & Sons Ltd, Cambridge, the book was reprinted in Malaysia in 2014, at a time when no one could foresee that the work of this man in 1910 would prove to be hugely relevant in the battle against the Covid-19 pandemic today.

The autobiography may be read in two parts. The first is centred on events intimately related to the author's medical profession concerning the fight against the Plague and his life as a medical officer in China. The second part details his childhood and schooldays, medical school in Cambridge and impressions of Europe, and his life back in Malaya in 1937 following the Japanese invasion of China, his family and retirement life.

This review will focus on the most inspirational part of the account on Dr. Wu's courageous efforts in containing the pneumonic plague in Harbin in 1910. Essentially, it is about his work as a "Plague Fighter" that confirms the lasting value of the book. And it was in fulfilment of this role that constituted the crowning achievement of the man, whose reputation is now winning increasing international acclaim and recognition.

Dr. Wu Lien-Teh (1879-1960) was born in Penang and went to medical school in Cambridge University in 1896 on a Queen's Scholarship, a prestigious award offered to the most outstanding student of the year in the Straits Settlements of Singapore, Malacca, and Penang. Upon his return to Malaya, he was attached in 1903 to the newly established Institute for Medical Research in Kuala Lumpur before returning to Penang to start his own clinic at the end of 1904. At age 25 then, he "plunged heart and soul" into the local anti-opium campaign to check the debilitating scorch that was consuming the Chinese spirit of all walks of life. He led the campaign, acted as its Physician-in-Chief and organised the 1906 Anti-Opium Conference for the Straits Settlements and Federated Malay States that attracted 3,000 participants (p. 236). The impact of the campaign threatened the vested interests of the opium farmers and colonial administrations. The retribution for this unwelcome role was swift when, in 1906, the Senior Medical Officer of Penang and two assistants, armed with a warrant, searched Dr. Wu's dispensary for "noxious drugs." They found an "ounce of tincture of opium" that he had previously purchased from a British lady practitioner. He was promptly charged for possessing opium without a licence when it was accepted practice among medical practitioners to administer opium for specific treatments. He had "infringed" upon a recently published ordinance that medical practitioners had to apply for an official licence "to buy, keep and use certain specified deleterious drugs" (p. 242). The court was told that Dr. Wu was picked out as the government had wanted "a test case." He was fined \$100 and ordered to apply for the necessary licence without delay. His appeal to the Supreme Court was turned down. In the same year, he received a letter from Grand Councillor (Yuan Shih-Kai) of the Chinese Government in Peking offering him the post of Vice-Director of the Imperial Medical College in Tientsin (Tianjin).

Here was a young and dedicated doctor with the passion to serve his country that had turned "inhospitable" where neither government nor friends needed him. The court case had "left a rather bitter taste" and was the last straw that swayed his decision to accept the opportunity "to render useful service to China where, at least, I would not be misrepresented and where I might find a fertile soil for promoting the scientific and health work which I had taken such pains to acquire before and since graduation" (p. 245). Before taking up the offer, he attended the Anti-Opium Conference in London in 1907, and "had no idea until that day that existed such a deep-seated feeling of shame among Britishers over Great Britain's share in the opium trade, when speaker after speaker railed at its iniquities and demanded stoppage of further traffic between India and China and also within the confines of the British Empire." (p. 245).

His service in China and his answer to the call to fight the Plague that broke out in Manchuria in 1910 was the pivotal event of his life. His success in identifying the root cause of the disease and formulating an effective quarantine system and preventive measures to contain and stamp out the epidemic was nothing short of heroic.

The pneumonic plague broke out among trappers of the Mongolian marmot or tarabagan (*Arctomys bobac*) which was widely hunted for its fur and among the people of the Russian-Manchuria border town of Mouchouli (Manzhouli) in 1910. The first case was detected on

October 12 but by the 27th had spread by rail to Harbin city 850km south. The death toll rose from 1-2 to 8-10 each day by mid-December. In the absence of organised response, the deadly disease aroused a huge cause of concern. Dead bodies were seen in the streets of Fujiatien, a village of stacks and shambles outside Harbin. The bodies were then collected, put into cheap coffins and carted to a common burial ground. All the government did was to pay for the coffin, the transport and burial.

In Peking (Beijing), the government was under pressure to adopt scientific methods to handle the plague and to avert undesirable political consequences. The authorities scouted for a suitably qualified person to contain the epidemic. As fate might have it, Dr. Wu happened to be the right person at the right time in the right place. His medical education in Cambridge and experience in bacteriological research in England, Germany and France and proficiency in English, German and French placed him in a unique position. On December 19, he was appointed as the plague investigator and later headed the entire anti-plague organisation from Manchuria to Shantung Province.

The outbreak was a test of the credibility of the Chinese Government in many ways. In medical treatment, the Russians and Japanese in Manchuria were better off in terms of services and facilities, while the Chinese public health system was anything but modern. Manchuria was under the influence and partial control of Russia and Japan. They administered sections of the railroads and competed for more rights and control of the resource-rich territory that was larger than Japan and many other countries. Politically, the Qing dynasty was on the verge of collapse. Poor and opium-ravaged, China was a battleground for local versus foreign medical treatment and an arena for foreign-power political rivalry. Success in containing the Plague would enable Russia and Japan to seize more opportunities for greater political concessions in Manchuria. Ultimately too, this was a battle in which Chinese medical expertise, leadership and organisational abilities would decide whether it could gain moral clout to consolidate the country's political credibility or jeopardise its sovereignty.

Dr. Wu, then Vice-Director of the Imperial Army Medical College at Tientsin but speaking little Mandarin, arrived at Harbin with an assistant on December 24, 1910 in freezing weather and with the Chinese New Year only weeks away on January 31. His first duty was to ascertain the true cause of the disease, its origins, and method of treatment. The prevalent theory was that the outbreak was spread by rats and rather than from person to person and hence it was futile to wear the face mask. Indeed, a young Japanese doctor was then spending days on dissecting rats to prove this theory. In the Russian epidemic hospital, the doctor he called upon did not wear a mask and was putting his hope on a vaccine for the bubonic plague developed by his uncle. His more experienced senior French colleague, Dr. Gerald Mesny, who arrived later, fell back on his past experience in Tongshan (Tangshan), where rats definitely were a cause of the spread of bubonic plague, as also the cases in India, Cochin-China and Hong Kong.

But he soon proved to be equal to the gigantic task. Resourceful and full of initiatives, his first task after arrival was to pay a visit to the doctors put in charge of the situation, the local

officials, and the Chief of Police. He asked to be taken to the first suitable patient for a careful study. He did what was expected scientifically, but unthinkable culturally. This was to perform a post-mortem secretly on a patient on December 27, 1910 in Fujiatien, on a Japanese woman who had coughed and spit out blood before she died a night earlier. This operation was believed to be the first on a pneumonic plague patient in Manchuria. The post-mortem detected the presence of the plague bacilli in the lungs and not in other organs. This confirmed that infection was spread by the droplets of sputum of the sick and had nothing to do with the rat. In the face of the high death rate and the lack of medicine or vaccine for treatment, it was clear that wearing the face mask was an obvious protective measure.

Having confirmed the true cause of the death, Dr. Wu was decisive in devising a response policy for action centred on efforts on preventing the spread of the disease. Besides the Chinese anti-plague organisation instructions on the wearing of the mask, other measures included the control the movements by rail, road or river; adding more facilities and buildings to serve as hospitals for patients, providing camps for members of families who had come into contact with plague patients; seeking the co-operation of the police; reinforcing the frontline staff to cope with the rising needs; asking for sufficient funds; monitoring the Peking-Mukden (Shenyang) rail travel and establishing anti-plague hospitals and quarantine stations.

The steady spread of the disease toward Peking prompted the Government to appeal for volunteer doctors. Among the those who responded was French doctor Mesny, former army surgeon and head professor of the Peiyang Medical College in Tientsin. On account of his seniority and previous experience in fighting the bubonic plague in 1908 at Tongshan, and before arriving at Harbin, he had presented himself to lead the anti-plague organisation, but his request was rejected. Arriving at in Harbin on January 2, and when briefed by the much younger Dr. Wu that the infection was spread from man to man, and on measures such as the separation of contacts and the wearing of cotton-and-gauze masks by the staff, he remain unconvinced and taking Dr. Wu as “a mere novice” who did not do the right thing. Instead, Mesny scoffed at Wu and uttered, “You Chinaman, how dare you laugh at me and contradict your superior?” (p. 19). Wu was no stranger to derision and disrespect. The Consul of Britain on whom he had called upon was “supercilious and patently derisive of the ability of Chinese officials to manage affairs” (p. 15). To prove his point, Dr. Mesny on January 5 visited a Russian hospital and examined four patients without wearing a face mask. He became unwell three days and passed away on January 11. The event jolted the foreigners out of their lethargy.

Having confirmed the cause of the Plague, Dr. Wu acted decisively. He asked for available buildings to be commissioned as offices, disinfecting stations, living quarters for staff and isolation camps for contacts. Fujiatien was divided into four sections and a strict standard operating procedure (SOP) was put in place. Each section was manned by a team consisting of a Senior Medical Officer, Assistants, students, and sanitary attendants (disinfectors, house-searching parties, stretcher bearers, ambulance men, contact men, carters and burial men). Soldiers and police were called in to enforce a strict control of movements within Fujiatien and Harbin.

Despite the SOP, the death rate was still inexplicably high. The observant Dr. Wu discovered that the cause was linked to the disposal of the dead. In the Manchurian winter when the ground was frozen a metre deep, coffins and corpses were left exposed in the burial site. He realised that “something drastic and immediate” had to be done to overcome the problem. Cremation was the only solution, but the practice was a taboo against the local tradition of ancestral worship. It would require an imperial edict to overcome public opposition on this unfilial practice. The respect for science led to the granting of imperial consent on January 31. Henceforth cremation became a standard practice for the disposal of the dead.

The measures taken proved to be effective and the mortality figures began to decline beginning from New Year’s Day to January 31. There were 3,413 deaths in January, with a high of 183 on the worst day. By March 1, 1911, the last case of plague was registered, after suffering a death toll of about 60,000.

Plague Fighter is not so much about the eventful life of the author as it is about the remarkable feat of this young Malayan doctor who was instrumental in putting down a rampant epidemic in a part of his father’s ancestral land thousands of miles from the comfort of his home in Penang. It is a narrative of his scientific methods, practical approach, leadership ability, and respect for cultural sensitivities.

Dr. Wu’s success in the fight against the deadly disease was “a triumph of scientific organisation.” The swiftness in identifying the plague bacillus was quickly followed by decisive actions and effective enforcement. This was assisted by the rational behaviour of the people and their priority of putting life before all else. The entire campaign was over within a few months. More importantly, it won China political respect and medical credibility.

Dr. Wu continued to serve until 1937 when the Japanese invaded North China. His subsequent years of service were marked by significant contributions to the establishment of a modern public health system in China, the promotion of medical education, the consolidation of the quarantine system in the Customs Service, the organisation of international medical conferences, and the encouragement of research and publication in the medical sciences.

Largely overlooked and forgotten, the legacy of his work resonates clearly with the epic struggle with the Covid-19 pandemic today. There are valuable lessons to be learned from this experience in modern health strategic responses to unforeseen outbreaks of infectious diseases. His lasting legacy is the design of a scientific and effective yet simple “gold standard” in the prevention of deadly human-to-human infectious diseases. He battled more than a disease but also, initially, the general apathy and fatalism of the people and local officials. Yet, a year after the outbreak of Covid-19 in early 2020, the pandemic still rages on in large parts of the world. That his medical achievements won a nomination for the Nobel Prize in Physiology was a true tribute to his pioneering work in medicine and disease control.

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Notes

Further details connected with the 1910 Plague are available in these publications:

- 1 *Report of the International Plague Conference held at Mukden, April, 1911* published by Manila Bureau of Printing, 1912
- 2 *A Treatise on Pneumonic Plague*, by Wu Lien-Teh, published by the League of Nations, Geneva, 1926.