

“Farewell to the God of Plague”: Anti-*Shistosoma japonicum* Campaign in China and Japanese Colonial Medicine

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1. Introduction

It was in 1956 that Komiya Yoshitaka 小宮義孝 (1900–1976), head of the Department of Parasite Studies, National Institute of Preventive Hygiene, lead the Delegation for the Prevention and Eradication of *Shistosoma japonicum* (hereafter “Komiya Mission”) to China. It was a time when China enjoyed no official diplomatic relations with Japan and domestically was in the midst of rapid transition into socialism under such Communist Party policies as agricultural collectivization.

The Komiya Mission, which included Okabe Hiroyuki 岡部浩洋, then professor of parasitology at Kurume Medical College, Yoshizumi Yoshio 吉住好夫, professor of internal medicine at Kurume Medical College, and Itō Jirō 伊藤二郎 and Yasuraoka Kazuo 安羅岡一男, both parasitologists working under Komiya at the National Institute of Preventive Hygiene, traveled throughout China between 26 September and 12 December inspecting such locations as Beijing, Shanghai, Nanjing, Hangzhou and Hankou, conducting its investigations, in conjunction with Chinese experts, on the present levels of infestation of *Shistosoma japonicum* (hereafter SJ) and suggesting ways of eradicating the pest.

The existence of SJ and the Komiya Mission itself is not widely known within present day Japan, no doubt due to the fact that SJ has been completely eradicated and forgotten. Be that as it may, the Komiya Mission is indicative of the structure of knowledge in imperial Japan and the historical significance of that structure, science and technology (e.g., such practical fields as medicine, hygiene, and agriculture) occupying the largest part of that knowledge.

What will be taken up in this paper is the knowledge accumulated about parasitology in imperial Japan and the determining influence it

still exerts on the field today. Specifically, two problems will be considered. The first is why a delegation of parasitologists was dispatched to China in 1956 and why it was led by Komiya. This is related to why SJ contains the word “*japonicum*” in its name. SJ, which has been found in Japan, China and the Philippines, involves the SJ eggs hatching into the larval stage (miracidium) and growing into the young adult stage (cercaria) via the oncomelania snail. After infecting humans, cattle, etc. percutaneously, the cercaria becomes a parasite. There are other types of schistosomiasis include *Schistosoma haematobium* (West Asia, Africa, etc.), *Schistosoma mansoni* (Africa, South America, the Caribbean Region, etc.) and *Schistosoma mekongi* (Mekong River).

The existence of SJ and the mechanism by which it infects its hosts was discovered in 1904 by Katsurada Fujirō 桂田富士郎 (1867–1946), a professor at Okayama Medical College; and in 1913, Miyairi Keinosuke 宮入慶之助 (1865–1946), professor at the Kyushu Imperial University Medical School and his assistant Suzuki Minoru 鈴木稔 (1885–1948) isolated the SJ vector as oncomelania and named it the “Miyairi Snail.” These discoveries in the area of SJ contributed greatly to the science of parasitology, establishing a milestone for Japanese parasitology on the international scene.

The second problem to be discussed here concerns why the Chinese Communist Party (CCP) welcomed the Komiya Mission into its country? It had become apparent that SJ was infecting a large portion of its territory, including the Yangzi River Basin (Jiangsu, Zhejiang, Anhui, Jiangxi, Hunan, Hubei, Sichuan, etc.) and Guangdong, Fujian and Yunnan, an area many times the size of Japan in which some 32 million residents would fall victim to the disease in 1950s.¹⁾ After the founding of the People’s Republic, the CCP became actively involved in combating such infectious diseases as cholera, malaria and tuberculosis, realizing that the establishment of medical and hygiene administration was an essential element to legitimizing Party rule. However, measures to deal with SJ were placed in a context different from the other infectious disease control, by a committee set up within the CCP, out of particular concern for the disease’s possible negative effects on efforts to rapidly build a socialist society, especially on the success of agricultural collectivization.

Therefore, this paper will first focus upon SJ in order to discuss 1) how knowledge about medicine and hygiene, in particular parasitology, was formed in modern Japan and what role that knowledge played in the reorganization of Japan into an colonial empire, and 2) the ways in which

that formation process was both interrupted and continued in postwar Japan, though an investigation of the Komiya Mission.

2. Research and Policy Issues Concerning SJ

2-1. The Science of Parasitology in Modern Japan

Concerning the development of parasitology in Japan, Morishita Kaoru 森下薫 (1896–1978), the leading authority on the subject,²⁾ has divided the modern (1868–1945) era into five stages. The first, spanning 1876–82, was characterized by the introduction of the science into Japan by foreign experts as E. Baelz (1849–1913), who had been hired as academic consultants by the government. Baelz, who was active in Japan during 1876–1905, served as a professor of internal medicine teaching at Tokyo Medical School and Tokyo Imperial University Medical College, while working in the laboratory to identify *Wuchereria bancrofti* as the pathogenic organism causing elephantitis and found the *Clonorchis sinensis*, in Okayama Prefecture. Another consultant, H. B. Sheube (1853–1923), who worked in a Kyoto hospital during 1877–81, found the hookworms, *Ancylostoma duodenale* and *Nacator americanus*, and identified *Sparganosis* caused by tapeworm infection.

The second stage, according to Morishita, was marked by the beginning of the career of parasitologist Iijima Isao 飯島魁 in 1883 and continued until 1892. After graduating from the Tokyo Imperial University Department of Zoology, Iijima went to study in Germany and joined the world’s first academic seminar for parasitology at the University of Leipzig taught by R. Leuckart (1822–98). Upon his return home, he was appointed professor of zoology at his alma mater. During his career, Iijima would train the first generation of Japanese parasitologists, including Gotō Seitarō 五島清太郎 (1867–1935), Miyajima Mikinosuke 宮島幹之助 (1872–1944), Yoshida Sadao 吉田貞雄 (1878–1964), Koizumi Makoto 小泉丹 (1882–1952) and Kobayashi Harujirō 小林晴治郎 (1892–1964).

Morishita’s third stage, 1893–1907, was a period of development for Japanese researchers, like Kawanishi Kenji 河西健次 (1868–1927), Fujinami Akira 藤浪鑑 (1870–1934) and Katsurada, who discovered the SJ; while his fourth and final stage (1908–45) and “golden age” began with the founding of the Japanese Society of Parasitology, and was followed by not only the identification of *Oncomelania* (hereafter the Miyairi snail) as the vector of SJ, but also Kobayashi Harujiro’s identification of

Clonorchis sinensis, the discovery by Yokokawa Sadamu 横川定 (1883–1956) of a new intestinal fluke (*Metagonimus yokokawai*) spread from raw fish, research on the lung fluke, *Paragonimus*, by Nakagawa Kōan 中川幸庵 (1874–1959) and Miyazaki Ichirō 宮崎一郎 (1907–99), and Hieda Kentarō 稗田憲太郎's (1899–1971) work on black sickness (*kala-azar*) transmitted by a protozoa transmitted through sandflies.³⁾

As to how the modern history of Japanese parasitology relates to the discussion presented here, first, there is the fact that the initial knowledge about the field was transmitted from abroad by academic consultants hired by the Meiji government. Then, in the establishment and indigenization of the field in Japan, the most important role was played by zoologists.⁴⁾ Strains of parasites found in other countries were identified in Japan, leading to the discoveries of the SJ by Katsurada and its vector by Miyairi and Suzuki at the turn of the century, which put Japanese scientists on the international stage.

Secondly, many Japanese parasitologists conducted their research at medical schools and institutes located in the colonies of Taiwan (Koizumi,⁵⁾ Morishita) and Korea (Kobayashi⁶⁾), and the Kwantung Leased Territory and South Manchurian Railway Company Incidental Zone (Kawanishi⁷⁾). Medical facilities in the colonies also became training grounds for parasitologists, including Hieda, who graduated from Medical College established by the South Manchurian Railway Company and later served as a professor at Manchurian Medical College 滿州醫科大學. The establishment of a medical and hygienic system in the colonies played an important role in the establishment of a colonial order there, as shown by the fact that laboratory in parasitology at medical schools in colonies predated those opened at universities in Japan.

Finally, all of the above-mentioned pioneers in Japanese parasitology were closely affiliated with the National Institute for Infectious Disease and Kitasato Institute (founded by Kitasato Shibasaburō 北里柴三郎 [1852–1931]) and the Keio University Medical College. For example, Miyajima Mikinosuke worked at the Kitasato Institute before going on to the League of Nations Health Organization, while Koizumi served as professor of parasitology at Keio University, and was succeeded by Morishita, who after his return from the colonies was working at Kitasato Institute.⁸⁾

The importance of Kitasato Institute and Keio University in the field stems oddly enough from the rivalry between the Ministry of Education and Public Health Bureau of Ministry of Home Affairs over the adminis-

tration of training of medical doctors.

From its inception in 1868, the Meiji Restoration government strove to make a transition from the Chinese-based medical tradition to a system based on German surgical practices by building on the medical achievements in Dutch learning accumulated during the Tokugawa Period. In 1877, the Medical College of Imperial University was established from the foundations of the vaccination facility set up during the last years of the Tokugawa Bakufu. This was followed by the establishment of the Kyoto Imperial University Medical College in 1899, Medical Colleges in Sendai, Chiba, Kanazawa and Nagasaki in 1901, and Fukuoka Medical College, Tokyo Jikeikai Medical College, Kyoto Prefectural Medical College and Kumamoto Medical College in 1903. As institutes of higher academic learning all were placed under the jurisdiction of the Ministry of Education.

On the other hand, in 1892 the Institute for Infectious Disease was set up through the assistance of none other than Fukuzawa Yukichi 福澤諭吉, the founder of Keio University, and in 1899 was placed under the administration of Public Health Bureau, Ministry of Home Affairs. In 1914, the Institute was transferred to the jurisdiction of the Ministry of Education, over Kitasato’s objections, and attached to the Tokyo Imperial University. In response, Kitasato opened his own research facility, the Kitasato Institute and hired his former students to staff it. Then two years later, a team led by Kitasato founded the Keio University Medical College. Due to the close affiliation of both institutions to Public Health Bureau of Ministry of Home Affairs, it was their staff members who were predominately dispatched abroad to medical schools and research facilities in the colonies and who would come to hold *métropole* provenance over the knowledge in the field of colonial medicine.⁹⁾

2-2. The History of SJ Research

The well-known record documenting SJ in Japan is the Katayama Journal (“Katayama-ki” 片山記) written in 1847 by Dr. Fujii Kōchoku 藤井好直 (1815–95) in the region of Katayama, Hiroshima Prefecture. In his journal, Fujii recorded the symptoms of what he referred to as “Katayama Disease” which he observed in both humans and animals.¹⁰⁾ Outbreaks of SJ, which also occurred in the Chikugo River Basin of Kyushu and the Kōfu Valley of Yamanashi Prefecture, would produce such symptoms as skin rash, distended abdomen, swollen blood vessels

and blood vomiting, frequently resulting in death. Given the current knowledge of parasitology at the time, the Research Committee for Katayama Disease was formed in Hiroshima in 1882, concluded that the cause of the disease was either lung flukes or malaria. In 1890 Yamagiwa Katsusaburō 山極勝三郎 (1863–1930), professor of pathology at Tokyo Imperial University, diagnosed liver cirrhosis stemming from SJ as caused by fluke egg infection of the lungs (*pulmonary distomiasis*), while in 1897 Drs. Shimodaira Yōsai 下平用彩 and Murakami Shōta 村上庄太 of Yamanashi Prefectural Hospital performed an autopsy on a Kōfu resident Sugiyama Naka 杉山なか by her last will.¹¹⁾

Then in 1900, Dr. Mikami Saburō 三神三朗, who had opened a private practice in Yamanashi, upon discovering insect eggs in a patient's stool, announced that the cause of SJ was possibly parasitic; and the following year the Yamanashi Medical Committee held a seminar on "the causes of hepatosplenic enlargements observed locally," which was attended by Katsurada, Yamagiwa, Murakami and Kurimoto Tōmei 栗本東明, professor at Nagasaki Medical College.¹²⁾

Finally, in April 1904, Katsurada, with the help of Mikami, dissected several dogs and cats in Yamanashi and found fragments of parasites in the liver of a cat. Upon comparison with *Schistosoma haematobium*, they found the fragments to be significantly different and created a new species, the *Schistosomum japonicum*, later renamed *Schistosoma japonicum*. Soon after Katsurada's discovery, Fujinami Akira pathologist at Kyoto Imperial University found SJ in a farm worker who had died in Katayama. These two findings were followed in 1905 by the discovery of the parasite from the body of a Fujian Chinese in Singapore by Dr. J Catto.¹³⁾

The next problem was to trace the mechanism of the infection. It was in the SJ-plagued Chikugo River Basin that Miyairi Keinosuke¹⁴⁾ made his discovery while testing animals for miracidium infection. While washing animals in a drainage ditch in a neighborhood of present day Tosu City, Saga Prefecture. Miyairi found mollusks carrying Japanese blood fluke cercaria and larvae of another insect. Since the same mollusk, *Onchomelania nosophora*, was found by Suzuki Minoru in both Katayama and Kofu, it was officially identified as the vector of SJ in 1913. For Miyairi's important contribution to SJ research and the discovery of the vector, the mollusk was named the "Miyairi Snail."¹⁵⁾

Consequently, it was such accomplishments by Japanese scientists, discovering a new strain of shistosoma and also identifying its vector, that

marked the transition from a stage characterized by the introduction of related medical knowledge via Western consultants to the beginning of an indigenous field of Japanese parasitology with its first “*japonicum*” breakthrough.

In the Kōfu Valley of Yamanashi, SJ was known as “*suishu-chōman*” 水腫脹滿 (abdominal dropsy), victims were described as “as useful as a chip in a teacup,” and the saying went, “if you go to wed in Ryūji or Dango (the worst infected areas) don’t forget to strap a coffin to your back.” The earliest extant record of SJ in the region dates to 1811, in which a local physician, Hashimoto Hakuju 橋本伯壽, writes “dropsy is prevalent and difficult to cure.”

During the Meiji Era, a petition was sent to the governor demanding an investigation to deal with the “outbreak of strange ailments.” A general survey was conducted, but was not followed up with any concrete measures.¹⁶⁾ In 1886, Army Surgeon Ishii Ryōsai 石井良齋, upon investigation of Yamanashi men found unfit for military induction, discovered the reason to be unsanitary conditions and indicated the need for measures to deal with SJ. The prefectural authorities tested the drinking water, but the results proved inconclusive.¹⁷⁾

It was not until after the turn of the twentieth century that in earnest efforts were taken to deal with SJ in Yamanashi. In 1909, the Regional Bureau for Endemic Disease in Yamanashi was set up under the direction of Tsuchiya Iwayasu 土屋岩保 (1878–1928), then taken over by Miyagawa Yoneji 宮川米次 (1885–1959), who would later be appointed professor of the Institute for Infectious Disease at Tokyo Imperial University.

Upon Miyairi’s identification of the SJ vector, Miyagawa proposed the mollusk be eradicated using cyanamide (CH_2N_2) or lime. In 1916, the year after Kobayashi Harujirō was appointed temporary specialist, Regional Bureau for Endemic Disease in Yamanashi published and disseminated a pamphlet explaining SJ.¹⁸⁾

Genuine efforts to gather and eradicate the “Miyairi snail” began in 1917, after the Bureau’s new consultant, Miyajima Mikinosuke, suggested that firefly larvae, the snail’s natural predator, be used. In treating the disease, Kawamura Rin’ya 川村麟也 suggested the use of the antiprotozoal agent, emitine hydrochloride, which had proved effective in treating *Schistosoma haematobium*; however Miyagawa decided upon the less toxic sodium-antimony-tartrate (Stibnal) and commissioned Banyu Chemical Inc. (present day the Banyu Pharmaceutical Co., Inc) to produce it.¹⁹⁾

In 1924, after the election of Homma Toshio 本間利雄 as governor of Yamanashi, testing began on quicklime as the snail's pest control agent, which had been used in Hiroshima, where Homma had previously served. The Association for eradication of SJ was formed under a ten-year program budgeted with 400,000 yen to eradicate the snail using predominately lime-based agents.

In poorly irrigated areas like mulberry groves, which could not emulsify quicklime, hydrothermal methods were employed. It was during this time that snail's habitat in Yamanashi was studied, revealing one infestation area of about 77.2 km² covering the city of Kofu and 7 surrounding counties, two townships and 62 villages, in addition to four separate villages.²⁰⁾

Under the 1931 Parasite Prevention Act, the Yamanashi Regional Disease Prevention and Eradication Committee was formed in 1937 and put in charge of controlling SJ and the Miyairi snail. Efforts to eradicate the SJ vector did not meet with resounding success, judging from the report of the 1902–9 survey conducted among 2,300 primary school students by Saitō Minami 齊藤南, finding that 74.6% of the boys (1,045) and 53.6% of the girls (1,255) tested positive for fluke eggs and were experiencing liver and/or spleen swelling, indicating that they were infected with SJ.²¹⁾

Also, according to their fieldwork published in 1937 on the snail-infested regions of Saga Prefecture, Iwata Masatoshi 岩田正俊 and Okabe Hiroyuki of Kyushu Imperial University found that the snail did not inhabit areas around waterways built of concrete, and consequently proposed concrete enclosure as a way of eliminating the mollusk.²²⁾ In 1941, a three-year extermination program along this lines was initiated, but the desired results were not always forthcoming.

In 1945, upon the founding Yamanashi Medical College, a regional center for diseases was included, but the facility was destroyed in the Allied air raids of July of that year.²³⁾ In sum, while the prewar period was marked by the identification of the SJ parasite and its vector, the start of Stibnal treatment and concerted efforts at extermination of the Miyairi snail, the disease could not be completely eradicated.

3. Parasitology as Colonial Medicine

3-1. Taiwan

In spite of the efforts described in the previous section, the study of parasitology in modern Japan developed further in its colonial regions than in the mother land.

After the Sino-Japanese War and colonization of Taiwan, the Japanese colonial government in Taiwan opened the first medical training center for Taiwanese natives at its Taihoku Hospital in 1897, which led to opening of a fully staffed Medical School two years later for training Taiwanese doctors and conducting research in medicine and hygiene. It was Kitasato Shibasaburo, who through his affiliation with the Public Health Bureau of Ministry of Home Affairs, that was influential in then the Director of Civil Administration (and former the chief of Public Health Bureau) Gotō Shimpei 後藤新平 appointing scholars from the Institute for Infectious Disease and Kitasato Institute to the faculty of Medical College in Taiwan. Of these appointees, Takagi Tomoki 高木友枝 (1858–1943)²⁴⁾ was appointed in 1902 to head the Health Division of the Police Department, the Colonial Government in Taiwan, and was instrumental in institutionalizing the medical treatment and hygiene programs on Taiwan, earning the nickname “Governor-General of Hygiene.”²⁵⁾

One aspect of Takagi’s regime was that the training division was added for the purpose of Japanese students, having its name changed to Taihoku Medical College. When Taihoku Imperial University, which was established in 1928, Taihoku Medical College was put under its administration as an affiliated institute. In addition to building a colonial medical education infrastructure, the Takagi regime also promoted research in the field of tropical medicine, setting up a Department of Hygiene in the Central Institute, which would be later absorbed by Taihoku Imperial University as its Institute for Tropical Medicine. The institution’s research programs centered around the theme of malaria and were developed by Koizumi Makoto and Morishita Kaoru.²⁶⁾

Research in parasitology, which was considered another important area of study in the field of tropical medicine, was put in the hands of Yokokawa Sadamu, who had been an honor student at Okayama Medical College under the tutelage of Katsurada Fujirō. When another of Katsurada’s students, Kubo Nobuyuki 久保伸之, then assistant profes-

sor at Taihoku Medical College, decided to study abroad in Germany, Yokokawa was chosen to replace him as a lecturer in pathology, anatomy and medical law. He was made professor in 1918 and put in charge of Pathology laboratory II, which centered around parasitology. In 1919, Yokokawa also went abroad to study in England and the United States, but was not able to go to Germany due to the World War. He was appointed professor at Taihoku Imperial University in 1937 and retired in 1944.²⁷⁾ Yokokawa made important contributions to the study of lung fluke diseases (distomiasis), including the discovery of a fluke that bears his name.²⁸⁾ His contributions to SJ research in Taiwan included the identification of its vector, *Oncomelania formosana*; however, the disease was found only in cattle, not humans.²⁹⁾

Another important scientist in study of distomiasis in Taiwan was Nakagawa Kōan,³⁰⁾ a graduate of Kanazawa Medical College, who worked at Government-General Hospitals in Tainan, Hualingang and Xinzu, later serving as head of Taizhong Hospital, while continuing research on such complications of *Falciparum malaria* as blackwater fever and amebic dysentery. In 1914, he travelled to the territory of aboriginal people, taking sputum samples from their children to investigate the degree of distomiasis infection among Taiwanese primary school student. As a result of his fieldwork, Nakagawa was able to identify three species of river crab, *Candidiopotamon*, *Potamon dehaani* and *Eriocheirjaponic* as secondary vectors of the flukes, earning him the nickname “Kani (River Crab) no Kōan.” Yokokawa and Miyairi would add two more species to the list, *Parathelphusasinensis* and *Cambaroides similis*.³¹⁾

3-2. Manchuria and Korea

Medical facilities built in the Kwangtung Leased Territory and South Manchurian Railway Company Incidental Zone that was conceded to Japan in the Portsmouth Treaty of 1905 included the Mantetsu Dalian Hospital in Dalian and Namman Medical College 南滿醫學堂 in Fengtian (est. 1911). The latter, which differed from the case of Taiwan, in that it admitted Japanese students, was initially put under the directorship of Kawanishi Kenji, head of Public Health Department and also chief of the Dalian Hospital. In 1903 Kawanishi discovered the insect nit causing SJ, thus clarifying the nature of the disease as parasitic.³²⁾ The microbiology laboratory set up at Namman Medical College was first headed by Abe Nobuo, who was also head of the microbiology department in Dalian

Hospital, and in 1912, Tsurumi Sanzō 鶴見三三, then head of the Public Health department, was appointed to replace Abe.

In 1922 the Namman Medical College was upgraded to Manchurian Medical University, and in 1926 Institute for Public Health was opened under the directorship of Kanai Shōji 金井章次 (1886–1967), a former staff member of the Kitasato Institute and professor of microbiology at Keio University.³³⁾ Many members of institute’s staff had been affiliated with the Kitasato Institute and Keio University, to the extent of lending to it the atmosphere of a branch office of the former.³⁴⁾ The Institute’s graduates would go on to staff the health administration of the puppet state of Manchukuo.³⁵⁾

The research of parasitology in Manchuria is marked by the achievements of Hieda Kentarō in the study of *kala-azar*, an anthroponoitic disease spread from human to human by sand flies. A graduate of the Namman Medical College, Hieda studied at Kyushu Imperial University, Keio, Peking Union Medical College and John Hopkins before being appointed assistant professor of his alma mater in 1929 and full professor in 1932. In 1945 he became chief of the Central Medical Center of Mongolian coalition government in Zhangjiakou, and after Japan’s defeat in the War, continued to stay in China, being assigned to the Red Army and appointed professor of pathology at North China Medical University 華北醫科大學.³⁶⁾

In colonial Korea, Seoul Medical School, which had been opened by the Joseon Dynasty in 1899, was in 1907, following the Russo–Japanese War, made into the education department of Korea Hospital and put under the directorship of the Japanese Army surgeon general. In 1910 it was transferred to Government-General Hospital as its training center and then set up independently as Keijo Medical College in 1916.³⁷⁾

When Keijo Imperial University, which was opened in 1924, set up its medical college two years later, the Government-General Hospital was transferred to serve as the university hospital under the directorship of Shiga Kiyoshi 志賀潔 (1870–1957). In 1897, while on the staff of the Institute for Infectious Disease, Shiga had discovered a dysentery bacillus.³⁸⁾ Shiga had been dean of the Keijo Medical College when it was still part of the Government-General Hospital, and his appointment was a response to Korean national independence rally of 1 March 1919 and demonstrations that followed.

Another important scientist in Korea was Kobayashi Harujirō,³⁹⁾

who had identified a number of fresh water fish, like *Epinephelus moara*, as vectors for lung flukes.⁴⁰⁾ While under the tutelage of Miyajima Mikinosuke, Kobayashi joined the staff of the department of infectious disease and endemic disease at the Government-General Hospital in 1916 and was appointed professor at Keijo Medical College three years later. Upon the opening of Keijo Imperial University, he took charge of its Microbiology laboratory II in 1929. After the War, he returned to Japan and set up the first medical zoology laboratory at Kyoto Prefectural Medical University in 1948.⁴¹⁾

The above accounts of the medical schools set up by Japan in its colonies for the training of doctors throughout the empire is intended to show the important role played by colonial medicine, especially parasitology, as it unfolded in Taiwan, Manchuria and Korea and the part played by center of infectious disease studies, the Kitasato Institute and Keio University in staffing colonial medical schools.

3-3. Komiya Yoshitaka and the Shanghai Institute for Natural Science

Komiya Yoshitaka was a colonial parasitologist who departed from the above pattern. After entering the Tokyo Imperial University Medical School, Komiya joined the student settlement movement, which volunteered to live in the slums and teach underprivileged children. He also organized the Association for Social Medicine and was involved in leftist political activities. One teacher who greatly influenced Komiya was Kunisaki Teidō 國崎定洞 (1894–1937) assistant professor at the University's Infectious Disease Institute and a scholar who introduced the ideas of German social medicine to Japan. After graduating from medical school, Kunisaki had gone to work at that institute studying bubonic plague, influenza and diphtheria. He was then appointed assistant professor at the Medical School in charge of the hygiene laboratory and was on track to becoming a full professor, when in 1926 he joined the Communist Party while on leave in Germany and was consequently dismissed from his academic position. He remained in Germany for a while until the rise of Hitler, which convinced him to leave for the Soviet Union, where he was purged by Stalin in 1937.⁴²⁾

Meanwhile, Komiya carried out a medical survey of the pneumococcosis victims of the pollution flowing out of Ashio Mine with the aid of Katō Kanju 加藤勘十 of the National Miners Union. After graduating in 1925, Komiya became a research assistant to Yokote Chiyonosuke 横手千

代之助’s laboratory, professor of the hygiene. In 1929 he joined the Communist Party upon the urging of fellow settlement movement member and future Party secretary-general Tanaka Seigen 田中清玄.

Komiya’s main interest was in social medicine, especially workers’ health, not parasitology; however, as events would have it, he was arrested in May of the following year in a national roundup of Communist Party members and dismissed from the University. After being released with a suspended sentence in July, he joined the staff preparing for the opening of Shanghai Institute for Natural Science, through the auspices of his mentor Yokote, who was the Institute’s deputy director. The following year he began his “exile” in Shanghai.⁴³⁾

It was at the Institute that Komiya changed his specialty to the study of parasitology, including lung flukes and SJ, with the help of Tao Jingsun 陶晶孫 (1897–1952),⁴⁴⁾ publishing articles like “Research on Lung Flukes in and around Shanghai, Part I: Fluke Infection in Humans” 上海地方に於ける肝吸蟲に關する研究 (第1報) 肝吸蟲の人體感染狀態に就て.⁴⁵⁾

It was a time when an outbreak of SJ was threatening the lower Yangzi Basin, the disease having been identified by O. T. Logan (1870–1919) in Changde, Hunan soon after Katsurada’s 1905 discovery.⁴⁶⁾ However, it is not clear exactly when SJ first appeared in China. From the discovery of SJ eggs in a mummified corpse unearthed from a Former Han 前漢 Dynasty burial mound at Changsha, Hunan, we know that SJ has an extremely long history there.

In a work of the East Jin 東晉 Dynasty period, *Chou hou pei chi fang* 肘後救卒方 (Easy Medicinal Remedies) we find the terms *shuidu* 水毒 and *shuihu* 水蠱, both meaning water poisoning, the former regarding swelling, while in Chao Yuanfang 巢元方’s Sui 隋 period work *Zhu bing yuan hou lun* 諸病源候論 (Diagnosing Sickesses), we find the category *shuidubing* 水毒病 (water poisoning), and in other sources of the period such terms as *hudu* 蠱毒 (parasite poison) and *chongzhang* 蠱脹 (internal swelling caused by parasites).⁴⁷⁾ Mention increased during the Ming 明 and Qing 清 Periods in such regions as Jiangsu, Anhui, Zhejiang, Hubei and Guangdong of *huzhangbing* 蠱脹病 (swelling due to parasites), and we find that Da tu zi 大肚子, protruding abdomen⁴⁸⁾

During the early 20th century, SJ was described as *shuiguzhangbing* 水鼓脹病 (swelling due to water retention), *tubaobing* 吐胞病 (vomiting “afterbirth”) and *pengzhangbing* 膨脹病 (swelling), and in Shanghai there were the words to a folksong that went “Don’t fear the heavens, don’t fear

the earth, but by all means fear the sickness of ‘protruding abdomen’” 天不伯、地不伯、就伯生病吐子大。

Amano Motonosuke 天野元之助 (1901–80), who conducted rural fieldwork in China prior to World War II and left us with a systematic body of research on the history of Chinese agriculture, mentions such topics as epidermal and regional diseases, citing such survey research as Komiya Yoshitaka’s 1942 article entitled “Parasitic Diseases of South Central China” 中南支に於ける寄生蟲病.⁴⁹⁾

4. Interruption and Continuation: The Postwar Fate of Colonial Medicine

4-1. GHQ and SJ Control in Yamanashi

In the Kōfu Valley of Yamanashi Prefecture, one of Japan’s most SJ-infected regions, the wartime economy only exacerbated the situation, as the military sequestering of farm horses resulting in the substitution of cattle, a carrier of the SJ. During the Allied occupation of Japan following the War, GHQ assigned the 406th General Medical Laboratory of the US Army to investigate and propose treatment of SJ throughout the country. GHQ’s interest in SJ stemmed from 1) protecting the health of Allied soldiers, since some had contracted SJ on the battlefields of the Philippines, and 2) as a gesture of appeasement to win the hearts and minds of Japanese civilians.

In 1949 the Yamanashi Institute for Medicine was once more set up within the Research Institute for Endemic Disease, and in 1953 spraying of an American-made form of pentachlorophenol sodium (NaPCP) called “Santobrite” began to eradicate the Miyairi snail vector. After spraying was completed in 1955, NaPCP was banned as a water contaminating pesticide and replaced by Yurimin P-99.⁵⁰⁾

In addition to molluscicides, water ditches were encased in concrete, a method that was suggested before the War, as already mentioned. Actively promoting the use of concrete was none other than Komiya Yoshitaka, who had returned to Japan in 1949 to teach at Maebashi Medical College in Gumma Prefecture and then serve as the head of the National Institute for Preventive Hygiene.⁵¹⁾ Later Komiya would publish a paper not only reporting on the mortality of Miyairi snails inhabiting newly poured concrete water containers, but also suggesting the methods by which concrete aquifers should be maintained, and warning

that if not followed, the concrete would lose half of its effectiveness.⁵²⁾

Also involved in the Yamanashi war on SJ was Yokokawa Muneo 横川宗雄, who was the son of a professor at Taihoku Imperial University Medical College, Yokokawa Sadamu, and also trained there, serving as a research assistant until 1942, when he enlisted in the Army medical corps. After his military discharge, Yokokawa joined the staff of the National Institute of Preventive Hygiene in 1947, transferred to the Institute of Public Health in 1950 and was appointed professor of medical zoology (later parasitology) at the Chiba University Medical College in 1956, pursuing a career in the study of the biology and pathology of flukes, including the SJ parasite. Yokokawa is one example of the continuation of parasitology from prewar to postwar Japan, studying under his father Sadamu (of the Miura Moriharu 三浦守治–Katsurada line of pioneers in the field), and his father-in-law Morishita Kaoru (of the Miyajima-Koizumi–Kobayashi line) in Taiwan and under Komiya (also in the Katsurada line) at the National Institute of Preventive Hygiene.⁵³⁾ Here ends the saga of the combined GHQ–Japanese parasitologist attack on SJ in postwar Yamanashi, which was also repeated in the Chikugo River Basin of Kyushu and the Katayama region of Hiroshima.⁵⁴⁾ Incidentally, after the War, Hieda Kentarō, professor at Manchurian Medical University, decided to work for the Chinese Communist Party, then returned to Japan to teach at Kurume Medical College, where he taught Tsutumi Hiroshi 塘普, who became active in the study of SJ in the Chikugo River Basin.⁵⁵⁾

In conclusion, colonial medicine in modern Japan, especially the field of parasitology, continued to influence the postwar period, as such predominant members as Morishita, Kobayashi, Komiya and Hieda were appointed to influential posts in national universities and research institutes. In addition, forming the bridge between colonial and postwar era medical knowledge was the generation of physicians, like SJ researcher Yokokawa Muneo, who had been drafted into the military during the wartime era. The continuation of the accumulated knowledge of colonial parasitology was also facilitated by the Allied Occupation Forces, which actively mobilized existing Japanese SJ experts in the eradication programs they sponsored.⁵⁶⁾

4-2. The Komiya Mission and Anti-SJ Programs in China

After the establishment of the People’s Republic of China in 1949,

the Communist Party (CCP) set up the Ministry of Health in November of that year, linking it to the health facilities of the People's Liberation Army (PLA) under the three-pronged slogan of "*mianxiang gong nong bing*" 面向工農兵, solidarity among workers, farmers and soldiers, "*yu fang wei zhu*" 預防為主, importance of disease prevention and "*tuanjie zhongxi yi*" 團結中西醫, the consolidation of Chinese and Western Medicine. Health policy revolved around the topics of administrative systemization, substantiating education, hospital organization and construction centered upon cooperating groups of physicians, and perfecting Chinese medicine as a science and making Western medicine available to all. The legislative foundations were laid through such laws as the Provisionary Inoculation Act of October 1950 and the Provisionary Physicians Ordinance of 1951.⁵⁷⁾

Within this process, the Patriotic Hygiene Campaign 愛國衛生運動 launched by the People's Volunteer Army during the Korean War had a determining influence. The Campaign began in February 1952, when reports were received that US aircraft had blanketed such China-Korea border areas as Andong with insects. In response to these germ warfare tactics, Prime Minister Zhou Enlai 周恩來 formed a central committee to launch the Campaign, which was designed to improve general hygiene practices, one important aspect of which was parasite infestation, including SJ.⁵⁸⁾

Actually, the PRC's policy related to SJ⁵⁹⁾ had already begun in December 1949 with the formation of Anti-shistosoma Committee in the East China Military Region, the dispatch of a medical regiment to infected regions around Shanghai, and comprehensive surveys of the geographical distribution of the oncomelania snail. Consequently, in 1951, Prevention Stations for SJ were set up in the nine prefectures of Shanghai, Jiading, Baoshan, Jinshan, Songjiang, Qingpu, Nanhui, Fengxian and Chuansha.

According to one survey conducted at that time, between 1930 and 1949, all 960 residents (275 households) of one village in Qingpu had been infected with SJ, resulting in the death of 121 households and of the 28 remaining households, 97.3% of their members were infected. In 1956, the CCP Central Committee ordered to establish committee for controlling SJ in Shanghai under a mandate "to completely eradicate SJ within the next seven years" and set up departments to deal with not only prevention and treatment, but also research and information dissemination. The facility would become Xuhui Hospital with a staff of 639 ex-

perts specializing in SJ. Shanghai was also the location a committee to organize SJ research in such fields as prevention, treatment, Chinese medicine, pharmaceutical development and veterinary medicine. In addition, the Health Bureau of Shanghai dispatched 300 instructors and students from the local nursing school to its rural areas for the purpose of surveying and educating the region's residents about SJ.⁶⁰⁾ During that time, it was discovered that the side-effects of Stibnal, the prescribed drug in treating SJ, had in 1950 resulted in the toxic death of 4% of the patients taking it.⁶¹⁾

In November 1955, a team of Japanese physicians travelled to China. Since China was not yet allowed to become a member of WHO, the purpose for inviting the Japanese medical team was to gain information normally available through WHO. One of the team members, Sasa Manabu 佐々學, professor at the Institute for Infectious Disease of Tokyo University, met personally with Zhou Enlai, who informed him of the SJ infestation in the middle and lower Yangzi Basin and allowed him to observe the situation first-hand in the field. As the result of what Sasa observed, it was decided that a Japanese medical mission would be dispatched to China the following year.⁶²⁾

It was a time when the CCP itself was in the midst of a great transition. In 1956, as the CCP was in the midst of collectivizing agriculture under its National Development Program for Agriculture, *The People's Daily* 人民日報 published an editorial in its 22 January issue explaining why it was necessary to completely eradicate SJ in the cause. The Central Committee of CCP then organized a nine-member team for prevention and treatment of SJ, and in December the local Party of Jiangsu Province's similar seven-member team led by Liu Shunyuan 劉順元, vice-secretary general of CCP, the Anti-SJ committee was also organized by Guan Wenwei 管文蔚 to administer SJ affairs. This gave rise to a pattern of Party teams of five or three members organizing administrative committees, which would be charged specifically with the task of dealing with SJ infection.

It was under such political and administrative conditions that the Komiya Mission began its survey in such locations as the city of Wuxi on the bank of Lake Taihu in the Yangzi Delta. The Mission indentified some over 60 areas of infection throughout Jiangsu and Sichuan provinces, a geographical area incomparable in size to Japan (which is about twice the size of one prefecture). The habitat of the oncomelania was almost as vast, stretching from creeks and fish farms in the delta to

streams in the hills above. Policy in China had been implemented along the two lines of prevention and diagnosis-treatment. The former was divided into 1) waste management and water conservation projects, 2) preventing infection (skin protection) and 3) molluscicide projects.⁶³⁾ In the latter, treatment of terminal patients involved a unique Chinese approach relieving abdominal swelling with diuretic and purgative herbs, while potassium sorbate with heavy side effects was being used and sodium chloride was being considered, indicating that preventive measures were inferior to treatment efforts.⁶⁴⁾

In response to such conditions, the Komiya Mission suggested that between treatment and prevention, emphasis should be placed on the latter, concluding that the central long-term policy concern should be the eradication of the oncomelania, in agreement with the opinion of Mao Shoubai 毛守白, a leading Chinese parasitologist.⁶⁵⁾

In concrete terms, concerning waste management, first there was the problem of washing horse troughs, dishes, foodstuff and laundry in creeks, which were also the source of drinking water. Informing people about the problem, including the danger of roundworm and hookworm, did not seem very effective, until farmers were finally persuaded that clean produce would fetch larger prices on the market. Concerning the paratenic host, which in the Chikugo River Basin had been open-grazing cattle, in China the culprit was identified as possibly the water buffalo. Concerning the oncomelania, 1) such mechanical methods as hydrothermal molluscicide, incineration, flame-throwing and chemical agents, such as acidic abrasive lime, NaPCP, benzene hexachloride and nitrolime were suggested in conjunction, and 2) such ecological methods as earth burial, stonewall construction, concrete enclosure and marshland drainage were employed, with emphasis put on the last three.⁶⁶⁾

These proposals were based on experience gained in Japan, where concrete enclosure had been continuing with government subsidies from around 1950 and had reached 50% in Hiroshima's Katayama region. However, earth burial was deemed much cheaper, easier and reliable than the other methods of changing the snail's habitat. Ecological snail eradication methods are the most basic of all measures, but they are also the most expensive to implement. Nevertheless, if they are employed as part of a comprehensive regional development program of irrigation, public works, farming and fish raising, the task could be made much easier.⁶⁷⁾

For members of the Mission, the trip to China had mixed blessings.

From the report of Yasuraoka, it was a “sentimental journey,” for Komiya allowing him to visit the former Shanghai Institute for Natural Sciences, which had become a Chinese Academy of Sciences; he also met Uchiyama Kanzō 內山完造, an opportunity to attend the 20th commemoration of the death of Lu Xun 魯迅, who had formed a salon of local intellectuals around Uchiyama’s Shanghai bookstore⁶⁸⁾; but for Komiya, his visiting China would be cited as the reason for refusing him a US visa while he was part of the US-Japan Cooperative Medical Science Program.⁶⁹⁾

After the Komiya Mission had come, given its proposals and gone, the CCP decided to wage an all-out war on SJ, beginning in 1956. The first order of business was how to eradicate the oncomelania by changing its habitat, rejecting concrete enclosure in favor of concentrated earth burial.⁷⁰⁾ For example, a similar project began in Shanghai prefecture in 1956–57 with the mass mobilization of 5,848 people working in three day shifts. In the district of Eqiao, the project succeeded in burying an area of about 430,000 m², while treating the snails with chemicals and scalding water. Between December 1956 and February 1957, 60,000 Red Army troops, students and farmers were mobilized for earth burial, and a similar number in March 1958 for the same purpose. All told, between 1956 and 1959, some 1,300,000 workers were mobilized to reconstruct water ditches, reclaim marshes and ponds into paddy, spread chemical molluscicide, and burn and scald.⁷¹⁾

By October 1958, the mobilization was successful enough to merit a poem by Mao Zedong 毛澤東 entitled “Farewell to the God of Plague” (*Song wen shen* 送瘟神), in which he praised the mobilization effort to eradicate SJ in Xujiang Prefecture of Jiangxi.

Verse I

綠水青山枉自多
華佗無奈小蟲何
千村薜荔人遺矢
萬戶蕭疏鬼唱歌
坐地日行八萬里
巡天遙看一千河
牛郎欲問瘟神事
一樣悲歎逐逝波

So much blue water and so many green mountains, but to no avail.

What is this tiny bug that left even the great physician Hua Du befuddled? Thousands of villages overgrown with weeds, bereft of their inhabitants. Tens of thousands of homes standing empty, haunted by the songs of dead souls.

On the land, over a distance of 80,000 *li* as the Sun travels [east-west] From the heavens, over a panorama of a thousand rivers Altair, the Milky Way traveler, wants to ask the god of pestilence something: If for him, as well, both happiness and sadness ultimately depart (come and go) on the (same) sea.

Verse II

春風揚柳萬千條
六億神州盡舜堯
紅雨隨心翻作浪
青山着意化爲橋
天連五嶺銀鋤落
地動三河鐵臂搖
借問瘟君欲何往
紙船明燭照天燒

The gusty winds of spring lift the sagging limbs of a billion weeping willows. In this land of 600 million citizens striving for peace and prosperity. Raindrops on flowers can become roaring waves if they so desire. Mountains can become bridges if they will as much. Picks and shovels of silver descended upon the sky-scraping Wuling Range (Guangdong) . Arms and steel heaved to in the meandering Sanhe (Yellow River) Basin.

The only question left is where the god of pestilence is bound for now. The candles on the meandering toy dinghies burn bright, lighting up the heavens.⁷²⁾

In this poem, which has the Chinese people moving the earth in the traditions of the mythical holy emperors Shun 堯 and Yao 舜 (Yao charging Shun with the task of irrigation and then enthroning him as successor), Mao commends the anti-SJ mobilization (earth moving) project, which was closely connected to the Party's program for building socialism at the time.

Before and after April 1954, when the State Council of the People's Republic proclaimed its war on SJ, first, in February, the Party published

a white paper entitled, “Problems of Correcting Internal Contradictions that Exist Among the People,” then during June and July, the Anti-Right Deviation Campaign was initiated. In May 1958, at the 2nd Plenary Session of the 8th CCP Central Committee, the General Line for Transitional Period was decided upon, which promoted the “Great Leap Forward” plan for agricultural and industrial growth, and included large irrigation projects and the formation of People’s Communes.

In each commune a committee was set up to deal with the oncomelania, and on the ideological front, two motion pictures were produced, *Kumu Fengchun* 枯木逢春 (A Dead Tree Greets the Spring) in 1964 and the film version of *Song wen shen* 送瘟神 (Farewell to the God of Plague) in 1966. Then during the Cultural Revolution, the “second snail eradication” movement was organized during 1970–71; in 1975 the pest was declared extinct in Jiangsu Province and in October 1976, total eradication of SJ was announced.⁷³⁾ To commemorate these achievements the Exhibition Hall for the memory of SJ Eradication was constructed in the village of Rentun in Qingpu Prefecture, a community almost devastated by SJ.⁷⁴⁾ The village is also cited by the British physician J. S. Horn in his account of the mass mobilization effort to combat SJ.⁷⁵⁾

The grassroots mass organization working under the CCP’s Committee of Nine would work in hordes with handbarrows and shovels digging new ditches to fill in old ones, eliciting the comment from Yasuraoka, another member of the Komiya Mission, “That type of work was characteristic of a country having no institution of private property and was extremely effective in isolating the SJ vector.” However, such was not the case with regard to the treatment measures taken, for the serious after effects of one course of chemotherapy using antimony-based Stibnal, resulted in a significant number of deaths; and the use of the highly toxic molluscicide NaPCP in concentrations of 10 grams per square meter or even greater resulted in heavy environmental pollution.⁷⁶⁾

4-3. SJ and the US-Japan Medical Science Cooperation Program

With the loss of Japan’s colonies after its defeat in World War, the country’s parasitologists returned home to practice their trade along with the generation of scientists trained during wartime. Ironically, the more successful their work was in controlling parasites at home, the less interest was shown in the field as a promising career. Furthermore, the gener-

al structure of disease in Japan was shifting from communicable to lifestyle-based illnesses, which is why the Institute for Infectious Disease of Tokyo University was renamed the Institute for Medical Science in 1967 and changed its research priorities from infectious disease to such illnesses as cancer.

Within this transformation process, one very influential moment for postwar parasitology in Japan was the formation of the US-Japan Cooperative Medical Science Program. It was in 1965 that a summit meeting between Japanese Prime Minister Satō Eisaku 佐藤榮作 and US President Lyndon Johnson resulting in an agreement that the two countries cooperate in dealing with such environmental problems as air pollution and pesticide spraying in Asia and such medical problems as malaria, cholera, SJ, tuberculosis and intestinal cancer. Kurokawa Toshio 黒川利雄, president of Tohoku University was made head of the Japanese Program committee, and sub-committees for each medical problem were set up, with Komiya Yoshitaka chosen to head the Parasitology Division, to be joined by Sasa Manabu and Yokokawa Muneo.⁷⁷⁾ According to the comment of Sasa, the Program was apparently a gesture to soften his strong opposition to the US involvement in Vietnam.⁷⁸⁾

Under the Program, emphasis in the study of tropical medicine and parasitology was to be put on field studies abroad and a medical assistance program was initiated.⁷⁹⁾ Consequently, the focus of the Parasitology Division became the Philippines, where in 1972 the Japan International Cooperation Agency (JICA) began providing financial assistance to the Philippine Department of Health's *Shistosoma* Control and Research Project at Palo, Leyte Island, the location of a serious SJ outbreak.⁸⁰⁾

One parasitologist who became involved in this assistance program was Hayashi Masataka 林正高 (b. 1934), who had participated in the war on SJ in the Kōfu Valley of Yamanashi and was serving as head of the Neurological Internal Medicine Department at Kōfu Hospital. Hayashi joined the Program's Parasitology Division Leyte effort in 1974 as a special committee member and JICA technical specialist, at the behest of Yokokawa, to conduct a survey of the Island.⁸¹⁾

It was during the 1980s that the Japanese parasitology community revived its relationship with China, when in October 1981 a team of experts, including Asami Keizō 淺見敬三 (Keio University), Yokokawa, Hayashi Shigeo 林滋生 (National Institute for Disease Prevention and Hygiene), Ōya Hiroshi 大家裕 (Juntendo University) and Yasuraoka, toured the re-

gions that had been infected with SJ. The Japanese research team, the first to visit China since the 1956 Komiya Mission, compiled a report describing an anti-SJ program under which 10 million people had been tested over the past 25 years, and the three elements of treatment, waste management/prevention, and vector elimination had been successfully implemented. The report concluded that the program had accomplished something over such a short time period not seen anywhere else in the world, and could only have worked in China, given the absence of private property rights allowing massive, widespread earth moving projects.⁸²⁾

Japanese parasitology continued to play an important role in health-related development aid. For example in 1997, Prime Minister Hashimoto Ryūtarō 橋本龍太郎 announced an initiative calling for an internationally based effort to deal with parasites and their health implications, “the Hashimoto Initiative,” followed in 1998 by a Bureau of Health Services, Ministry of Health and Welfare report entitled “International Strategy to Combat Parasites” 21世紀に向けての国際寄生蟲戦略—国際寄生蟲対策報告書, which stated that Japan’s experience in successfully eliminating such parasitic diseases as malaria, SJ and filariasis from its borders would be indispensable to developing nations in their national planning efforts in similar fields of medicine and hygiene. JICA also became involved, initiating a technological assistance project for building the Asian Center for International Parasite Control. With regard to the study of SJ, in particular, Japanese parasitologists not only continued to be active on the international scene, but also promoted interregional scholarly exchange in East Asia, as shown by the treaty of friendship concluded between Yamanashi Prefecture and Sichuan Province, under which the latter attempted to deal with its SJ problems based on the Japanese experience.⁸³⁾

5. Conclusion: Interruption and Continuation of the Colonial Medicine

The tale of the Miyairi snail, the deadly carrier of the SJ, is also a story of how knowledge developed in imperial Japan in the form of colonial parasitology.⁸⁴⁾ The story, whose crowning achievements were the discovery of the SJ by Katsurada Fujiō and its vector by Miyairi Keinosuke and Suzuki Minoru, could never have been unfolded completely in Japan, since many of its main characters, like Yokokawa Sadamu, Kobayashi Harujirō, Kawanishi Kenji and Hieda Kentarō, had conducted much their research in medical schools and research institutes set up

in Taiwan, Korea and Manchuria under the Japanese East Asian colonial regime.

In terms of infrastructure, a colonial network of personnel and know-how was built radiating out into the colonies from such institutions in Japan as the Institute for Infectious Disease, the Kitasato Institute and Keio University Medical College. In order to ascertain any unique characteristics the Japanese network possessed, it would be necessary to compare it to, say, colonial medicine under British imperialism, which is, beyond the scope of the present article.⁸⁵⁾ For now, however, we can probably point to the career of Komiya Yoshitaka, who furthered the study of parasitology at the Shanghai Institute for Natural Science, but whose activities fell outside the above-mentioned network, both in terms of his medical affiliations, his political views, and vision of what the goals of medicine and hygiene should be.

We can also point to the wartime activities of such scientists as Sasa Manabu, Ōtsuru Masamitsu 大鶴正満 and Yokokawa Muneo, who were put in the position of training the next generation of parasitologists in active military service under wartime conditions and the large-scale conscription of medical students.

Then after the War, during the Allied Occupation of Japan, GHQ and US Army 406th General Medical Laboratory utilized the achievements of modern Japanese colonial medicine in dealing with regional diseases, such as SJ infestation in Kyushu, Hiroshima and Yamanshi. It was the generation of scientists who had been trained at medical schools in the colonies and under the wartime regime at home who played an active role in these efforts, while further developing their respective fields of research. Even the US-Japan Medical Sciences Cooperation Program that began in 1965 owes much to the achievements made in modern Japanese colonial medicine.

That is to say, in the field of parasitology, for example, although it would seem logical that the closing of medical schools in the colonies⁸⁶⁾ put an end to the knowledge supporting imperial Japan, such was not the case, since many of the scientists who were responsible for developing that knowledge returned to Japan to take academic positions in medical zoology set up in the medical schools of the new postwar system of higher learning, and of course bringing that same knowledge with them into the classroom as part of the “new” curricula.

This same “imperial” knowledge and methodology was continued in the efforts of the Komiya Mission, although some of it, like the efficacy of

concrete in changing vector habitat, could not be adapted to Chinese conditions, like it was in postwar Japan. In the background to the CCP giving top priority to fighting SJ lay the changing international environment brought about by the Korean War and efforts to further the development of socialism, in the vanguard of which was agricultural collectivization. Consequently, the elimination of the oncomelania snail became the target of an all-out mass mobilization of nation.⁸⁷⁾

The research to date on the history of science in Japan has failed to mention the fact that it was the knowledge accumulated in the field of parasitology in imperial Japan, both at home and in the colonies, that ultimately provided conducive health conditions in obsessively anti-imperialistic postwar China that enabled that country to build a socialist state. It would seem that such an historical twist of fate could not easily be forgotten, but at the museum in Rentun commemorating the elimination of SJ in China, not one exhibit pays tribute to the achievements gained in Japanese parasitology while Japan and China were embroiled in a bloody war or even the postwar Komiya Mission which brought that knowledge to China. This state of amnesia is not exclusive to attitudes in China, but also dominates the postwar Japanese memory as well.

Notes

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- 1) Yasuraoka Kazuo 安羅岡一男, “Chūgoku ni okeru Nihon jūketsu kyūchūshō taisaku” 中國における日本住血吸蟲症對策 [The fight against *Shistosoma japonicum* in China], 醫學のあゆみ *Igaku no Ayumi*, vol. 175, no. 7 (November 1995), p. 498.
- 2) After graduating from the Tokyo Imperial University Department of Zoology, Morishita went to work at the Kitasato Institute, from where he transferred to Taiwan first as a scholar for the Central Institute, Department of Health, then as a professor at the Taihoku Imperial University’s Institute of Tropical Medicine, specializing in the study of malaria on the Island. After the War, he returned to Japan to take a professorship at the Osaka University’s Institute for Microbiological Disease.
- 3) Morishita Kaoru 森下薫, “Nihon ni okeru kiseichūgaku hattatsushi” 日本に於ける寄生蟲學發達史 [The historical development of parasitology in Japan], in Morishita Kaoru, Komiya Yoshitaka 小宮義孝, and Matsubayashi Hisakichi 松林久吉, eds., *Nihon ni okeru kiseichūgaku no kenkyū* 日本における寄生蟲學の研究 [Studies on Japanese parasitology], vol. 1 (Tokyo: Meguro kise-

- ichūkan 目黒寄生蟲館, 1961). From the time that Morishita presented his scheme in 1945, a fifth stage occurred, lasting until 1961.
- 4) Iijima Wataru 飯島渉, *Mararia to teikoku: Shokuminchi igaku to Higashi Ajia no kōiki chitsujo* マラリアと帝國—植民地醫學と東アジアの広域秩序 [The hidden history of Malaria: Colonial/Imperial medicine and an integrated regional order in 20th-century East Asia] (Tokyo: Tōkyō daigaku shuppankai 東京大學出版會, 2005). Since this book concentrated mainly on the anti-malaria programs in Taiwan, Okinawa, and China, little emphasis was placed on the importance of zoology. On this point, see Setoguchi Akihisa 瀬戸口明久, “Igaku, kiseichūgaku, konchūgaku: Nihon ni okeru nettaibyō kenkyū no tenkai” 醫學・寄生蟲學・昆蟲學—日本における熱帯病研究の展開 [Medicine, parasitology, and entomology: The development of research on tropical diseases in Japan, 1876–1946], *Kagaku Tetsugaku Kagakushi Kenkyū* 科學哲學科學史研究, no. 1 (2006).
 - 5) After graduating from the Tokyo Imperial University Department of Zoology, Koizumi went to work at the Institute for Infectious Diseases, from where he transferred to Taiwan first as a scholar at the Department of Health, the Central Institute as a specialist in malaria. He then became the professor of Keio University’s first laboratory in parasitology.
 - 6) After studying at Okayama Medical School and Tokyo Imperial University Department of Zoology, Kobayashi went to work at the Institute for Infectious Diseases, from where he transferred to Korea to serve as a professor on the faculty of Keijo Medical College, then on the faculty of the Keijo Imperial University College of Medicine. After the War, he returned to Japan to take a post as professor at Kyoto Prefectural University of Medicine.
 - 7) After graduating from the Tokyo Imperial University School of Medicine, Kawanishi took a position as the head of the South Manchuria Railway’s Division of Public Health, then went on to serve as chief of staff at SMR’s Dairen Hospital and first president of the South Manchuria Medical College.
 - 8) On the careers of Koizumi, Kobayashi, Kawanishi, Hieda, Miyajima and Morishita, see the summaries provided in Iijima, *Mararia to teikoku* (see n. 4).
 - 9) *Ibid.*, pp. 116–122.
 - 10) Ono Yutaka 小野豊, “Nihon jūketsu kyūchūshō ni kansuru Nihon saiko no bunken “Katayama-ki” ni tsuite” 日本住血吸蟲症に關する日本最古の文獻「片山記」について [On the “Katayama Journal,” Japan’s first record of *Shistosoma japonicum*], *Kōbe Joshi Daigaku Kiyō* 神戸女子大學紀要 [Bulletin of Kobe Women’s College] 5 (February 1976).
 - 11) Morishita Kaoru, “Sugiyama Naka jo no kaibō negaisho: Suishu chōmanbyō no kaimei e” 杉山なか女の解剖願書—水腫脹滿病の解明へ [The request by Sugiyama Naka for an autopsy], in *Aru igakushi no shūhen: Fudobyō o ou hitobito to jiseki no hakkutsu* ある醫學史の周邊—風土病を追う人々と事蹟の發掘 [On the periphery of medical history: Unearthing achievements in the pursuit of climate-caused diseases] (Kyoto: Nihon shin’yaku kabushiki gaisha 日本新藥株式會社, 1972).
 - 12) Yamanashi chihōbyō bokumetsu kyōryokukai 山梨地方病撲滅協力會, ed.,

- Chihōbyō to no tatakai* 地方病とのたたかい [The fight against regional diseases] (Kōfu: Yamanashi chihōbyō bokumetsu kyōryokukai, 1977), pp. 9–11.
- 13) *Ibid.*, pp. 13–14; J. Catto, “*Schistosoma cattoi*, a New Blood Fluke of Man,” *British Medical Journal*, no. 1 (1905).
- 14) After graduating from the Tokyo Imperial University School of Medicine in 1890, Miyairi joined the faculty of the First High School Medical Department (later Chiba Medical College), then took a position in the Public Health Bureau of Ministry of Home Affairs as a quarantine inspector before being promoted to bureau head. He then went to study abroad in Germany until 1904, when he returned to Japan to organize the first public health laboratory at Fukuoka Medical University (later Kyushu Imperial University Medical School), while conducting pioneering research in the field of SJ.
- 15) Tanaka Hiroshi 田中寛, “Miyairi Keinosuke to chūkan shukushu kai hakken” 宮入慶之助と中間宿主カイ発見 [Miyairi Keinosuke and the discovery of a vector snail], in Miyairi Keinosuke kinenshi hensan iinkai 宮入慶之助記念誌編纂委員会, ed., *Jūketsu kūchūshō to Miyairi Keinosuke: Miyairigai hakken kara 90 nen* 住血吸虫症と宮入慶之助—ミヤイリガイ発見から90年 [Miyairi Keinosuke and *Shistosoma japonicum*: Ninety years after the discovery of the Miyairi snail] (Fukuoka: Kūshū daigaku shuppankai 九州大學出版會, 2005), pp. 15–16.
- 16) Unless otherwise noted, the following discussion of Yamanashi Prefecture is based on Yamanashi-ken eisei kōgai kenkūjo 山梨縣衛生公害研究所 (Kajihara Noriaki 梶原徳昭), *Chihōbyō to no tatakai: Chihōbyō ryūkō shūsoku e no ayumi* 地方病とのたたかい—地方病流行終息へのあゆみ [The fight against regional disease: The process leading up to its eradication], ed. Chihōbyō kinenshi henshū iinkai 地方病記念誌編集委員会 (Kōfu: Yamanashi chihōbyō bokumetsu kyōryokukai, 2003). Also, in addition to his direct involvement in SJ-related projects, Kajiwara together with his colleague at the Yamanashi Institute for Public Health, Minai Masaru 藥袋勝 have collected source materials for the postwar period and intend to move them to the Yamanashi Prefectural Museum, which also has a small exhibition regarding the efforts to eradicate SJ. (“Chihōbyō 100 nen sensō” 地方病100年戦争 [One hundred years war against regional disease], in Yamanashi nichinichi shimbunsha 山梨日日新聞社, ed., *Yamanashi 20 seiki no gunzō* 山梨20世紀の羣像 [Images of Yamanashi in the 20th century] (Kōfu: Yamanashi nichinichi shimbunsha, 2000).
- 17) Katō Tatsuo 加藤龍雄 (Yamanashi-ken eiseika 山梨縣衛生課), *Yamanashi-ken ni okeru Nihon jūketsu kyūchūbyō kenkyū no enkaku to yobō taisaku* 山梨縣における日本住血吸虫病研究ノ沿革と予防対策 [The research and prevention of *Shistosoma japonicum* in Yamanashi Prefecture] (Kōfu: Yamanashi-ken eiseika, 1938), p. 4.
- 18) *Listen to a Doctor of Regional Diseases (Conversations on *Shistosoma japonicum*)*, in Chihōbyō kinenshi henshū iinkai, *Chihōbyō to no tatakai*, pp. 16–21.
- 19) Chihōbyō kinenshi henshū iinkai, *Chihōbyō to no tatakai*, pp. 22–24.

- Miyagawa was also the vice-chairman of the Dōjinkai 同仁會, a medical foundation established in 1902 that became active the public health administration of Japanese-occupied China (Iijima, *Mararia to teikoku*, pp. 195-204).
- 20) Chihōbyō kinenshi henshū iinkai, *Chihōbyō to no tataikai*, pp. 25-27.
 - 21) *Ibid.*, pp. 30-31. Saitō Osamu 齋藤修 employed the methodology of anthropometrics in his analysis of the results of the physical examinations conducted on school children by Yamanashi Prefecture between 1904 and 1908, which enabled him to identify the areas infected by SJ (*idem*, “Taii no seichō to keizai hatten: Meijiki Yamanashi-ken gakkōshintai kensa kiroku no bunseki” 體位の成長と經濟發展—明治期山梨縣學校體檢檢查記錄の分析 [Physical growth and economic development: Analysis of student physical examinations in Meiji era Yamanashi], *Keizai Kenkyū* 經濟研究 (Hitotsubashi daigaku keizai kenkyūjo 一橋大學經濟研究所), vol. 54, no. 1 (January 2003)), and also argued that SJ not only had debilitating physical side effects, but also effected performance in the classroom (*idem*, “Kiseichū ga monogataru sippeiritsu to byōki” 寄生蟲が物語る疾病率と病氣 [What parasites tell us about disease and its incidence], *Shūkan Daiyamondo* 週刊ダイヤモンド, vol. 87, no. 44 (October 1999), pp. 205).
 - 22) Iwata Masatoshi 岩田正俊, “Miyairigai no sanchi shisatsuki” 宮入貝の產地視察記 [The record of observation on Miyairi snail], *Ōsaka Hakubutsukan Gakkaishi* 大阪博物館學會誌, no. 8 (1937), p. 118.
 - 23) Chihōbyō kinenshi henshū iinkai, *Chihōbyō to no tataikai*, pp. 31-35.
 - 24) After graduating from the Tokyo Imperial University Medical School, Takagi first took a position as research assistant at the Institute of Infectious Diseases, then was jointly appointed head of its Therapy Department and chief of staff of its Serum Center.
 - 25) Iijima, *Mararia to teikoku*, pp. 36-37, 44.
 - 26) *Ibid.*, pp. 46-51.
 - 27) Nantankai 南溟會 (Yamashita Shigeo 山下茂雄), *Yokokawa Sadamu hakushi tsuitōki: Nanmeikaihō dai 12 gō* 横川定博士追悼記 (南溟會報第12號) [Yokokawa Sadamu: In memoriam] (privately printed, 1957). Yokokawa Sadamu, “Waga kiseichūgaku kenkyū no 50 shūnen kaiko” 余が寄生蟲學研究の50周年回顧 [Fifty years research in parasitology: A memoir], parts 1-5, *Tōkyō Iji Shinshi* 東京醫事新誌, vol. 71, no. 10 (August 1954)-vol. 72, no. 6 (January 1955) contains a bibliography of Yokokawa’s research.
 - 28) Yokokawa Sadamu, “Ayu o chūkan shukushu to suru ichi shin Heterofuiesu ni tsukite” 鮎を中間宿主とする一新ヘテロフキエスに就て [The sweetfish (Ayu) as a parasite vector: A new hetero-phase], *Tōkyō Iji Shinshi*, no. 1776 (1912).
 - 29) Yokokawa Muneo 横川宗雄, “Hai kyūchū oyobi hai kyūchūshō” 肺吸蟲及び肺吸蟲症 [Lung flukes and paragonimiasis], in Morishita, Komiya, and Matsubayashi, *Nihon ni okeru kiseichūgaku no kenkyū*, vol. 1.
 - 30) Nakagawa Kōan, “Hai nikōchū chūkan shukushu hakken gaihō” 肺二口蟲中間宿主發見概報 [Report on the discovery of a Distoma vector], *Taiwan Igakkai Zasshi* 臺灣醫學會雜誌, no. 1910 (1915).

- 31) Yokokawa Muneo, “Hai kyūchū oyobi hai kyūchūshō,” p. 137. The specimens and source materials collected by Nakagawa are held and exhibited by the Meguro Parasitological Museum. Morishita Kaoru, “Hai kyūchū no himitsu o abaku: Kani no Kōan Nakagawa hakushi” 肺吸蟲の祕密をあばく—蟹の幸庵中川博士 [Uncovering the secret of the lung fluke: Dr. “Crab” Kōan Nakagawa], in Morishita, *Aru igakushi no shūhen*.
- 32) Kawanishi Kenji, “Bingo no kuni ni okeru iwayuru Katayamabyō chōsa hōkoku” 備後國に於ける所謂片山病調査報告 [A report on the so-called “Katayama Disease” of Bingo province], *Tōkyō Igakkai Zasshi* 東京醫學會雜誌, vol. 18, no. 3-4 (1904).
- 33) After graduating from the Tokyo Imperial University School of Medicine, Kanai joined Yamagiwa Katsusaburō’s pathology staff then transferred to the Kitasato Institute. From there he went to study abroad in England at the Lister Institute of Preventive Medicine. In 1923, he was appointed professor of microbiology at Keio University’s Medical Department and the following year accepted a post as head of the Southern Manchuria Railway’s Regional Health Department, where he devoted his efforts to establishing the SMR’s Institute for Public Health (Iijima, *Mararia to teikoku*, p. 162).
- 34) Odaka Takeshi 小高健, *Densenbyō kenkyūjo: Kindai igaku kaitaku no michinori* 傳染病研究所—近代醫學開拓の道のり [The Institute of Infectious Diseases: The road to modernized medicine] (Tokyo: Gakkai shuppan sentā 學會出版センター, 1992), p. 369.
- 35) *Ibid.*, pp. 162–163. Ōhira Tokuzō 大平得三 (1882–1962), who was appointed executive advisory engineer of the Manchukuo Public Welfare Department in 1939, took over Miyairi’s professorship of medicine at Kyushu Imperial University and invited Mizushima Haruo 水島治夫 from Keijo Imperial University to succeed him in Manchukuo. At the same time, a seminar was opened on the subject of colonial administration of ethnic health issues with Mizushima as joint professor. Kyūshū daigaku igakubu sōritsu 75 shūnen kinen jigyo kōenkai 九州大學醫學部創立75周年記念事業後援會, *Kyūshū daigaku igakubu 75 nen shi* 九州大學醫學部75年史 [Seventy-five year history of Kyushu University Medical Department] (Fukuoka: Kyūshū daigaku shuppankai, 1979), pp. 278–279.
- 36) Hieda Kentarō, *Igaku shisō no hinkon: Ichi byōri gakusha no kutō* 醫學思想の貧困—病理學者の苦斗 [The poverty of medical philosophy: The painful battle waged by pathologists] (Tokyo: Shakai shisōsha 社會思想社, 1971).
- 37) Other than Keijo, a missionary-run Severance Medical College was operating, and the governor-general certified it as Severance Union Medical College, which would become what is today Yonsei University (Umakoshi Tōru 馬越徹, *Kankoku kindai daigaku no seiritsu to tenkai: Daigaku moderu no dempa kenkyū* 韓國近代大學の成立と展開—大學モデルの伝播研究 [The founding and development of Modern Korean Universities: A study in the transmission of the university model] (Nagoya: Nagoya daigaku shuppankai 名古屋大學出版會, 1995), pp. 58, 65–66).
- 38) After graduating from the Tokyo Imperial University Medical College,

Shiga decided to continue his research at the Institute for Infectious Disease, where he discovered a desentery bacillus in 1897. After studying abroad in Germany, he was promoted to department head at the Institute, then went to the Kitasato Institute as its top department head before joining the faculty of Keio University Medical College (Iijima, *Mararia to teikoku*, pp. 135–136).

- 39) After studying zoology first at the Sixth High School Medical Department (later Okayama Medical College), then at Tokyo Imperial University, Kobayashi continued his research on flies under the direction of Iijima Isao.
- 40) Kobayashi Harujirō, “Kanzō Jisutoma kenkyū, daiichi yohō” 肝臟ジストマ研究、第一予報 [Liver Distoma, a preliminary research report], *Saikingaku Zasshi* 細菌學雜誌, no. 178 (1910); *idem*, “Kanzō Jisutoma no kenkyū (hompō)” 肝臟ジストマの研究 (本報) [Liver Distoma, full research report], *ibid.*, no. 202 (1912).
- 41) Morishita Kaoru, “Kan kyūchū chūkan shukushu hakken no shūhen: Kobayashi, Mutō ryō hakushi no gyōseki” 肝吸蟲中間宿主發見の周邊—小林・武藤兩博士の業績 [On the periphery of liver fluke vector identification: The achievements of Drs. Kobayashi and Mutō], in Morishita, *Aru igakushi no shūhen*. A detailed listing of Kobayashi’s achievements appears in “Kobayashi Harujirō hakushi koki shukuga kinenshi” 小林晴治郎博士古稀祝賀記念誌 [Commemorating the seventieth birthday of Kobayashi Harujirō], special issue, *Eisei Dōbutsu* 衛生動物, vol. 4 (March 1954).
- 42) Kawakami Takeshi 川上武 and Kambayashi Shigenobu 上林茂暢, eds., *Kunisaki Teidō: Teikō no igakusha 國崎定洞—抵抗の醫學者* [Kunisaki Teido: Rebel physician] (Tokyo: Keisō shobō 勁草書房, 1970), pp. 122, 131, 181.
- 43) Komiya Yoshitaka, “Iryō no shakaika’ no zengo jijō” 「醫療の社會化」の前後事情 [Before and after the “Socialization of Medicine”], in Igakushi kenkyūkai 醫學史研究會 and Kawakami Takeshi, eds., *Iryō shakaika no dōhyō: 25 nin no shōgen* 醫療社會化の道標—25人の證言 [Milestones in socialized medicine: Testimony from 25 witnesses] (Tokyo: Keisō shobō, 1969), pp. 23–33; Soda Takemune 曾田長宗, “Komiya kun to Tōdai Shakai Igaku Kenkyūkai” 小宮君と東大社會醫學研究會 [Komiya Yoshitaka and the Association for Social Medicine of Tokyo Imperial University], *Igakushi Kenkyū* 醫學史研究 (Igakushi kenkyūkai), no. 48 (1977), pp. 2–4; Soda Takemune and Kunii Chōjirō 國井長次郎, eds., *Komiya Yoshitaka, “Shizen,” Ikō: Tsuioku* 小宮義孝《自然》遺稿・追憶 [“Shizen,” the posthumous work of Komiya Yoshitaka: In memoriam] (Tokyo: Tsukushi sha 土筆社, 1982), p. 365.
- 44) Iijima, *Mararia to teikoku*, p. 187.
- 45) Komiya Yoshitaka, “Shanghai chihō ni okeru kankyūchū ni kansuru kenkyū (dai 1 hō) kankyūchū no jintai kansen jōtai ni tsuite” 上海地方に於ける肝吸蟲に關する研究 (第1報) 肝吸蟲の人體感染狀態に就て [Research on lung flukes in and around Shanghai, Part I: Fluke infection in humans], *Shanghai Shizen Kagaku Kenkyūjo Ihō* 上海自然科學研究所彙報 [Research bulletin of the Shanghai Science Institute], vol. 4, no. 6 (1934–35). On the Shanghai Institute for Natural Science, see Yamane Yukio 山根幸夫, “Shanghai shizen kagaku

kenkyūjo ni tsuite: Tai ka bunka jigyo no ichi kōsatsu” 上海自然科學研究所について—對華文化事業の一考察 [The Shanghai Institute for Natural Science: On cultural projects aimed a China]; and “Furoku, Shanhai shizen kagaku kenkyūjo ihō sōmokuji” [付録] 上海自然科學研究所彙報總目次 [Addendum: Table of contents of the *Shanghai Shizenkagaku Kenkyūjo Ihō*], *Tōkyō Joshi Daigaku Kiyō Ronshū* 東京女子大學紀要論集 [Science reports of Tokyo Woman’s Christian University], vol. 30, no. 1 (September 1979). A detailed listing of Komiya’s achievements appears in Soda and Kunii, *Komiya Yoshitaka, “Shizen,” Ikō: Tsuioku*.

- 46) O. T. Logan, “A Case of Dysentery in Hunan Province Caused by the Trematode, *Schistosoma Japonicum*,” *China Missionary Medical Journal*, 1905, no. 19; Xin zhongguo yufang yixue lishi jingyang bianbanhui 新中國預防醫學歷史經驗編辦會, *Xin zhongguo yufang yixue lishi jingyang* 新中國預防醫學歷史經驗 [Learning from the new China’s history of preventative medicine], vol. 3 (Beijing: Renmin weisheng chubanshe 人民衛生出版社, 1988), p. 242.
- 47) Jiangsu sheng difang zhi bianzuan weiyuanhui 江蘇省地方志編纂委員會, ed., *Jiangsu sheng zhi: Weisheng zhi* 江蘇省志·衛生志 [Gazetteer of Jiangsu Province: Public health] (Nanjing: Jiangsu guji chubanshe 江蘇古籍出版社, 1999), vol. 1, p. 398.
- 48) *Xin zhongguo yufang yixue lishi jingyang*, p. 241.
- 49) Originally published as “Chūnanshi ni okeru kiseichūbyō” 中南支に於ける寄生蟲病 [Parasitic diseases of South Central China], in Taiheiyō kyōkai gakujutsu iinkai 太平洋協會學術委員會, ed., *Nampō igaku ronsō* 南方醫學論叢 [Reports of medical science in South-east Asia and South Sea Islands], vol. 1 (Tokyo: Nankōdō 南江堂, 1942); reprinted in Amano Motonosuke 天野元之助, ed., *Chūgoku nōgyō no shomondai* 中國農業の諸問題 [Issues in Chinese agriculture], 2 vols. (Tokyo: Gihōdō 技報堂, 1952–53), vol. 1, pp. 263–264; also reprinted in *idem*, *Chūgoku nōgyō keizai ron* 中國農業經濟論 [Chinese agricultural economics] (Tokyo: Fuji shuppan 不二出版, 1984). This writer was able to gain a general understanding of the process which gave rise to this article from the collection of Komiya’s research sources held by the National Institute for Infectious Disease (Koyama-cho, Shinjuku-ku, Tokyo), but a more in-depth examination remains to be done. The relationship of SJ epidemics in Chinese history to environmental change in the form of land utilization is a very important issue. For example as indicated in Okazaki Fumio 岡崎文夫 and Ikeda Shizuo 池田靜夫, *Kōnan bunka kaihat-sushi* 江南文化開發史 [History of cultural development in Jiangnan] (Tokyo: Kōbundō shobō 弘文堂書房, 1940), outbreaks of SJ were related to the development of Jiangnan as a cause of paddy being enclosed with embankments to protect from inundation by surrounding creeks. However, this issue, which needs to be approached with interdisciplinary methodology combining agricultural science, engineering and ecology, has been almost totally ignored in the research (Watabe Tadayo 渡部忠世 and Sakurai Yumio 桜井由躬雄, eds., *Chūgoku Kōnan no inasaku bunka: Sono gakusaiteki kenkyū* 中國江南の稻作文化—その學際的研究 [Rice culture in China’s Jiangnan

- region: An interdisciplinary approach] (Tokyo: Nihon hōsō shuppan kyōkai 日本放送出版協會, 1984).
- 50) Chihōbyō kinenshi henshū iinkai, *Chihōbyō to no tataikai*, pp. 15–17.
- 51) After the War, Komiya published a collection of essays entitled *Jōheki: Chūgoku fūbutsushi* 城壁—中國風物誌 [Castle walls: A gazetteer of China's landscape], Iwanami shinsho 岩波新書 (Tokyo: Iwanami shoten, 1949). The collection, which included pieces on creeks, freshwater fish, vegetables, raw food, *dim sum* cooking, vegetable gardens, is far from absent of his interest in parasitology. For example, he touches upon the relationship of creeks to malaria and SJ infection (pp. 45–50) and cites the Mandarin Fish (*Pterosynchiropus splendidus*) as the cause of rheumatism in Shanghai (p. 55).
- 52) Komiya Yoshitaka, “Nihon jūketsu kyūchū baikasha Miyairigai no bokumetsu taisaku to shite no konkurito ka kōkyō no kanri jōkyō chōsa” 日本住血吸蟲媒介者ミヤイリガイの撲滅対策としてのコンクリート化溝渠の管理状況調査 [Inspection of how concrete water ditches are maintained in irradiating the Miyairi snail SJ vector], *Kiseichūgaku Zasshi* 寄生蟲學雜誌, vol. 8, no. 6 (1960).
- 53) Kojima Sōmei, “Yokokawa kiseichūgaku no keifu” 横川寄生蟲學の系譜 [The Yokokawa line of parasitologists], in Chiba daigaku igakubu Yokokawa Muneo kyōju taikan kinenkai 千葉大學醫學部横川宗雄教授退官記念會 ed., *Yokokawa Muneo kyōju taikan kinenshi: fu kenkyū gyōseki mokuroku* 横川宗雄教授退官記念誌 附研究業績目錄 [Volume commemorating the retirement of Dr. Yokokawa Muneo: With bibliography] (unpublished: Chiba daigaku igakubu Yokokawa Muneo kyōju taikan kinenkai and Chiba daigaku kiseichūgaku kyōshitsu 千葉大學寄生蟲教室, 1985), pp. 73–82.
- 54) George W. Hunter III, Yokokawa Muneo, Akusawa Minoru, Sano Motohito, Araki Kunioki, and Kobayashi Masashi, “Control of *Schistosoma Japonica* in the Nagatoishi Area of Kurume, Japan,” *American Journal of Tropical Medicine and Hygiene*, vol. 3, no. 4 (1982), pp. 760–770.
- 55) Tsutsumi Hiroshi, *Chikugo mushi no sokuseki* 筑後むしの足跡 [Trail of the Chikugo snail] (Fukuoka: Kurume daigaku igakubu kiseichūgaku kōza and Dōmonkai 久留米大學醫學部寄生蟲學講座・同同門會, 1990).
- 56) Other researchers of that generation included Sasa Manabu (1916–2006) and Otsuru Masamitsu (1916–2008) (Iijima, *Mararia to teikoku*, pp. 207–208, 212–213).
- 57) *Ibid.*, pp. 284–285.
- 58) *Ibid.*, chap. 7, p. 285.
- 59) Space limitation prohibit a more detailed study here of anti-SJ measures taken under the Kuomintang regime; however, a survey has begun on SJ infection in Jiangsu and Zhejiang (Chen Shengpi 陳勝毘, *Zhongguo jibingshi* 中國疾病史 [History of disease in China] (Taipei: Jujing wenhua shiye guban youxian gongsi 橘井文化事業股份有限公司, 1980), pp. 107–108).
- 60) Shanghai tongzhi guan 上海通志館, ed. (Zhu Minyan 朱敏彥, chief ed.), *Shanghai fangyi shijian* 上海防疫史鑑 [History of disease prevention in Shanghai] (Shanghai: Shanghai kexue puji chubanshe 上海科學普及出版社, 2003), pp.

- 29, 34-35, 61, 155, 199.
- 61) *Jiangsu sheng zhi*, vol. 1, p. 408. Hieda Kentarō, who remained in postwar China as a professor at Huabei Medical University states that he participated in a survey of the SJ outbreak that occurred in the Shanghai region, concluding that it was caused by military training maneuvers in the Yangzi basin and around Lake Taihu in preparation for a Red Army invasion of Taiwan (Hieda, *Igaku shisō no hinkon*, pp. 157, 168, 200). The same statement was made in a May 1970 interview with 加藤祐三 Katō Yūzō · 小島麗逸 Kojima Reiitsu and also appears in *idem*, “Chūgoku ni okeru igaku o megutte: Hachiro gun ni igaku o oshie, Hachiro gun ni mananda kiroku” 中國における醫學をめぐって—八路軍に醫學を教え、八路軍に學んだ記録 [The field of medicine in China: A record of what I taught the Red Army and what I learned from them], *Ajia Keizai* アジア経済, vol. 11, no. 9 (September 1970).
 - 62) Sasa Manabu, *Fūdobyō to no tataikai* 風土病との闘い [The fight against climate-related disease], Iwanami shinsho (Tokyo: Iwanami shoten, 1960), pp. 149-152.
 - 63) Komiya Yoshitaka, “Chūkyō no jūketsu kyūchūbyō bōchi taisaku ni taisuru ikensho” 中共の住血吸蟲病防治對策に對する意見書 [Memorandum regarding preventive measures taken by the Chinese Communist Party to prevent and eradicate *Schistosoma japonicum*], *Nihon Iji Shimpō* 日本醫事新報, no. 1711 (2 February 1957), p. 45.
 - 64) *Ibid.*, pp. 45-46.
 - 65) After graduating from the Aurora University Medical Department, Mao (1912-92) went to study at the University of Paris and returned in 1941 to take a position as a lecturer at Shanghai Medical College. During the Japanese occupation of Shanghai, he was promoted to assistant professor at the College, which had been moved to Chongqing. Then after the War in 1947 he went to the United States to continue his research on the staff of the Institute of Parasitology, publishing an article in the 1954 second issue of *Zhonghua weisheng zazhi* 中華衛生雜誌 emphasizing the important role of prevention measures in public health policy. I would like to express my gratitude to Dr. Li Zhiyue 呂志躍 of the Institute of Parasitology at the Sun Yat-Sen University Preclinical School for providing with Mao’s biographical information.
 - 66) Komiya, “Chūkyō no jūketsu kyūchūbyō bōchi taisaku ni taisuru ikensho,” pp. 45-47.
 - 67) *Ibid.*, pp. 48-49.
 - 68) Yasuraoka Kazuo, “Komiya Yoshitaka sensei” 小宮義孝先生 [Prof. Komiya Yoshitaka], *Igakushi Kenkyū* (Igakushi kenkyūkai), no. 48 (1977), pp. 11-12.
 - 69) Wake Akira 和氣朗, “Komiya Yoshitaka sensei no omoide” 小宮義孝先生の思い出 [Remembrances of Prof. Komiya Yoshitaka], *Igakushi Kenkyū* (Igakushi kenkyūkai), no. 48 (1977), p. 10.
 - 70) *Jiangsu sheng zhi*, vol. 1, p. 40.
 - 71) *Shanghai fangyi shijian*, vol. 36, pp. 155-157.

- 72) Ozawa Masamoto 小澤正元, “Nitchū yūkō no kakureta kōrōsha: Komiya Yoshitaka kun o tsuitō suru” 日中友好の隠れた功勞者—小宮義孝君を追憶する [Achievement unheralded in Sino-Japanese friendship: In memory of Komiya Yoshitaka], in Soda and Kunii, *Komiya Yoshitaka, “Shizen,” Ikō: Tsuioku*. John Farley, *Bilharzia: A History of Imperial Tropical Medicine* (Cambridge: Cambridge University Press, 1991), pp. 208–209.
- 73) *Shanghai fangyi shijian*, pp. 34–36, 61–62, 155, 193; *Jiangsu sheng zhi*, vol. 1, pp. 393–395.
- 74) The exhibition consists of five themes: the situation prior to policy implementation, how policy was implemented, research breakthroughs, how the system was supervised, and hopes for the future (i.e., the present situation). I was able to visit Rentun with the kind assistance of Chen Minggan 陳名剛, professor of the Shanghai Center for Disease Control and Prevention. The whole prefecture of Qingpu has completely changed due to industrialization, compared to the photographs which dominate the exhibition. My only regret is that there is little effort going on in Rentun to collect and catalogue written source materials related to the SJ eradication effort, despite the fact that local archives still have them in storage (see Iijima, *Mararia to teikoku*, chap. 3). Their analysis will be the subject of an upcoming work on the historical meaning of China’s anti-SJ policy.
- 75) Joshua S. Horn, *Hadashi no isha to tomoni: Ijirisu jin ishi no mita Chūgoku iryō no 15 nen* はだしの醫者ととも—イギリス人醫師のみた中國醫療の15年, trans. Kōsaka Takao 香坂隆夫 (Tokyo: Tōhō shoten 東方書店, 1972), published in English as *Away with All Pests: An English Surgeon in People’s China* (New York: Hamlyn House, 1969).
- 76) Yasuraoka Kazuo, “Chūgoku ni okeru Nihon jūketsu kyūchūshō taisaku” 中國における日本住血吸蟲症對策 [China’s policy regarding *Schistosoma japonicum*], *Igaku no Ayumi*, vol. 175, no. 7 (December 1995), pp. 498–499. However, a debate continues about the effectiveness of creek reclamation. See, for example, F. R. Sandbach, “Farewell to the God of Plague: The Control of *Shistosoma* in China,” *Social Science & Medicine*, vol. 11 (1977).
- 77) Iijima, *Mararia to teikoku*, pp. 324–326.
- 78) Sasa Manabu, “Ajia no shippei ni kansuru Nichibei igaku kyōryoku” アジアの疾病に關する日米醫學協力 [Japan-US cooperation in dealing with disease in Asia], *Nettai e no kyōshū* 熱帶への郷愁 [Homesick for the tropics] (Tokyo: Shinjuku shobō 新宿書房, 1977).
- 79) Iijima, *Mararia to teikoku*, pp. 327, 330–331.
- 80) Tanaka Hiroshi, “Firipin ni okeru Nihon jūketsu kyūchūshō no kujo to tochi no bunka” フィリピンにおける日本住血吸蟲症の驅除と土地の文化 [Eradication of *Schistosoma japonicum* and indigenous culture in the Philippines], *Kōshū Eisei* 公衆衛生, vol. 40, no. 5 (May 1976), p. 360. Incidentally, Tanaka is of the opinion that the success enjoyed in China through study, mobilization of physical labor, and irrigation works is a rare case and would be difficult to duplication anywhere else.
- 81) Hayashi Masataka, *Kiseichū tonō hyakunen sensō*, pp. 52, 93. During his pas-

sionate involvement in fight against SJ on Leyte, Hayashi enjoyed reading Ōoka Shōhei 大岡昇平’s *Reite senki* レイテ戦記 [Leyte War journal], but was puzzled that no mention was made of SJ and asked Ooka why. In response, Ōoka wrote “Nihon jūketsu kyūchū: ‘Reite senki’ hoi II” 日本住血吸蟲—『レイテ戦記』補遺 [Schistosoma japonica: A second revision to Leyte War journal], *Chūō Kōron* 中央公論, vol. 103, no. 1 (January 1988). It seem that Ōoka was disturbed about the possibility of Japanese soldiers bringing SJ to Philippines and infecting the population, which is not true (p. 494). Later, in 1987, Hayashi organized the “Society to Fight Regional Disease” in order to seek contributions to finance the distribution of the Bayer AG-developed drug, Praziquantel, which could kill the infection of schistosoma eggs and adults in a single day’s dosage, which cost 700 yen. His first contributor was none other than Ōoka Shōhei.

- 82) Asami Keizō, Yokokawa Muneo, Hayashi Shigeo, Ōya Hiroshi, and Yasuraoka Kazuo, “Chūgoku ni okeru Nihon jūketsu kyūchūshō no genkyō” 中國における日本住血吸蟲症の現況 [The present situation of Schistosoma japonicum in China], *Nihon Iji Simbō*, no. 3039 (24 July 1982), pp. 44, 47.
- 83) Kajihara Noriaki, “Shisen-shō Seishō-shi oyobi Bukō-ken ni okeru Nihon jūketsu kyūchūbyō no ryūkō jōkyō ni tsuite: Yamanashi-ken kokusai kyōryoku semmon gijutsusha haken jigyo hōkoku” 四川省西昌市および蒲江縣における日本住血吸蟲病の流行状況について—山梨縣國際協力専門技術者派遣事業報告 [On the prevalence of Schistosoma japonicum in Xichang shi and Pujiang xian, Sichuan Province: Report on Yamanashi Prefecture cooperative specialists dispatch project], *Yamanashi-ken Eisei Kōgai Kenkyūjo Nempō* 山梨縣衛生公害研究所年報, no. 45 (2001).
- 84) Kobayashi Teruyuki 小林照幸’s *Shi no kai* 死の貝 [Mollusk of death] (Tokyo: Bungei shunjū 文藝春秋, 1998) is a non-fiction science story tracing the process by which Schistosoma japonicum was eradicating in Japan, and while it makes very interesting reading, not one episode mentions the contributions made by the parasitologists from the colonial medicine.
- 85) Iijima, *Mararia to teikoku*, p. 342.
- 86) *Ibid.*, chap. 7, sec. 1.
- 87) Although SJ has been wiped out in such regions as Jiangsu Province, it is still a big problem in the rest of the Yangzi River Basin, Sichuan and Yunan. For example, there are reports of the rising water of lake Dongting flooding its banks a creating an environment favorable to the oncomelania snail, and the great Yangzi floods of 1988 have caused the rapid spread of SJ in the Basin region. Another worry is that the construction of the Three Gorges Dam in Hubei Province will expose more of that region to SJ. (Allen G. P. Ross, Yuesheng Li, Gail M. Williams, Zheng Jiang, and Donald P. McManus, “Dam Worms,” *Biologist*, vol. 48, no. 3 (2001), pp. 121-124; Matsuda Hajime 松田肇 and Kirinoki Masashi 桐木雅史, “Jūketsu kyūchūshō no rekishi to genjō” 住血吸蟲症の歴史と現状 [The history and present situation of Schistosoma], *Igaku no Ayumi*, vol. 208, no. 2 (January 2004), p. 77.