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Training Medical Researchers in Korea during the Japanese Colonial Period (1910–1945)

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Introduction

Contemporary medicine expects close interaction between practical and theoretical aspects. However, throughout the history of medicine, this has not always been the case. The Hellenistic period, for example, witnessed a confrontation between the so-called Empiricists, who valued the practical side of medicine, and the Rationalists, or Dogmatists, who placed more emphasis on theory.[1] Despite their confrontation, the main source of medical knowledge was at the patient's bedside. During the medieval period, new academic institutions, that is, universities, became important in preserving ancient medical knowledge and producing new knowledge. From the middle of the nineteenth century, a third locus for the production of medical knowledge was added: the laboratory. With the rise of the laboratory, the goals of medical education changed significantly. While the traditional goal of educating practitioners remained, there appeared a new requirement of modern medical education to train 'medical scientists' for laboratory work. The rise of the laboratory gave rise to 'scientific medicine.' Indeed, by the late nineteenth century, medical scientists had begun to lead academic medicine, even though they were not necessarily physicians or surgeons. The chemist Louis Pasteur (1822–1895), for example, made an epochal contribution to bacteriology, the archetypical field of modern medicine, which was born in the laboratory. The emergence of medical scientists marks the historical integration of laboratory science into modern medicine.

[1] Galen, *Three Treatises on the Nature of Science* (Indianapolis, 1985). Michael Frede's *introduction* provides a good summary of the medical scene of the Hellenistic period.

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As Western medicine grew to be widely accepted in the nineteenth century, a similar process of integration took place in the non-Western world. In fact, the non-Western world repeated this process in a much faster, and thus condensed, manner, though with differences derived from specific historical and social contexts. This article describes this process in Korea, where Western medicine first arrived in the 1880s, and formal medical education shortly thereafter. Thirty to forty years passed between the beginning of medical education in Korea and the appearance of the country's first generation of medical researchers. Over this time Japan annexed Korea in 1910, producing a dramatic shift on the country's medical development. Previous studies on medical education during the colonial period in Korea have mostly focused on institutional aspects of medical education or on biographical studies of medical researchers. This paper aims to combine both: to examine the first appearance of the country's medical research and to position them in the topography of colonial medicine.

Western Medicine Comes to Korea

Western medicine came to Korea relatively late in comparison with its neighbors Japan and China. Before the opening of the treaty ports in 1876, Korean intellectuals had had contacts with Western medicine only via books imported from China. Chinese translations of the work of the Jesuit Johann Adam Schall von Bell (湯若望, 1591–1666) and other Western authors were imported into Korea during the 17th and 18th centuries. Unlike China, Korea was very hostile towards Christianity in the early modern period, allowing no entry to Jesuits. Therefore, Koreans of that time could only learn indirectly about Western science from those Chinese books known as Books on Western Learning (西學書) that circulated among progressive Korean Confucian literati such as YI Ik (李瀷, 1681–1763). Yi was the first to introduce Western medicine in Korean publications. The medical doctrines he discussed were mainly taken from the work of Schall von Bell, though he did more than simply reproduce the latter's thinking. Indeed, his writings show the effort both to understanding Western medicine and to reconciling it with traditional practice.[2] Such engagement with Western medicine did not represent anything more than an intellectual interest. Furthermore, the knowledge received in the country was outdated medieval medicine. It took until the late nineteenth century for Koreans to truly experience Western medical practice.

[2] In-sok Yeo, '*Zhuzhiqunzheng* (主制群徵), the Jesuit Translation of Western Medicine and its Influence on Korean and Chinese Intellectuals', *Korean Journal of Medical History,* 21/2 (2012), 251–278.

Since modern medicine is practiced and often taught in hospitals, the establishment of a Western-style hospital can best mark the introduction of Western medicine. The first Western-style hospital in Korea was established by an unexpected accident. Korea opened itself to the outer world in 1876. In December of 1884, Horace N. Allen (1858–1932) of the North American Presbyterian Church, the first medical missionary in Korea, was summoned to treat a close relative of the Korean queen. His successful treatment gained him a great deal of credit from the royal family.[3] He eventually proposed the establishment of a hospital, and offered to work without pay if the Korean government would provide the building.[4] His proposal was accepted. Sponsored by King Kojong, the Royal Hospital *Kwang Hye Won* (廣惠院), or, 'House of Extended Grace', was founded in 1885. The hospital was soon renamed *Che Jung Won* (濟衆院) 'Universal Helpfulness', and Allen was appointed head of the hospital by the king. From here, Allen and his colleague J. W Heron further established a medical school affiliated with the hospital in 1886, which marked the dawn of modern medical education in Korea.[5] They recruited 16 medical students and began education in English and science. However, this first attempt turned out to be unsuccessful, as none of the 16 medical students completed their study to become a doctor.

After Allen's departure from *Che Jung Won*, O. R. Avison (1860–1956) of Canada took charge of the hospital. Unlike Allen and other predecessors, Avison had significant experience in medical education, having taught at the University of Toronto before becoming a missionary in Korea. Medical education began soon after he took over the hospital in 1894. Avison's first task was to prepare medical textbooks in Korean.[6] Lack of adequate medical textbooks was one among many failures of Allen's first attempt to begin medical education in the country. With the help of his student-assistants, Avison began translating Henry Gray's textbook of anatomy, and then prepared textbooks for nearly all fields of medicine, along with a medical dictionary.[7] These medical textbooks and references were published from 1905 to 1910. Publication was halted when the country was

[3] Horace N. Allen and John W. Heron, *First Annual Report of the Korean Government Hospital, Seoul* (Yokohama, 1886).

[4] *H. N. Allen's Diary* (Seoul, 1991), 428–9.

[5] A more detailed description of the process can be found in the following article. In-Sok Yeo. 'Severance Hospital: Bringing Modern Medicine to Korea'. *Yonsei Medical Journal*, 56/3 (2015), 593–7.

[6] Oliver R. Avison, 'Some High Spots in Medical Mission Work in Korea. Part IV. A Medical School', *Korea Mission Field*, 35/5 (1939), 104.

[7] PARK Junhyoung and PARK Hyoungwoo, 'Jejungwoneseo yakmulhak bunyoukkwa ke uimi (The Translation and its Meaning of Materia Medica Part I in the Jejungwon)', *Korean Journal of Medical History*, 20/2 (2011), 327–54.

annexed by Japan in 1910, when no textbooks in the Korean language were permitted in school education.

Meanwhile, the Korean government had also set up a school for education in Western medicine. In 1899, a medical school that provided a three-year program opened its door in 1899. It produced 19 of its first graduates in 1902.

Medical Education Policy in Colonial Korea

Japan revised its educational policies over the course of its colonial rule. The main concern of the colonial government was elementary and middle-school education for colonial subjects. It did not want to provide higher education to the Korean people, as it feared that such education could make the people critical of the colonial system. Nonetheless, demand among the Korean people for higher education was such that they launched a movement for the establishment of a university in the early 1920s. The Government-General sought to neutralize this movement by establishing Keijo Imperial University in 1924. In order to limit colonial higher education only to practical or technical disciplines, the university included only the faculty of law and the faculty of medicine. During the early colonial period, however, the Japanese were resistant to even allowing Koreans to pursue higher education in medicine. The policy became clear when they re-categorized the aforementioned government medical school (established in 1899) as an occupational school. This re-categorization was symbolic in expressing the notion that Korea deserved occupational training instead of high-achieving academic education.

Such reluctance toward medical education is thought to have been due to the widely shared opinion among the colonial officials that Koreans were not qualified to take on positions in the medical profession that demanded considerable responsibility.[8] Furthermore, the lack of financial resources hampered the colonial government's investment in medical education. Before the annexation, education in the government medical school was free, and the school even provided scholarships to all students. Following the annexation, financial support for students gradually decreased. By 1915 all medical school students had to support themselves.[9] The colonial government was also concerned about possible competition between Japanese and Korean medical practitioners, as some Japanese medical practitioners moved to Korea after the annexation.

[8] SATO Gojo 佐藤剛藏, *Chōsen Iyukusi* 朝鮮醫育史 (Kyoto, 1956), 29.

[9] PARK Yunjae, *Hankuk Keundaeuihakui Kiwon* (The Origin of Korean Modern Medical System) (Seoul, 2005), 280.

The colonial government's medical education policy was clearly defined in the guiding principles of the 'medical training school' in Korea. First, the courses, all of which were on Western medicine, were to be taught in Japanese; second, students were to acquire basic knowledge for the study of medicine before entering the school; third, students were to have clinical experience during their education. This third principle, which is commonplace today, requires further discussion. Before the annexation, Korea's government medical school had no proper teaching hospital. During their three years of education, students studied medicine only in a classroom. Most students graduated with virtually no clinical experience. As a result, beginning in 1904, some of its graduates entered Severance Hospital Medical School (discussed below), where proper clinical training in Western medicine was provided. The Japanese mandate to acquire clinical experience during medical training spoke to the desire to produce capable medical practitioners in colonial Korea.

In the 1910s, there were only two medical schools in Korea: Severance Hospital Medical School, run by a missionary board, and the government medical school. Severance Hospital Medical School was the heir to the Che Jung Won Medical School that was founded by Allen. In the beginning, the Che Jung Won and its medical school were under the control of the Korean government. In 1894 the mission of the American North Presbyterian Church took over their operation. Then in 1900, the American philanthropist Louis Henry Severance (1838–1913) made a donation to build a new Che Jung Won.[10] The new hospital was called Severance Hospital after its donor.[11] Immediately after the Japanese annexation, the total number of graduates from these two medical schools was less than one hundred. While a sizable number of Japanese doctors came to Korea to open their own private practice or work in public hospitals, the available medical practitioners throughout the colonial period did not meet the medical demands of the population. To facilitate and accelerate the production of medical practitioners, the colonial Government-General implemented a provisional scheme. Individuals could receive a license to practice medicine by passing a medical license examination, even if they had never studied in a medical school. In fact, Japan itself had the same scheme in place for medical practitioners up to the early 20th century. Thereafter it was no longer possible in Japan to become a medical doctor without formal medical education.

[10] 'Historical Sketch', *Catalogue of Severance Union Medical College 1917* (Seoul 1917), 6–10.

[11] In-Sok Yeo, 'Severance Hospital: Bringing Modern Medicine to Korea', *Yonsei Medical Journal,* 56/3 (2015), 593–7.

The public health conditions in Korea, especially in the 1910s, required an immediate supply of medical practitioners. This was tasked to the government medical training school and Severance Medical College. It is difficult to expect scientific research to grow when there is an emphasis on the urgent supply of medical practice. The school was equipped with minimum facilities for medical education and virtually none for experimental research. The situation is expressed well in the lament of Inamoto Kamegoro (稻本龜五郎), who came to the medical training school as a professor of pathology: 'Although I heard that there was nothing in the school, the real situation was beyond my imagination.'[12]

In 1916, the government medical training school became Keijo [Japanese name for Seoul] Medical College, which adhered to the regulations for occupational schools promulgated by the Government General. Institutions of medical education in Japan proper were divided into two levels: medical colleges (*igaku senmon gakko*, 醫學專門學校, literally professional medical schools), and faculties of medicine at universities. The educational goals in these two institutions were different. The medical college was expected to train practitioners for the general public, whereas the university's medical faculty was academically oriented. The lengths of these two programs were also different. It was four years for the medical college, and six years, including two years of pre-med courses, for medical study in the universities. Severance Union Medical College and Keijo Medical College were like medical colleges in Japan: they produced medical practitioners, not academically-minded physicians. The statutes of Keijo Medical College specified the duty of professors as follows: 'Professors should, whether in basic medical science or clinical medicine, teach not complicated theoretical knowledge of medicine, but brief, simple and practical knowledge.'[13]

Although the main goal of Korean medical colleges at the time was to produce medical practitioners, education in basic medical science became more pronounced than before. Severance Union Medical College, though established and run by Western missionaries, shared the same goals and requirements as Keijo Medical College, a state school. It had to implement basic medical science departments in order to meet the colonial government's requirement for medical colleges in spite of its stated goal for practical medicine. As a result, the undergraduate curriculum of both medical colleges and the medical faculty of Keijo Imperial University

[12] Sato, *Chōsen Iyukusi*, 53.

[13] *Keijo Igaku Senmongakko Kitē* 京城醫學專門學校規程 (Regulations of Keijo Medical School), *Chōsen Chodokufu Kanpō* 朝鮮總督府官報 (Official Gazette of Government-General in Korea) (Seoul, 1916), iv. 1.

became similar. They were standardized according to the colonial government's requirements. During the first two years, basic medical science such as anatomy, physiology, bacteriology, biochemistry, and pathology was taught.[14] The third and fourth years were for clinical education. One great difference between Severance and other governmental medical institutions consisted of its integration of clinical education, as opposed to only teaching basic medical science. Beside lectures on clinical medicine, which were common in both institutions, the Severance College had an Outpatient Department Rotating Service for students during the third and fourth years with 12 hours per week, totaling 912 hours.[15] This meant that the medical students of Severance spent much more time in the hospital than the students of the governmental medical institutions. This time spent working with patients reflects the difference between the clinically oriented Anglo-American medicine and the more theoretically oriented German-Japanese medicine.

Medical Research in the Early 1910s

While the supply of medical practitioners was an urgent issue in Korea in the early 1900s, a few significant attempts were made to promote medical research during the colonial period. For example, the Chosen Igakukai (Korean Association of Medicine) was founded soon after the annexation, for which a journal, *Chōsen Igakukai Zashi* 朝鮮醫學會雜誌 (*The Journal of the Korean Medical Association*), began to be published in 1911. Most of the association's members were Japanese doctors in Korea, though a few Korean doctors were included as well. The articles published by the association's journal during the 1910s mostly concerned clinical subjects, though the results of laboratory work and basic research can also be found. This journal would eventually become the major academic journal in medicine in Korea. From the 1930s forward, it was divided into two parts: one for clinical medicine and the other for basic medical science.

Another significant event in medical research during this period was the establishment of the Research Department at Severance Union Medical College (SUMC) in 1914 by R. G. Mills, J. D. Van Buskirk, and A. I. Ludlow. Severance Hospital Medical College became the medical education institution that united American North Presbyterian Church and the other missionary boards in Korea, thus the word 'union' was

[14] *Keijo Igaku Senmongako Ichiran* 京城醫學專門學校一覽 (Bulletin of Keijo Medical School), (Seoul, 1930), 35–7; *Keijo Teikoku Daigaku Ichiran* 京城帝國大學一覽 (Bulletin of Keijo Imperial University) (Seoul, 1930), 83.

[15] *Catalogue of Severance Union Medical College Seoul, Korea 1925–26* (Seoul, 1925), 21.

inserted into the name of the school. In the implementation of this department, Dr. Mills was particularly concerned about the establishment of a research department within a missionary institution such as SUMC and the criticism it might draw. Upon proposing his plan to open the research department, he stated: 'Well, that's fine from the scientific standpoint, but I doubt whether any Mission Board would consider it a missionary enterprise.'[16] Therefore, in order to justify the research department in a missionary institution, the goals of its research were carefully set to solve practical problems, such as medical issues of Koreans related to local diet, customs, and habits.

The main areas of research within the department included traditional medicine, the Korean diet, and local diseases in Korea.[17] Regarding research on traditional medicine, Mills conducted extensive investigations on drugs mentioned in the pharmacopeia of traditional medical texts. He translated Korean medical texts into English (which unfortunately went unpublished) and collected thousands of traditional drugs and botanical specimens. Concerning the Korean diet, Van Buskirk investigated various issues of diet, and made recommendations for a balanced diet.[18] Parasitic diseases were among the local diseases that the department collectively studied.[19]

At first, the research department served as a laboratory where experimental work was carried out. Its nature eventually changed as each area of the department became a center of research activities. The research department grew to become a research-promoting institution that provided funding to different areas of study and individual researchers. The founding of this department marked an important point in the history of SUMC in its turn to scientific research. In the early 1910s, the key medical researchers remained foreign missionary doctors. Another decade would pass before witnessing Korean graduates of SUMC go on to pursue research careers.

Medical research was also carried out in the 1910s at Keijo Medical College despite its occupational orientation. Some research was conducted in the college for colonial interests. Japanese anatomy professor Kubo Takeshi (久保武, 1879–1921), a specialist in physical anthropology,

[16] Ralph G. Mills, 'The Research Department of the Severance Union Medical College', *The Korea Mission Field*, 12/1 (1916), 22–5.

[17] *Catalogue of Severance Union Medical College Seoul, Korea* (Seoul, 1917), 37.

[18] James D. Van Burskirk, 'Some Common Korean Foods', *Transactions of the Korea Branch of the Royal Asiatic Society*, 14/2 (1923).

[19] For the more detailed activities of the research department, see the following article: In-sok Yeo, 'Severance Uijeon Younkubuui Uihakyounku Hwaltong (A History of the Research Department of the Severance Union Medical College)', *Korean Journal of Medical History*, 13/2 (2004), 233–250.

gathered a vast collection of data on the physical traits of Koreans. He concluded that Koreans were inferior to the Japanese.[20] Such racially inclined anthropological studies were a quite popular research theme of the time. It could be done without costly experimental apparatus, thus affordable for the poorly equipped Keijo Medical School. In summary, medical research in 1910s Korea was carried out by Japanese doctors and Western missionaries. While the research of the former was racially oriented, that of the latter was focused on solving local medical problems.

The First Generation of Korean Medical Researchers

As mentioned above, the goal of medical education in colonial Korea was to produce medical practitioners instead of academic physicians. Therefore, the first generation of Korean medical researchers were educated outside of Korea. After graduation from medical colleges in colonial Korea, some individuals went abroad to receive proper training in medical research, particularly in the United States, Germany, and Japan.

Since the nineteenth century, it became an irresistible trend that medicine integrated modern science to empirical knowledge. Each country had its own way to join this trend. Germany started the trend by actively supporting scientific medical research in university laboratories, giving rise to the golden age of German medicine from the late nineteenth to the early twentieth century. The United States by and large followed the German model. The reform of American medical education that was proposed in Abraham Flexner's famous report was an attempt to integrate science-oriented German medicine into the more clinically oriented Anglo-American medical education.[21] Although the scientific aspect of medicine was underlined, American medical schools remained clinically oriented compared with their German counterparts. Japan also followed the German model.

In the 1910s and 1920s, the United States and Germany were the preferred countries for Koreans seeking advanced medical education, while from the 1930s onwards Japan became the destination of choice. Institutional or cultural ties influenced their choice. For example, graduates of Severance Union Medical College, run as it was by Anglo-American medical missionaries, tended to go to the United States. By contrast,

[20] KUBO Takeshi 久保武, 'Kaibogakuniokeru Nisenjinno Higakugenkyu 解剖學的に見たる日鮮人の比較研究' (Anatomic Discoveries of a Comparative Study of the Japanese and the Korean Peoples), *Chōsentomanchu* 朝鮮及滿洲 (Korea and Manchuria), October (1918).

[21] Abraham Flexner, *Medical Education in the United States and Canada* (New York, 1910).

graduates of Keijo Medical College typically chose Japan or Germany. Japanese universities were close and their degrees were accredited in the Japanese Empire, thus good for a medical career. Germany was also a logical choice, first because Japanese medical education followed the German model, and second because study in Germany had become a coveted experience, for Japanese as well as Korean students.[22] The following discussion will examine some of the first generation of Korean medical researchers who studied in the United States and Germany.

KIM Chang-sei (金昌世, 1893–1934) graduated from Severance Union Medical College in 1916. Upon graduation, he went to Shanghai to work as a medical missionary in an Adventist hospital. There he joined the Korean Provisional Government (in exile) and took part in the independence movement. While taking on the task of educating nurses for the future independence movement, Kim came to believe that the health of the Korean people was of utmost importance in order to achieve political independence. He then went to America in 1920, where five years later he became the first Korean to receive a Ph.D. degree in Public Health, from the Johns Hopkins School of Hygiene and Public Health. After earning his degree, he returned to Korea and founded the Department of Preventive Medicine within Severance Union Medical College. Public health and preventive medicine is a field that was not confined to a laboratory. To contribute to the progress of public health in a society, findings or proposals had to be adopted into governmental policies. Therefore, unless Kim were to become a government official, it was almost impossible to make his knowledge applicable in a meaningful way. As a Korean, he could not attain a high position in the colonial government. Presumably frustrated by this situation, Kim left SUMC for the United States to promote the Korean independence movement.[23]

In the early 1920s, two Koreans went to Germany to pursue advanced study in medicine. Upon graduating from Keijo Medical College in 1918, YU Il-joon (兪日濬, 1895–1932) spent a year in the Department of Pathology and Internal Medicine in the Faculty of Medicine at the Imperial University of Kyoto. In 1921, he went to Germany and studied bacteriology at the University of Freiburg, earning his doctorate in 1923.[24] After one year of post-doctoral study in Japan, he acquired his second doctorate of medicine from Keio University in Minato, Tokyo. According to the school

[22] Hoi-Eun Kim, *Doctors of Empire* (Toronto, 2014).

[23] PARK Yunjae, 'Kim Chang Seiui Saengaewa Kongjung Wisaeng Hwaltong (Chang Sei Kim's Activities on Public Health in Colonial Korea)', *Korean Journal of Medical History*, 15/2 (2006), 211–26.

[24] LEE Gyu-Sik, 'Yu Il Chunui Saengaewa Hwaltong (A Study about Il Chun Yu [兪日濬])', *Korean Journal of Medical History*, 12/1 (2003), 1–12.

regulations, a Japanese doctorate was required to become a professor in a medical school. No foreign doctorates, whether from the United States or Germany, were deemed acceptable for this purpose. Returning to Korea in 1924 with a Japanese degree, Yu was appointed professor at Keijo Medical College. It was exceptional for a Korean to be appointed to the college at a time when almost all of its teaching staff was Japanese. There were only two Korean professors throughout the entire history of Keijo Medical College.

A second Korean medical scholar, LEE Suk-shin (李錫申, 1897–1944), graduated from Keijo Medical College in 1921. Upon graduation, he went to study at the Department of Pathology at Tokyo Imperial University for one year. He left for Germany the following year and entered the Faculty of Medicine at Berlin, where he specialized in biochemistry and won his doctorate in 1926. On returning to Korea, he worked as an assistant researcher at the Department of Biochemistry in the Faculty of Medicine at Keijo Imperial University. He moved to Severance Union Medical College in 1928, as he found out that it was impossible for a Korean to be a professor at the university. At Severance Union Medical College, Lee was appointed as an assistant professor of biochemistry in 1931. As a Japanese doctorate was required for appointment as a professor, he acquired a second doctorate at Kyoto in the same year.

Aside from Yu and Lee, five additional Koreans studied medicine in Germany. All seven were all graduates of Keijo Medical College. Though they all succeeded in being appointed as professors, they constituted only a very small number, for a German doctorate was deemed invalid for professorial appointments. It is also noteworthy that the study periods of these individuals were limited to the early 1920s, when no university existed in Korea. From 1926 onward, no Korean went to Germany to study medicine.

While graduates of Keijo Medical College headed to Japan or Germany for advanced study, graduates of SUMC preferred the United States. This choice seems natural considering that SUMC was established and run by Anglo-American missionaries. Unlike those who went to Germany and returned with no clear career future, graduates of SUMC who travelled to the United States enjoyed a much more certain career trajectory. Not only did SUMC fund its graduates' studies, it also ensured their appointment as professors following their studies in America. While early faculty members of SUMC were all foreign missionaries, it was the basic policy of Avison, the principal of SUMC, that its faculty members should eventually be replaced by Koreans. He thus selected graduates who worked as assistants at SUMC after graduation and supported their study abroad.

Seven graduates of SUMC studied medicine in the United States during Korea's colonial period, and all of them were appointed as professors at

their alma mater. Three studied basic medical science, such as physiology, parasitology, or public health, while the others studied clinical medicine. KIM Myung-sun (金鳴善, 1897–1982), for example, graduated from SUMC in 1925 and went to the United States after working for a few years as an assistant in the Department of Physiology. He studied physiology at Northwestern University and earned his Ph.D. in 1932. Paul CHOI (崔棟, 1896–1973) graduated from SUMC in 1921 and went to China to study parasitology at Peking Union Medical College (PUMC) in Beijing.[25] Although PUMC began as a missionary institution much like SUMC, it became a more secular institution when the Rockefeller Foundation transformed it into a kind of Johns Hopkins University in China.[26] World class researchers and scientists were invited to the faculty at PUMC.

Beginning with Choi, a number of SUMC graduates went to PUMC for further study due to its high academic standing and shared identity as a missionary institution. SUMC and PUMC were close enough that not only SUMC graduates but also certain faculty members moved to PUMC as professors. For example, Ralph Garfield Mills (1884–1944), a professor of pathology at SUMC, moved to PUMC in 1918. Choi studied at PUMC for two years before coming back to Korea in 1925. The following year he again left Korea, this time to Canada to study in the Department of Pathology at the University of Toronto. On his return to Korea, he published several papers on parasitology and surveys on cancer cases in Korea. As a Japanese doctorate was required for professorship, Kim and Choi also received doctorates from Japanese imperial universities.

To earn a Japanese doctorate, medical aspirants could only go to Japan until Keijo Imperial University was opened in Seoul as the sixth imperial university in 1924. The opening of Keijo Imperial University reflected a change of policy for higher education in Korea. As mentioned above, the colonial government did not want Koreans to receive higher education, thus establishing only professional colleges, including Keijo Medical College, in colonial Korea. The new university was established in order to suppress civilian requests for a university. For example, Avison, a medical missionary in charge of both Severance Union Medical College and Yonhee College, proposed to open a university by merging the two colleges. In addition, a fundraising movement to establish a university had begun among Koreans. The Japanese Government General would not accept any university that was not under their direct control. It instead

[25] LEE Gyu-Sik, YANG Jeong-Pil, YEO In-Sok, 'Choy Tongui Saenaewa Hwaltong' (Paul D. Choy: A Life for Learning), *Korean Journal of Medical History*, 13/2 (2004), 284–97.

[26] Mary Bullock, *An American Transplant: The Rockefeller Foundation and Peking Union Medical College* (Berkeley, 1980).

established the Keijo Imperial University in Korea.[27] It started with only two faculties, a faculty of law and a faculty of medicine, and appointed highly qualified Japanese scholars to its teaching staff.

Japanese Doctoral System and Medical Research

Medical research during the colonial period in Korea can be said to have largely been promoted by the Igaku Hakase (醫學博士 or Doctor of Medicine) system. The German 'Doctor of Medicine' system of accreditation that was adopted in Japan had nothing to do with practicing as a physician. Rather, it served as a kind of honorary title of academic excellence. Those who wanted the title had to spend a certain number of years in a laboratory and present a dissertation on the result of their experimental work. As mentioned above, anyone who wished to be appointed as a professor in Korea had to attain a doctoral degree at a Japanese university. The title was sought not only by those who pursued academic careers but also by the clinicians who wanted the honor and prestige associated with the degree. Throughout the colonial period, more than 300 Koreans acquired MDs. Roughly half of them received their degrees at the Keijo Imperial University and the other half at other imperial universities. The doctoral degree was such an honor that newspapers of the time often reported their conferrals. At the same time, oddly enough, the degree did not guarantee the clinical capability of its possessor but only his or her laboratory experience. Nevertheless, the general public had so high a respect for such a title that clinicians wanted it for their businesses, a tradition that persists in Korea to this day.

There were two paths to the Doctor of Medicine degree in Japan. One, much like today, was to do dissertation research at an imperial university and receive a degree there. In this case, a student would spend several years in residence at the university. The other way was for a candidate to conduct dissertation research in a non-university laboratory and then submit the dissertation to a Japanese university. In this case, a university committee would evaluate the qualification of the candidate regardless of his residence.

Because only Japanese universities could award the doctoral degrees that qualified for teaching positions in universities and colleges in the empire, medical colleges such as Severance Union Medical College or Keijo Medical College were not entitled to award the degree. This of course meant that all supervisors of a dissertation were Japanese, as there were no Korean professors in the Japanese Imperial universities. Under

[27] KEE Chang-duk 奇昌德, *Hankuk Kundae Euihak Kyoyuksa* (A History of Medical Education in Korea) (Seoul, 1995), 222–3.

this system, the training of Korean researchers was completely controlled by Japanese professors.

The Korean pathologist YUN Il-sun (尹日善, 1896–1987), however, famously succeeded in shaking up this scheme of Japanese supervisors and Korean doctoral candidates. Yun completed the undergraduate education in the Faculty of Medicine at Kyoto Imperial University in 1923, specialized in pathology at the graduate school, and received the Doctor of Medicine degree in 1929. His academic career was thus exceptional, for the majority of Koreans who earned a Doctor of Medicine were graduates of medical colleges in Korea. When Yun was appointed Assistant Professor at Keijo Imperial University in 1928, he was the only Korean on its teaching staff.[28]

When Yun moved to SUMC in 1930, the college was facing two contradictory demands. The Western missionaries demanded it maintain its identity as a missionary institution. However, the colonial authorities wanted to position the school under their complete control. Avison, the principal of the college, sought to find a compromise for this situation. His solution was that the college would not only be a missionary institution but also an academic one. The college thus was making various efforts to improve its academic quality when Yun arrived. As mentioned, Avison was transferring the management and professorships of the college to Koreans. He thus aggressively recruited to the college Korean medical scientists, like Yun, who were qualified as university professors, or outstanding medical scholars who were not eligible for professorships in academic institutions in Japan or colonial Korea.

Yun was an excellent researcher and the first Korean to begin training medical researchers. Once at SUMC, he began to establish a system for research and training. Under his supervision, a considerable number of Korean students were trained in research and actively published their findings. One of his salient achievements was the training of LEE Young-chun (李永春, 1903–1980).[29] Lee did a series of experiments on sexual hormones at SUMC under Yun's supervision and submitted a dissertation to Kyoto Imperial University for the doctoral degree. Lee's degree was the first doctorate awarded to a dissertation directed by a Korean supervisor, thus representing a significant achievement in colonial Korea. A Korean researcher could then train another Korean. Korean society celebrated this

[28] HONG Jong-wook, 'Sikminjiki Yun Il-sunui Ilbon Yuhakkwa Uihak Younku (Yun Il-sun's Studies in Japan and Medical Research during the Colonial Period)', *Korean Journal of Medical History*, 27/2 (2018), 185–254.

[29] Young C. Lee, 'Experimental Studies on the Relation between Nicotine and Sexual Hormone'. *The Journal of Severance Union Medical College*, 2/ 2 (1935), 80–158; PARK Yun-jae, 'Hankuk Nongchon Wisaengkwa Lee Young Choon (Lee Young Choon, the Pioneer in Rural Health in Korea)', *Yonsei Journal of Medical History*, 7/1 (2003), 1–21.

achievement.[30] After Lee earned his degree, Yun continued to supervise other Korean candidates, the majority of whom received doctoral degrees from Kyoto.

Yun's laboratory was not big. He led the department of pathology, which consisted of himself and a few assistants for experimental pathology. Most of the research was designed to reveal pathological effects caused by certain pathogens or physiological changes. Yun placed importance on animal experimentation, and he himself taught experimental techniques and principles to his students.

Although it is generally agreed that the *Igaku Hakase* system greatly promoted medical research during the colonial period, it was difficult for MD holders to continue their research. Many of them did not pursue academic careers due to limited posts in SUMC and the near impossibility of a Korean's appointment as a professor in a Japanese college or university. The doctoral system nonetheless contributed to medical research by requiring laboratory work for almost all applications for the MD degree.

Although the doctoral system encouraged and rewarded medical research, its most serious problem was probably the dissociation of laboratory research from clinical medicine. A criticism was that most laboratory work produced nothing of clinical or practical value. This criticism was not only leveled at the doctoral system, but also at Japanese higher education in medicine in general. As a result, certain Japanese medical scholars, such as SHIGA Kiyoshi (志賀潔, 1871–1957), deliberately sought the introduction of Anglo-American medicine in Korea, which was considered more practical and more clinically oriented.[31] Many of the research projects for the MD did not consider clinical applications. For example, LEE Jung-chul, a pioneer psychiatrist in Korea, earned his doctorate from the Imperial University of Kyushu in 1935.[32] Though a psychiatrist, he did his dissertation research on the methods of staining brain cells.[33] After him, two other Korean psychiatrists, both SUMC graduates like Lee, earned doctorates from the same university on experimental subjects (in their cases histological studies on brain tissues).

[30] *Dong-A Ilbo* 東亞日報 (East Asia Daily), 18 June 1935.

[31] SHIGA Kiyoshi 志賀潔, *Aru Sēkingakushano Kaisō* 或る細菌学者の回想 (Memoirs of a Bacteriologist) (Tokyo, 1997).

[32] In-sok Yeo, 'Severance Jeongsinkwaui Seolipkwajeongwa Indojuijek Chiryo Jeontongui Hyungseng' (The Establishment of Severance Union Medical College Psychiatry Department and the Formation of Humanistic Tradition)', *Korean Journal of Medical History*, 17/1 (2008), 57–74.

[33] LEE Joongchul 李重澈, 'Mahisēchibōniokeru Shōnōno Byorisosikidekinogenkyu' 痲痺性癡呆ニ於ケル小腦ノ病理組織學的研究 (Histo-pathological Study of Cerebellum in Paralytic Dementia), *Fukuoka Igaku Zashi* 福岡醫學雜誌 (Fukuoka Medical Journal), 28/11(1935), 2567–634.

They performed their work in the laboratory of SHIMADA Kojo (下田光造) in neuropathology, which produced dissertations on neuropathological subjects.[34]

The choice of the laboratory was strongly affected by personal relations. Once chosen, the laboratory determined the subject of the dissertation. The lead professor of the laboratory often assigned dissertation subjects to his supervisees. We do not know exactly what led Lee to choose his laboratory at Kyushu. It is quite certain, however, that the choice of two other Koreans was made under Lee's strong influence.

The situation was almost the same at Keijo Imperial University. All students of the medical faculty had to enroll in a department. Some enrolled in clinical departments and others in basic science departments. For their dissertation research, however, even those who enrolled in clinical departments had to go to basic science departments, since the doctoral degree was awarded on the basis of laboratory work. Mere collection of clinical data was not acceptable for the doctoral degree. As a result, even if a student's specialty was in clinical medicine, his dissertation research could not be clinical. In fact, the method or orientation of the research was determined by the laboratory one chose for his dissertation. For example, if a student of the Gynecology Department had chosen the anatomy department for his research, his work was very often an anatomical study of a gynecological subject.

The results of research were published in medical journals in Korea, Japan, and other foreign countries. As mentioned, *the Journal of the Chosen Medical Association* was the first medical journal in Korea, thus enjoying the widest readership in the country. In addition, each medical school published its own medical journal. For example, SUMC published the *Journal of Severance Medical College*, and Keijo Medical College and Keijo Imperial University published *the Journal of Medical College in Keijo* and the *Keijo Journal of Medicine*, respectively. Medical journals of related fields in Japan also published the results of dissertation research by Korean physicians.

Conclusion

Following the introduction of Western medicine in Korea in the late nineteenth century, a medical education system was gradually established. The main objective of medical education during this period was to produce medical practitioners for primary care. Up to the 1910s, this objective was

[34] *Gojunensi* 五十年史 (History of Fifty Years of Medical Faculty of Kyushu University) (Kyushu, 1953), 317.

shared by medical missionaries and the Korean government (royal and later colonial). During the 1920s, some graduates of medical colleges in Korea pursued careers in medical research. As the conditions for medical research in the country were not favorable, most of them went abroad, mostly to the United States, Germany, and Japan. This situation changed during the 1930s, when better laboratory facilities and more capable supervisors became available as a result of the stabilization of colonial higher education in the 1930s. One could say that 'colonial modernization' reached its peak during this period. The situation began to deteriorate after the Japanese invaded China in 1937. It became even worse when Japan declared war on America in 1941. As the resources of Korean society were mobilized to support the war, little remained for higher education. At this time, medical college students were mobilized to build military constructions, such as airstrips. The main objective of medical education was then to secure medical officers for the battlefield rather than training medical researchers. The situation regressed back to the beginning of the colonial period, when the main objective of medical education was to secure the supply of primary physicians. Thanks to the Doctor of Medicine system, many, even those who did not wish to pursue an academic career, went to laboratories to do dissertation research. Though the doctoral system promoted research in colonial Korea, virtually no permanent positions for medical research were available to Koreans except at SUMC. Competent Korean researchers were only able to secure permanent positions to a significant degree after the Japanese staff of the medical institutions left Korea following the defeat of Japan in 1945.

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