

The Pandemic of the Spanish Influenza in Colonial Korea

Chaisung LIM

Abstract

The present study sheds light on the structural aspect of disease and death in colonial Korea by examining the whole picture of the Spanish influenza, which was pandemic during 1918-1921, and exploring its socioeconomic effects. The Spanish influenza likewise emerged in colonial Korea through the process of presymptoms in spring, with the first epidemic characterized by high morbidity rates and low death rates, and the second epidemic characterized by low morbidity rates and high death rates. Consequently, nearly half of the population fell ill, over 200,000 from among them losing their lives. While the morbidity rate per ethnic group was similar for ethnic Koreans and Japanese or higher for the latter group, the fatality rates revealed salient disparities. Indeed, the structure of disease and death where the Japanese showed low death rates, which surfaced throughout the colonial period, emerged in this case, too. Regarding the pandemic of the influenza, the Government-General of Korea (GGK), the Japanese colonial ruling organ, devised measures through the police hygiene system but failed to be effective. As a result, not only did many inevitably lose their lives but also the socioeconomic effects were considerable, including a drastic rise in rice prices and the temporary closures of schools and offices. This led to discontent with the colonial ruling system and to the March 1 Independence Movement, as a result of which Japan's colonial policy changed into one based on "culture" and "development." In the process, demographic transitions such as a decrease in the death rates appeared during the 1920s.

Keywords: Spanish Influenza, Government-General of Korea, police hygiene system, demographic transition

Chaisung LIM is Assistant Professor at the Institute for Japanese Studies, Seoul National University. His research interests include the labor hygiene system and the wartime economies of Northeast Asia. His major achievement is 『戰時經濟と鐵道運營』 (A Wartime Economy and Railroad Management: The Historical Path from Colonial Korea to Divided Korea) (2005). E-mail: limcs@snu.ac.kr.

Introduction

The purpose of the present study is to elucidate the structural aspect of disease and death in Korea under Japanese colonial rule (1910-1945) by examining the course of the Spanish influenza, which was pandemic from 1918 to 1921, and exploring its socioeconomic effects. With the continued development of antibiotics and medical technology following World War II, the human race declared victory over infectious diseases and expressed optimism about disease (Burnet and White 1972). However, as if to mock such optimism, diverse types of influenza have been periodically epidemic (e.g., swine influenza epidemic in the United States in 1976); since the beginning of the twenty-first century, diseases including severe acute respiratory syndrome (SARS), avian influenza, and H1N1 have emerged, threatening the lives of people around the world. Through the global media, these phenomena were broadcast internationally in real time. In addition, already existing diseases such as tuberculosis (TB) and, more recently, HIV/AIDS have become chronic and persist in the lives of humankind. Therefore, it may be more realistic to attempt to prevent, rather than completely cure, diseases. Reflecting on this situation, the pandemic of the Spanish influenza, which caused 30-40 million deaths worldwide from the end of 1918 to early 1919, has been revisited by many scholars (Crosby 1989; Collier 1996; Kolata 1999; Hayami 2006).

Such efforts have been made in South Korea as well. Citing Schofield's study (1919), Chun and Yang (2007) have inferred that in Korea, the influenza was epidemic starting in September 1918, and that 25-50% (about 4 million-8 million patients) of the entire population of colonial Korea suffered from the disease. Chun and Yang claimed that such figures, albeit not based on epidemiological investigations, are not entirely groundless when compared with other data. However, they have also pointed out that it is "impossible to obtain, even from official statistical data, information that would allow them accurately to grasp the situation"; the whole picture has yet to be unveiled. Regarding the information of influenza pandemic, Hayami (2006), a Japanese historical demographer, analyzed the effects of

Spanish influenza on both the Empire of Japan (1868-1947) and its colony Korea. Hayami's analysis, using data such as figures of the high death rates of the second epidemic, immunological phenomena, and delayed administrative response, shows that there was a pandemic in colonial Korea in nearly the same pattern as in Japan; he estimated that approximately 230,000 people died from the Spanish influenza.¹ However, while his study is a highly informative reference, it cannot be equated to a full-fledged analysis of the Spanish influenza in colonial Korea.

Lee (1990) explored the social effects of this disease as part of her efforts to elucidate the social background of the March 1 Independence Movement of 1919. She argued that as ethnic Koreans' economic hardship was aggravated by a drastic rise in rice prices, and as the Spanish influenza epidemic began, the public dissatisfaction in colonial Korea reached its limits immediately before the March 1 Independence Movement. Lee's study, however, has only described the situation in a fragmentary manner, not further probing the Police Inspectorate investigations or the evidences for cited articles. It is difficult to assess this study as a full-fledged review of the disease since the pandemic of the Spanish influenza is presented only as an unintended result of colonial exploitation policies.

In the twentieth century, the Spanish influenza caused the greatest number of deaths in Korea over the shortest period of time excepting events such as the Korean War (1950-1953) and the great North Korean famine, which lasted from 1995 to 1998 and left an estimated 1 million-3.5 million dead. Nevertheless, literature on the Spanish influenza epidemic in Korea remains ignorant of the whole picture

1. Using the number of deaths per disease in the *Chosen sotokufu tokei nenpo* (Statistical Yearbook of the Government-General of Korea), Hayami subtracted the number of deaths during the years 1915-1917, before the epidemic of the Spanish flu, from the number of deaths from respiratory diseases, common cold, infectious diseases, and unclear diagnoses during the three years of 1918-1920, when the Spanish influenza was epidemic, thus estimating 230,781 excess deaths (Hayami 2006, 402-403). However, while there are no major errors in this method, I believe that the figure must be modified to 223,396 in consideration of contemporary population growth (3.2%).

and focuses only on the massive number of deaths as a result of oppression through arguments such as: “This tragedy of infectious disease, unprecedented on this land, well demonstrates who the hygiene and epidemic prevention policy implemented by the Japanese colonial authorities was for and what it was” (Jeong 1990, 310). Of course, this is a valid point that criticizes the policy of the Government-General of Korea (GGK), the Japanese body that governed colonial Korea. However, would not the discovery of a colonial structure of disease and death in relation to the epidemic of the Spanish influenza be yet another important point?

Because Korea is a nation that underwent colonial rule at its entry into modern society, the introduction of modernity was mediated by coloniality; this was no exception in regards to hygienics, a health preservation practices regarding the human body. Shin (1997) analyzed the GGK’s public health policy and concluded that, because the direction of major policies focused on the supervision of the people, Koreans tended to avoid it, and because medical relief was only makeshift and fictitious, the benefits that Koreans enjoyed were minimal. As an example, Jung (1997) reviewed the prewar Korean medical system, established by the Japanese colonial authorities, and its response to Hansen’s disease (HD). Jung claimed that the total number of patients did not decrease despite a continued increase in the number of patients admitted to medical facilities and, thus, revealing both the essence of colonial rule and the actual effect of Koreans accepting modernity. Understanding the colonial ruling system as a process of strengthening modern disciplinary power, Jo (1997) argued that Koreans’ modern view of the body and medical discipline were formed in the execution of the colonial medical system. The results of such studies conform to Matsumoto’s (1999) analysis of the Japanese colonial authorities’ hygiene and medical projects directed at rural communities. In the case of Japanese rural communities, even though they enjoyed fewer medical benefits than did cities, they were by no means free from the GGK’s disciplinary power in terms of hygiene and medical service. Through an analysis of the formation and reorganization of the Western medical system, which began developing in the era of the Empire of Korea

(1887-1910) to the early colonial period, Park (2005) elucidated the formative process and the actual conditions of the colonial system. According to Park, health-related administrative policies implemented in colonial Korea passively protected lives rather than actively improved health, merely relegating ethnic Koreans to the category of objects under the control of the hygiene police.

An examination of existing literature reveals that during the Japanese colonial period, Koreans were not provided with adequate medical services due to ethnically discriminatory policies and were only emphasized to accept a modern view of the human body and medical discipline. This ultimately emerged as a reason for the disparity between the death rates of the two ethnic groups. However, existing studies hardly note the changes brought about by one particular disease. Consequently, it is necessary to consider how the aftermath of a disease affected the colonized. The 1918 influenza, one of the greatest causes of death in colonial Korea, is a valuable case study that can demonstrate its emergence per ethnic group and how it was related to medical service in general. In addition to shedding light on the big picture of the Spanish influenza in colonial Korea, it is also important to note the differences in the two ethnic groups' responses to the disease.

It is not possible to determine the GGK's hygiene and epidemic prevention policy as ethnically discriminatory simply because a large number of Koreans died. Countless people around the world lost their lives to this disease and the measures taken in Western countries can by no means be said to have been systematic. Moreover, deaths from the Spanish influenza in colonial Korea did not solely mean the deaths of ethnic Koreans. The focus of this study lies in what kinds of responses to the Spanish influenza were developed by the GGK that led to death, further probing how these policies were differentiated per ethnic group, as well as how much access each ethnic group had to measures for treatment.

In the following sections, I will attempt to elucidate the structure of disease and death surrounding the Spanish influenza of 1918. Section I will analyze the epidemiological characteristics of the Spanish influenza (e.g., how it spread and how many deaths it caused). More-

over, characteristics unique to colonies will be pointed out through comparison with Japan. Section II will review, among other things, the socioeconomic effects of the Spanish influenza and its impact on the hygiene system.

The Pandemic of the Spanish Influenza and Colonial Characteristics

The pandemic of the Spanish influenza in colonial Korea occurred twice. According to the *Korea Bulletin*, the first epidemic was in 1918; this disease that had been epidemic in various regions since the late summer of 1918 attacked colonial Korea in autumn. At the beginning of the epidemic, the disease was generally mild so that its spread like-

Table 1. Changes in the Number of Deaths per Month per Disease in 1918

(Unit: person)

	Otorhino- laryngological diseases	Respiratory diseases	Common cold	Infectious diseases	Total
Jan. 1918	-211	-563	-612	-128	-1,514
Feb. 1918	-115	-618	-528	25	-1,236
Mar. 1918	-30	-318	-212	300	-260
Apr. 1918	39	226	84	337	686
May 1918	-23	61	-5	163	196
Jun. 1918	-4	427	-45	-186	192
Jul. 1918	-3	13	-151	-122	-263
Aug. 1918	-291	-770	592	44	-425
Sep. 1918	17	676	2,198	2,299	5,190
Oct. 1918	137	1,392	3,193	9,067	13,789
Nov. 1918	1,353	6,692	11,812	71,611	91,468
Dec. 1918	329	528	4,130	18,654	23,641

Source: Government-General of Korea (1906-1942).

Note: Changes in the number of deaths per month in 1918 can be deduced by subtracting the number of deaths per month in 1917 from the number of deaths per month in 1918.

wise was slow, but with the approach of winter, the disease gradually became serious and prevalent in various regions of the country (Government-General of Korea 1919b).

Although the data in Table 1 is limited to the first epidemic, it is possible to estimate the number of infections per month. Referencing Hayami's (2006) method, the number of deaths thought to be related to the influenza in the *Chosen sotokufu tokei nenpo* 朝鮮總督府統計年報 (Statistical Yearbook of the Government-General of Korea) is totaled; then the number of deaths in 1917 is subtracted from the number of deaths in 1918. However, because the number of deaths from unclear diagnoses is nearly meaningless in the case of colonial Korea, in its place, the number of deaths from otorhinolaryngological diseases, which is related to the influenza, is included to derive changes in the number of deaths (Table 1). The results make it clear that starting in April 1918, the number of deaths from otorhinolaryngological diseases, respiratory diseases, common cold, and infectious diseases increased in comparison with the previous year. Though there are differences among each disease, this phenomenon continued somewhat in May and June as well. Total deaths numbered 686 in April, 196 in May, and 192 in June. These can be considered the so-called presymptoms of the preceding spring. In other words, the presymptoms of the Spanish influenza, which were low in fatality rates yet epidemic worldwide in the spring before the full form of the disease was pandemic, appeared in colonial Korea as well. The GJK had not been paying attention to this phenomenon in the midst of reports on the Spanish influenza (Government-General of Korea 1919a, 1919b, 1919c).

Although the influenza seemed to disappear after June, the influenza virus mutated and began to attack with strong infectiousness. In other words, despite the seeming absence of disease from the above data, the number of estimated deaths already reached 5,190 by September. The influenza was pandemic by autumn, worsening in late October and leading to no fewer than 91,468 deaths in November, gradually weakening later that month. It is estimated that 23,641 people died due to the influenza in December 1918. Afterwards, even though the number of deaths per month cannot be known, the docu-

Table 2. Patients of and Deaths from the Spanish Influenza

		Number of people			Morbidity rates and death rates in relation to the population			Death rates in relation to the number of patients		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Oct. 1918- Jan. 1920	Japanese	84,739	75,177	159,916	471.6	478.3	474.7			
	Deaths	748	549	1,297	4.2	3.5	3.9	8.8	7.3	8.1
	Koreans	3,791,952	3,598,462	7,390,414	441.5	443.9	442.6			
	Deaths	68,797	70,340	139,137	8.0	8.7	8.3	18.1	19.5	18.8
	Foreigners	5,626	737	6,363	268.7	334.2	274.9			
	Deaths	78	15	93	3.7	6.8	4.0	13.9	20.4	14.6
Total	Patients	3,882,317	3,674,376	7,556,693	441.7	444.5	443.0			
	Deaths	69,623	70,904	140,527	7.9	8.6	8.2	17.9	19.3	18.6
Nov. 1919- Apr. 1920	Japanese	27,040	25,230	52,270	145.7	156.7	150.8			
	Deaths	1,331	1,306	2,637	7.2	8.1	7.6	49.2	51.8	50.4
	Koreans	198,194	179,246	377,440	23.0	22.0	22.5			
	Deaths	21,212	20,195	41,407	2.5	2.5	2.5	107.0	112.7	109.7
	Foreigners	702	174	876	40.0	78.1	44.3			
	Deaths	48	7	55	2.7	3.1	2.8	68.4	40.2	62.8
Total	Patients	225,936	204,650	430,586	25.6	24.6	25.1			
	Deaths	22,591	21,508	44,099	2.6	2.6	2.6	100.0	105.1	102.4
Oct. 1920- Mar. 1921	Patients			33,720			2.0			
	Deaths			1,208			0.07			35.8

Sources: "Ryuukousei kanbou 流行性感冒" (Influenza), *Chosen iho* 朝鮮叢報 (Korea Bulletin), March 1919; and Government-General of Korea, Ministry of Home Affairs, Bureau of Hygiene (1922).

Notes: 1) The numbers of patients and deaths from October 1918-January 1920 do not include enlistees and prisoners; and 2) the mortality rates and death rates (%) are ratios based on 1,000 people.

mentary data show that the disease was epidemic again, albeit weaker, in January 1919. Police officers made responses to the recurrence of the Influenza, thus making it possible to say that the epidemic was eradicated by spring, in March. Nevertheless, the number of patients exceeded 40% of the population, and the number of deaths exceeded 140,000 in number.² Accordingly, the trauma of the influenza could not but balloon in colonial Korean society.

The number of patients during the first epidemic amounted to 7,556,693 in colonial Korea, with ethnic Koreans numbering 7,390,414, or 99% of the total number of patients. The figures for infected Japanese and foreigners (mostly ethnic Chinese) were 159,916 and 6,363, respectively. In other words, because the population of colonial Korea in 1918 was 17,057,532, approximately 443.0% contracted the Spanish influenza. However, these statistics are for the period up to January 1919; it should be noted that there are many additional infected patients and deaths during the period from January to March 1919.³ While precise figures cannot be known, it is certain that several ten thousand patients and several thousand deaths occurred. Consequently, the numbers of patients and deaths during the first epidemic exceed the figures in Table 2.

When these morbidity rates are examined per ethnic group, they

-
2. The numbers of patients of and deaths from the legal communicable diseases controlled by the GGK (cholera, dysentery, typhoid fever, paratyphoid fever, smallpox, typhus fever, scarlet fever, and diphtheria) were 6,916 and 1,317 in 1918, 25,559 and 13,599 in 1919, and 39,808 and 18,075 in 1920, respectively.
 3. The numbers of patients and deaths per province, respectively, from January to March 1919 are as follows: 20,015 and 170 for Gyeonggi-do province; over 600 and 100 for Chungcheongbuk-do; 54,502 and 2,895 for Chungcheongnam-do province (December 1918–February 1919); 523 and a small number of deaths for Jeollabuk-do province; a small number of patients in Jeollanam-do province; a small number of patients in Gyeongsangbuk-do province; 100 patients in Gyeongsangnam-do province; small numbers of patients and deaths in Hwanghae-do province; 170 and a small number of deaths in Pyeonganam-do province; small numbers of patients and deaths for Pyeonganbuk-do province; approximately 4,000 and over 100 for Gangwon-do province; small numbers of patients and deaths for Hamgyeongnam-do province; and 2,562 and 82 for Hamgyeongbuk-do province (Government-General of Korea 1919c).

are 474.7% for the Japanese, 442.6% for the Koreans, and 274.9% for foreigners; though the Japanese were surpassed by the Koreans in number, they contracted this disease at a higher rate. The number of deaths was 1,297 for the Japanese, 139,137 for the Koreans, and 93 for foreigners (all Chinese), and the mortality rates in relation to the population were 3.9%, 8.3%, and 4.0%, respectively. The mortality rate for ethnic Koreans was more than double the rate of the deaths of ethnic Japanese. Mortality rates for known infected patients were 8.1% for the Japanese and 18.8% for ethnic Koreans. In addition, in terms of sex, more women were infected by and died from the disease than men with the exception of the Japanese. This could be attributed to women's roles as the main caretakers of family members who had fallen ill.

What, then, was the tragedy like in various parts of Korea? Regional effects of the epidemic were reported by the hygiene police nationwide to the Police Inspectorate and therefore partly mentioned in the *Chosen iho* 朝鮮彙報 (Korea Bulletin). According to such a report, Gyeongsangbuk-do province suffered the worst casualties during the first epidemic.⁴ The influenza became epidemic again in winter 1919 (Hara 1920). It began in Gyeonggi-do province in early November 1919, spreading through Jeollabuk-do, Pyeongannam-do, and Pyeonganbuk-do provinces in mid-November; Hamgyeongnam-do

4. I quote some reports of *Chosen iho* (Korea Bulletin) (Government-General of Korea 1919b). Daegu: "When, as day laborers, everyone in a family of six fell ill and the eldest son was in a critical condition, the mother lost her sanity and committed suicide by leaping into the well." Gyeongsan-gun county: "Three out of four family members died, four out of ten family members died, and everyone in a family of three died, with the exception of a 7-year-old." Cheongdo-gun county: "There was a married couple. When the husband died, the wife lost her sanity and committed suicide by drowning herself. In addition, in another case, everyone in a family of five had died, with the exception of a 3-year-old girl." Yeongcheon-gun county: "Three out of four family members had died and left only an 11-year-old boy, who ran out of food." Uiseong-gun county: "Everyone in a family of eleven had died, seven out of nine family members had died, and two out of three family members had died, and the wretchedness was incomparable." Such cases constituted the great tragedy that could be witnessed throughout the country.

and Hamgyeongbuk-do provinces in late November; Jeollanam-do, Gyeongsangbuk-do, Gyeongsangnam-do, Hwanghae-do, and Gangwon-do provinces in early December; Chungcheongbuk-do province in late December; and Chungcheongnam-do province in early January 1920. Extant data on the second epidemic in Seoul suggests that the influenza swept over various areas, as sudden as a gale, so that, though it barely ended in the spring, after the weather became warmer, it had not yet disappeared completely. Because an X-shaped main railroad network which connected major cities of the Korean peninsula had been constructed, it was no wonder for the influenza to be epidemic everywhere in a short period of time.

During the second epidemic, the number of patients reached 430,586, or 25.1% of the total population, and the number of deaths reached 44,099, or 2.6% of the total population. In comparison with the previous epidemic, the numbers of patients and deaths were minimal. However, the mortality rate of infected patients, not of the total population, was 102.4%, far exceeding the previous 18.6%; one of ten infected patients died. Because the influenza was a mutation of the virus of the first epidemic, those who had already suffered the disease already had antibodies to prevent reinfection. The number of patients during the second epidemic was only 25.1% of the population, far smaller than the number during the previous epidemic. However, the few who contracted the mutated influenza virus, which had risen in toxicity due to antigenic shift, lost their lives at a high rate.⁵ It is recorded that because deaths continued for several days in Seoul in January 1920, “cremations reached the height of chaos” (Hara 1920).

When the morbidity and mortality rates in relation to the popula-

5. Based on such characteristics, Palmer and Rice (1992, 1993) argued that the influenza viruses involved in the first and second epidemics were disparate. On the other hand, Hayami rejected this theory based on the fact that nearly none of those who had contracted the influenza during the first epidemic fell ill in the second epidemic, while many who were not infected in the first epidemic, including enlistees, fell ill in the second epidemic (Hayami 2006, 182-183). As for this inference, because immunological phenomena were confirmed in colonial Korea as well, the present study supports Hayami's theory (Hayami 2006, 394-395).

tion are examined per ethnic group, they were 150.8% and 7.6% for the Japanese, 22.5% and 2.5% for the Koreans, and 44.3% and 2.8% for foreigners. The morbidity and mortality rates were lowest for Koreans. Nevertheless, the death rates in relation to the number of patients were 50.4% for the Japanese and 109.7% for the Koreans, showing that Koreans still suffered more deaths when they contracted the influenza. Such disparities between the ethnic groups were nearly identical to the situation during the first epidemic.

Chikao Hara, a technician in the Department of Hygiene in the Bureau of Police Affairs, “hypothesized that this disease would strike again in the fall” of 1920. According to his prediction, the influenza was epidemic from October 1920 to March 1921. During the third epidemic, only 33,720 fell ill throughout colonial Korea. In other words, the disease was now an ordinary influenza. Regarding such morbidity rates and death rates, the following questions invariably arise: why did so many fall ill and die in 1918?; and, in addition, why did disparities exist in the death rates of infected patients per ethnic group? In order to address these questions, it is important to first understand the symptoms and pathogen of the Spanish influenza.

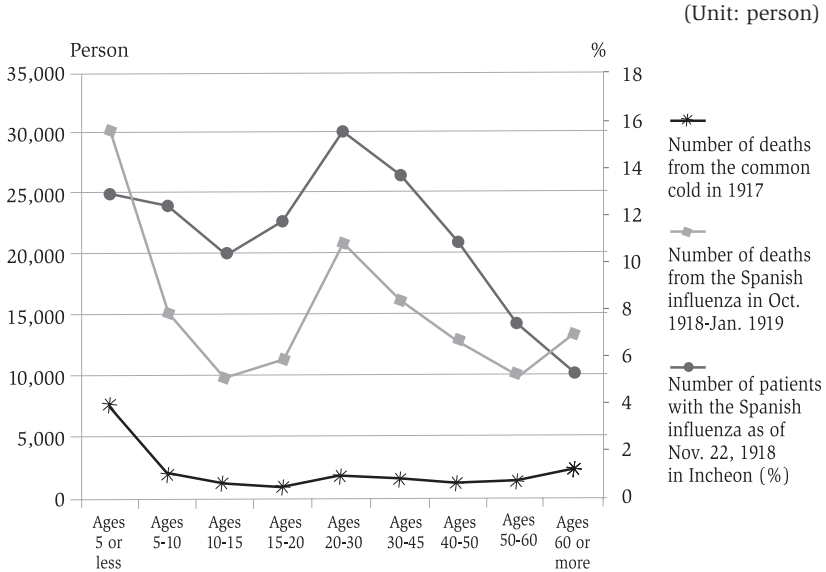
According to contemporary records, the symptoms of this disease were not fixed. Although the illness was not serious at first, it came to be accompanied by more severe risks as its symptoms changed during the epidemic (Government-General of Korea 1919a). While the incubation period was only a short 1 to 3 days, it was bypassed in many cases. Initial symptoms included fatigue, repeated algor, strong fever, vertigo, headache, and vomiting. In many cases, however, these symptoms were short-lived and followed by those unique to the influenza: body temperature rose to no less than 38-40°C (100-104°F) due to fever accompanied by algor and shivering, and symptoms such as headache, lumbago, melalgia, fatigue, and loss of appetite developed, leading numerous patients to exhibit catarrh in the respiratory system. The disease caused contractions in the respiratory, digestive, and nervous systems, resulting in symptoms such as fever, rhinitis, pharyngitis, bronchitis, catarrh, headache, arthralgia, lumbago, melalgia, myalgia, vomiting, loss of appetite, stomachache, constipation, diarrhea, and even

otitis media (in many cases, hemorrhagic), conjunctivitis, pleurisy, and pneumonia. In fact, when the results of investigations per disease on the approximately 140,527 dead of the first epidemic are examined, the composition is as follows: bronchitis, 10.1%; pneumonia, 20.7%; pleurisy, 0.9%; meningitis, 1.9%; nephritis, 0.3%; peritonitis, 0.1%; asthma, 1.4%; heart diseases, 1.0%; pulmonary tuberculosis, 0.1%; puerperalism, 0.1%; intracerebral hemorrhage, 0.0%; others, 63.3% (Government-General of Korea 1919b). Among the Koreans killed, 88,632 died from “other” diseases; the causes of death were most likely unconfirmed.

At the time, what was seen as the pathogen was *Haemophilus influenzae*, also known as “Pfeiffer’s bacillus,” which Richard Pfeiffer and Robert Koch had jointly studied and announced in 1892 amidst the Spanish influenza pandemic in Europe from 1889 to 1893 (Government-General of Korea 1919a). Pfeiffer’s bacillus was a minute bacillus whose both ends were circular and whose center was difficult so that it looked like a diplococcus, thus becoming, in Gram’s method, a Gram-negative bacterium. Consequently, when over 20 residents of the Gyeongseong Police Officer Training School’s dormitory fell ill, their sputa were collected to detect Pfeiffer’s bacillus, but it was impossible. Nevertheless, it was an “immobile fact that the pathogen existed in the patients’ sputa and secreta from organs such as the nose and the mouth” (Government-General of Korea 1919a). In this period, not only in Korea but in various Western nations as well, it had yet to be discovered that a virus caused the outbreak of the influenza. In fact, it was not until the mid-1990s that researchers discovered that influenza A virus subtype H1N1, a mutant of the avian influenza virus, was the pathogen of the Spanish influenza. Of course, early twentieth century attempts to create vaccines based on the Pfeiffer’s bacillus theory were inefficacious.

The Spanish influenza’s spread occurred mainly through inhalation, through the air, of the saliva and sputa from patients, and the strength of its infectiousness supposedly exceeded the imagination. Common routes of infection were: (1) personal relations such as family members; (2) communicative relations with those near the occurrence

Figure 1. The Number of Deaths Due to the Cold in 1917 and the Influenza in 1918 per Age Group



Sources: Government-General of Korea (1906-1942); “Ryuukousei kanbou 流行性感冒” (Influenza), *Chosen iho* 朝鮮叢報 (Korea Bulletin), March 1919; and *Gyeongseong iril sinmun*, November 22, 1918.

of patients; and (3) collective relations with places where many gathered such as schools, government offices, and private companies. The disease was contracted by many in the 20-40 age group, who were most active in social exchanges (Government-General of Korea 1919a). In Figure 1, which shows the number of deaths from the common cold, the death of children under the age of 5, whose resistance against viruses is weakest, were the most numerous; on the other hand, the occurrence of the disease was not concentrated in particular age groups because physical resistance becomes stronger with age. In the case of the Spanish influenza, however, those aged less than 5 were the most numerous, immediately followed by those in the 20-30 and 30-40 age groups, who were easily exposed to the pathogen due to social and other activities. Consequently, the age distribution of deaths

from the Spanish influenza, unlike that from the common cold and the influenza, exhibits a W-shaped correlation.

Prevention methods focused on ways of preventing contact with infected patients. Assemblies were to be suspended, schools were to be closed temporarily, government organs and private companies were to be suspended temporarily, one was to return to work with a certificate from a physician after complete recovery, people had to wear masks and receive vaccine injections, etc. (Government-General of Korea 1919a; Hara 1920). In those days, even though the wearing of masks was legally enforced in San Francisco so that unmasked people could be arrested by police officers, such preventive methods could not suppress the pandemic of the influenza (Crosby 1989). The panic that occurred in Korea was similar to the situations in various Western nations. It was likely that the Japanese, who lived along railroads or in urban settings, were more exposed to—and, therefore, more likely to be infected by—the Spanish influenza than were the Koreans (see morbidity and mortality rates in Table 2). However, the second question of the disparities in mortality rates between ethnic groups still cannot be explained.

According to contemporary data, everyday Korean customs and unscientific folk remedies were problematic (Government-General of Korea 1919b). The view was that Koreans had an inadequate sense of hygiene, such as an old custom of communicating with and visiting relatives who were ill, thus spreading the influenza widely. In addition, there were customs where, when markets were held, “many gathered at street stalls” to consume food; in addition, “there were men’s reception rooms in the countryside from old” where men gathered and lodged together, which also served as occasions for widely spreading the influenza (Government-General of Korea 1919b). In particular, in the city of Daegu, a products exhibition was held, serving as an occasion for spreading the disease to people who had gathered from within and without Gyeongsangbuk-do province. Consequently, Gyeongsangbuk-do province had the highest number of infected patients and death toll among the provinces.

In terms of medical treatments, Koreans originally understood this

disease as the common cold; rather than quarantining patients, the general treatment was to make patients lie on a floor equipped with traditional Korean underfloor heating, thus raising their body temperature so as to sweat out the fever. The desired effect was not achieved but instead gave rise to diseases such as bronchitis, pneumonia, and meningitis. Furthermore, even when ill, patients did not receive treatment by physicians; instead, in many cases, Koreans called in female shamans and practiced superstitious remedies, thus missing the right time for treatment. In addition, diverse “superstitious” remedies were practiced in various areas and, as a result, many people could not be saved.⁶ For example: “If one boils and consumes three Alaska pollock and ten stalks of scallion, one will not catch this disease”; “If one boils and consumes dried soybean leaves, seven roots of ginger (sliced), seven bamboo leaves, seven stalks of scallion, and a piece of wood, one can cure this disease”; and “If, after removing a child’s five organs and six viscera, one fills the body with black soybeans and baked earth, then boils the body whole and drinks the juice, then one can cure this disease.” These ingredients could not become medicines for the Spanish Influenza, and many patients lost the opportunity to receive medical treatment in time. Such superstitious remedies, however, appeared not only in colonial Korea but also in Japan; it is said that people put up amulets that drove out ill fortune or took medicine made of roasted and powdered earthworms (Hayami 2006, 178). The lack of scientific understanding about the disease and limited access to modern medical institutions resulted in a high mortality rate of Koreans infected by the Spanish influenza. Without a fundamental cure, they had no choice but to focus their efforts on preventing secondary infection and to await natural healing.

Next, let us compare the degree of infection by the Spanish influenza in colonial Korea with that in Japan, where 23.8 million were infected and 390,000 died. In Japan, too, the morbidity and mortality

6. For more on superstitious remedies, see Government-General of Korea, Department of Hygiene, Division of Police, Gyeongsangbuk-do Province (1930) and Government-General of Korea, Department of Hygiene, Division of Police, Gyeongsangnam-do Province (1933).

rates of the whole population reached 370.13% and 4.5%, respectively, during the first epidemic; however, during the second epidemic, these rates fell to 41.74% and 2.2% and to 4.01% and 0.07% during the third epidemic. On the contrary, the death rates in relation to the number of patients drastically increased from 12.2% to 52.9%, then dropped to 16.5% during the third epidemic. These patterns are nearly identical to those in colonial Korea, with both the morbidity and mortality rates in relation to the population lower than those of colonial Korea during the first epidemic. However, despite higher morbidity rates, Japan exhibited lower death rates during the second and third epidemics. As for the mortality rate of patients, Japan's was lower than colonial Korea's in all three epidemics. When these are compared with the figures for the Japanese in colonial Korea during the first epidemic, the Japanese in colonial Korea showed lower morbidity and mortality levels than their compatriots in the mainland but, during the second epidemic, showed higher levels in everything except the death rate in relation to the number of patients. The majority of the Japanese in Korea lived along the railroads and in cities.⁷ Such a situation presents the possibility that the second epidemic of the Spanish influenza occurred mainly in transportation hubs including cities or along railroads.

During the first epidemic in colonial Korea, the number of patients per province was greatest for Gyeongsangbuk-do province with over one million patients, followed by Jeollanam-do, Chungcheongnam-do, Hamgyeongnam-do, and Gyeongsangnam-do provinces, in listed order (Government-General of Korea 1919b). Hamgyeongbuk-do province showed the lowest rate of infection with approximately 220,000 patients. The number of deaths per province were correlated: Gyeongsangbuk-do province recorded the greatest number (19,892 deaths), followed by Gyeongsangnam-do, Chungcheongnam-do, Hwanghae-do, Jeollanam-do, Hamgyeongnam-do, and Gyeonggi-do provinces, which

7. According to Chung (1982), over 321,000 Japanese migrated to Korea by 1916, 70% of whom lived along the railroads. The Japanese who had penetrated inland were mostly engaged in fields such as distribution, industry, and agriculture in addition to law enforcement, education, and public administration.

all suffered over 10,000 deaths. On the other hand, during the second epidemic, the number of patients was highest in Gyeonggi-do province (85,148), followed by 62,140 in Pyeongannam-do province, dropping steeply to approximately 30,000 in Gyeongsangnam-do, Gyeongsangbuk-do, Gangwon-do, Pyeonganbuk-do, and Hamgyeongnam-do provinces. As for mortality rates of the second epidemic, Gangwon-do and Chungcheongbuk-do provinces exhibited high figures, most likely because of the provinces' mountainous areas that limited access to hygiene institutions. The number of deaths was also high in many regions with large cities such as Seoul and Pyongyang, even though they were well equipped with means of transportation.

The second epidemic of the Spanish influenza, though narrower than the first in its scope of infection because it centered on cities and transportation hubs, resulted in higher fatality rates. Consequently, it was only natural for the Japanese in colonial Korea, who lived in cities or along railroads, to surpass both ethnic Koreans and mainland Japanese in morbidity rates and mortality rates in relation to the population.

The Socioeconomic Effects of the Spanish Influenza

How did the GGK respond to the pandemic of the Spanish influenza, and what kinds of changes did these measures leave? When “signs of the prevalence” of the influenza in various areas in the autumn of 1918 became apparent, the Police Inspectorate, which was in charge of hygiene in colonial Korea, conducted bacteriological inspections and initiated a study of the disease and preventive methods (Government-General of Korea 1919b). As a result, preventive measures that urged the public to avoid contact with patients and the inhalation of their sputa were created and disseminated to the public through the police headquarters in each area, or via instructions sent and posted at major spots. In addition, personnel such as police officers, hygiene cooperative members, and city, county, town, and village officials called the people's attention to personal prevention of contraction of the Spanish influenza through hygiene-related lectures and other activ-

ities. For example, to prevent mass infection, people were encouraged to avoid as much as possible the four ceremonial occasions (coming-of-age, marriage, funeral, and ancestor worship) and markets, where many people gathered. In addition, workplaces such as factories were watchful of employees' health conditions in order to control hygiene; if patients surfaced, schools and workplaces were temporarily closed to prevent the spread of the influenza. In cases of abnormal symptoms in physical condition, people were instructed to promptly visit physicians instead of performing superstitious remedies.

However, responses by regional administration were all too often delayed. In numerous regions, institutions in charge of preventing the disease fell ill and therefore experienced a shortage of personnel, which made the proper execution of administrative duties impossible (*Maeil Sinbo*, November 13, 14, and 16, 1918). It is recorded that mail carriers, who had much contact with the general public, contracted the influenza in large numbers so that mail could not be delivered. In addition, following the colonization of Korea, hygiene affairs were uniformly addressed by the Department of Hygiene in the Police Inspectorate. However, the police lacked medical expertise and thus could not properly implement the duties of the hygiene police system, including the supervision of physicians and other medical personnel, supervision of cemeteries and cremations, prevention of infectious and epizootic diseases, diffusion of medical institutions, improvement of water supply and drainage, installation of quarantine hospitals and isolation wards, and management of waste. Perhaps because of such limitations, the hygiene police system underwent a revision in the 1920s. For example, physicians were considered private experts and appointed to the post of Chief of the Department of Hygiene in the Division of Police Affairs in each province so that it became possible to provide hygiene administration with greater expertise (Park 2005, 330-344).

In addition, the ratio of physicians to the general population was 1 to 3,131 around 1918, and it was utterly impossible for physicians to examine and treat the high volume of patients amounting to 44% of the population (Government-General of Korea 1906-1942). Moreover, because 63% of physicians were Japanese, it was extremely difficult

for ethnic Koreans, who constituted 99% of patients, to be examined and treated.⁸ Consequently, many patients were examined and treated by traditional Korean doctors (5,588 in 1918) who practiced traditional Korean medicine; other patients had no choice but to rely on folk or superstitious remedies. In some areas, for impoverished patients who could not receive modern treatment, medical relief tickets based on donations from imperial gift foundations and Saiseikai were distributed; physicians and traditional Korean doctors were encouraged to treat the poor and a portion of the reserve funds of Temperance Unions allowed community physicians, part-time physicians, and police physicians to treat impoverished patients at affordable costs.

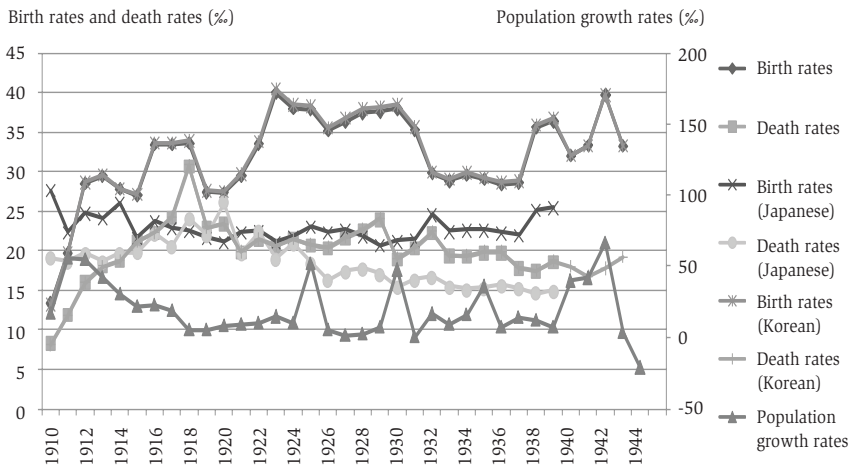
During the second epidemic, more systematic responses were possible based on experiences from the previous epidemic. In Seoul, the influenza spread so swiftly that over a third of total deaths from December 1919 to January 1920 were caused by the influenza. Consequently, it was reported that “the police authorities immediately devised relief measures: temporary physicians were invited; and five relief units were organized, were assigned to each police station, and endeavored to relieve and to treat the patients, daily persuading each household of prevention methods and operating free traveling clinics. Consequently, before long, they nearly eradicated this infectious disease” (Hara 1920). While there was also the factor that the scope of the infection was smaller than before, the responses were more systematic in the second epidemic.

Colonial Korea lacked adequate medical facilities. Zensho Eisuke, who studied the population in colonial Korea, wrote: “In general, nothing can be done about the fact that, in colonial Korea, the rampancy of

8. Even when compared to Japan and colonial Taiwan, Korea was far inferior in medical facilities (Zensho 1925). In 1920, population per physician was 2,665 in colonial Korea, 1,219 in Japan, and 2,457 in colonial Taiwan; and the number of physicians per 10 square Chinese miles (ca. 5.00 km² or 3.10 mi²) was 4.53 in colonial Korea, 18.35 in Japan, and 6.41 in colonial Taiwan. In colonial Korea, “physicians” included local physicians and traditional Korean doctors as well. In most likelihood, inadequate medical facilities influenced the large numbers of patients and deaths in colonial Korea during the first epidemic of the Spanish influenza.

infectious diseases is fierce and that it is difficult to eradicate endemic diseases with ease. The improvement of hygiene facilities and the diffusion of medical institutions are truly urgent issues, and, when they are realized, the relief to the Koreans will be great indeed” (Zensho 1925, 221). Subsequently, medical schools such as Keijo Medical College, Severance Union Medical College, Keijo Imperial University Medical School, Pyongyang Medical College, Daegu Medical College, Gwangju Medical College, and Hamheung Medical College were established, thereby producing large numbers of physicians, and modern hospitals were newly built or existing ones were expanded. These measures obviously served as a basis for population growth brought about by a decrease in the death rates and an increase in the birth rates. However, statistically speaking, those who supported the expansion of medical institutions as human resources were not the Japanese but young Korean physicians who had graduated from medical

Figure 2. Population Growth Rates, Birth Rates, and Death Rates



Sources: Government-General of Korea (1906-1942); and South Korean Interim Government (1948).

Note: The birth rates and the death rates mentioned here are crude. They are figures obtained by dividing the annual births and the annual deaths by the end-of-the-year population.

schools or medical colleges (Government-General of Korea 1906-1942). Since numbers of Korean physicians and Japanese physicians reached respectively 2,487 persons and 1,187 persons in 1942, the ratio of physicians to the general population eventually became 1 to 1,302. In this respect, the autonomous measures of the colonized can be confirmed.

To explore the demographic effects of the Spanish influenza, population trends of colonial Korea will be examined. According to GKG statistics, which were collected beginning in 1910, the mortality rate consistently rose until 1918, and then showed tendencies of dropping over a long period of time despite slight fluctuations. However, because the accuracy of the early population data is questionable, it is inadvisable to rely on statistics up to 1914, which show that the mortality rate of ethnic Koreans is lower than that of the Japanese (Choe 1936, 50). Birth rates increased to 33.9% until 1918, decreased to 27.5% until 1920, then increased again from 1922 and maintained the level of about 35%. In an exceptional decade following Showa Financial Crisis (1927), the population growth rate dropped as low as 7.2%.

A slightly different picture emerges when examining the population per ethnic group. In 1920, Japanese deaths were at the highest point with 9,065 dead; however, the mortality rate gradually decreased with time. Starting in the latter half of the 1920s, the Japanese mortality rate was lower than the Korean mortality rate. Of the various factors influencing the population trends of different ethnic groups such as medical service, education, living standards, nutrition, and age composition, age composition had the greatest effect. Many of the Japanese who migrated to the colonies were between ages 20-40 and economically active. While death rates decreased to about 15% in the 1930s, the birth rates remained at 20-25%, thus exhibiting stability in the differences between the birth rates and the death rates, as with the Koreans (5-10%).

In sum, with the end of 1910s as the boundary, utterly unprecedented population trends emerged. Figure 2 contains data on birth rates of each ethnic group; the Japanese population trends show a long-term decrease in both birth and death rates. On the contrary, in

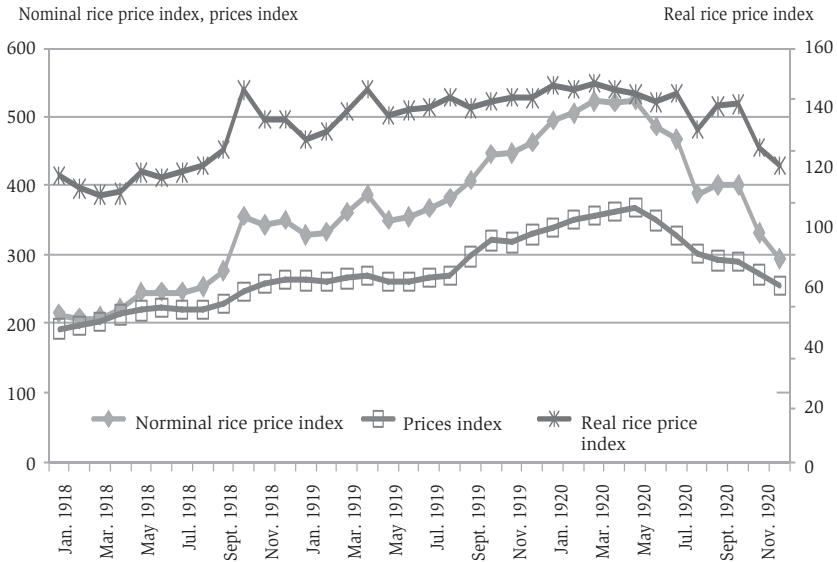
the case of ethnic Koreans, the birth rates (initially nearly identical to the overall birth rates) do not decrease over time, as is apparent from the increase starting at the end of the 1930s. Only the death rates (again, initially nearly identical to the overall death rates) decreased over time. In the 1920s, the premodern demographic trends of high birth and death rates transitioned to a modern demographic of low birth and death rates for both ethnic groups. This modern trend continued for the Japanese in colonial Korea. It is commonly understood that there was a similar decrease in birth rates in Japan proper in the 1920s.⁹ The changing trends in mortality rates in colonial Korea could be attributed to the expansion of medical institutions, which were measures to the rampancy of infectious diseases, including the Spanish influenza.

The effects of the Spanish influenza were not limited only to colonial hygiene and medical systems. Lee (1990) has argued that the outbreak of the Spanish influenza at the end of 1918 drove the Korean populace to despair, thus leading them to start the March 1 Independence Movement. While I agree that the pandemic of the Spanish influenza caused social panic that led to discontent with the GGK, another point must be noted that the Spanish influenza itself had a considerable effect on the regional economy, too. It is the well-known historical fact that the rice shortage in Japan incited a grain trade fever for Korean rice, ultimately leading to raised rice prices. But the fact that the Spanish influenza brought about a rise in rice prices has not received much attention.

According to *Chosen iho* (Korea Bulletin) (Government-General of Korea 1919b), “The epidemic happened in the busy farming season, when crops such as rice plants are harvested and barley is sown in rural communities in diverse regions. In some areas, farming had to be stopped, and crops such as rice plants were left in rice paddies and fields for long periods. Because of it, the quality degradation of rice

9. Regarding this, Hayami and Kojima (2004, 230) argued that decreased birth rates in mainland Japan began, in the case of large cities, from the end of the Meiji era (1868-1912) to the early Taisho era (1912-1926).

Figure 3. Changes in the Rice Price Index in Colonial Korea



Source: Government-General of Korea, Bureau of Agriculture and Forestry (1940).

Note: The rice price index here refers to that for Seoul. Real rice price index results from the division of nominal rice price index by price index.

was inevitable, damages due to birds and wild animals were numerous, and the germination of barley was generally poor due to a delay in the seedtime. The delay of the harvest of farm produce influenced the circulation of grains and caused increases in grain prices.” In other words, the influenza pandemic brought about delayed harvests and, in turn, increased prices of farm produce. Because October 1918 was a period of drastic price increases, real prices (Figure 3) without the effects of price increases will be examined.¹⁰ Although nominal rice prices rose drastically during the harvesting period of October 1918 and fell slightly afterwards, nominal rice prices continued to remain

10. Lee (1990) paid attention only to the nominal price and did not consider the real price.

high. Nominal rice prices continued to rise drastically even after, but because it was accompanied by general price increases, real rice prices did not increase so much. From the viewpoint of real rice prices, the impact of the Spanish influenza can be confirmed. Such a phenomenon also occurred in Japan, leading to increased rice prices in tandem with speculative aims to profit from the increase of rice prices.

Fuel prices also increased because of the outbreak of the Spanish influenza. Because distribution of fuel was delayed in various areas, prices soared, and, at least temporarily, fuel was difficult to obtain even at prices 3 to 4 times the normal price in some areas. Moreover, the influenza influenced the farm household income. In the case of farm households that created items including straw rope, straw rice sacks, and hemp for extra income for tax payments, “the quantity of such items created by each farm household decreased so that private homes’ livelihoods were confronted with difficulties, thus having an immense adverse effect, in not a few areas, on the collection of bills by organs such as regional financial cooperatives” because of the influenza. The outbreak of the Spanish influenza thus aggravated ethnic Koreans’ economic hardship. In addition, because deaths continued in succession, the prices of items such as coffins for funerals and hemp increased by 3 to 4 times. In some areas, the poor had to resort to burying their dead in straw mats.

The Spanish influenza not only inflicted damage as an infectious disease, but also had a tremendous effect on various aspects of colonial Korean society. The aftermath of the epidemics was a catalyst for social agitation that led to active Korean participation in the March 1 Independence Movement and the subsequent changes in the Japanese colonial policy in the 1920s (Lee 1990).

Conclusion

In the 1920s, colonial Korea underwent a demographic transition. The drastic rise in the mortality rates at the end of the 1910s was the starting point of that change. Although the momentum of population growth

seems to have been formed amidst this context, what must be noted is the existence of disparities between the population dynamics, including birth and mortality rates, of different ethnic groups. These differences were undoubtedly the results of disparities between the two ethnic groups in access to medical service, education, living standards, nutrition, and age composition.

However, the drastic rise in mortality rates in 1918 cannot be explained solely by the *Chosen sotokufu tokei nenpo* (Statistical Yearbook of the Government-General of Korea). The only certain information from this source is that deaths due to otorhinolaryngological diseases, respiratory diseases, common cold, and infectious diseases increased in 1918. At the background of these diseases was the Spanish influenza, which was pandemic worldwide at the time; symptoms that emerged as complications of the disease were understood as the causes of death. The typical conditions of the disease—presymptoms in the spring, the first epidemic characterized by high morbidity rates and low death rates, and the second epidemic characterized by low morbidity rates and high death rates—were confirmed in colonial Korea as well. Approximately half of the population was infected by the disease, with over more than 200,000 losing their lives.

Although both Korean and Japanese populations suffered from the disease, there were salient disparities in the fatality rates of the two ethnic groups. Indeed, the colonial correlation between disease and death emerged. Numerous Koreans failed to receive modern treatment, and many lost their lives while relying on superstitious remedies due to various economic and cultural factors. The morbidity and fatality rates in colonial Korea far surpassed those in Japan proper. In addition, which identical to Spanish influenza epidemics in other countries, a high proportion of youth and those aged 20 to 40, who were actively engaged in socioeconomic activities, fell ill and lost their lives.

Because the first epidemic started in urban settings and spread to rural areas across many regions nationwide, provinces such as Chungcheongnam-do, Pyeongannam-do, Hamgyeongnam-do, and Gyeongsangbuk-do recorded relatively high morbidity rates as well as high death rates. On the contrary, during the second epidemic, the scope of

the infection was small because many previously infected people had antibodies, and the disease was located mainly in cities and transportation hubs. Of course, it must not be neglected that there were many victims of the influenza in the rural Gangwon-do and Chungcheongbuk-do provinces, both mountainous areas that made access to modern hygiene difficult.

The GJK conducted infectious disease controls and research on prevention methods with the Police Inspectorate, which was in charge of hygiene, and instructed people on the prevention of mass infection through administrative bodies, beginning with each region's police headquarters. Accordingly, measures for hygiene control and temporary suspensions and closures of factories, workplaces, and schools were implemented. Impoverished patients unable to afford treatment were treated through donations and support from organizations such as imperial gift foundations, Saiseikai, and Temperance Unions. In addition, when there were not enough physicians, relief units were organized and dispatched.

However, because responses were delayed and fundamental cures absent, there was no choice but to take preventative measures and wait for the natural healing process to take place. Police officers and officials dispatched to the provinces also fell ill, thus making it impossible to implement appropriate responses. The hygiene police system failed to function properly. In addition, because of the grave shortage of medical facilities, many Koreans had no choice but to rely on traditional remedies. The socioeconomic effects of the Spanish influenza were great: agricultural activities could not be performed smoothly during harvest season, and, in addition to the drastic rise in rice prices, an increase in the prices of firewood and charcoal due to a natural increase in the demand as well as a shortage of coffins and hemp for funerals also occurred. In addition, farm households could not produce side income, making tax payments difficult.

As the pandemic unfolded, disparities between the effects of the epidemic on different ethnic groups surfaced. The social frustration caused by the pandemic and the ensuing economic hardships served as a source of Korean resistance against Japanese colonial rule. Such eth-

nic tensions surfaced in the March 1 Independence Movement, thereby bringing about a transition in colonial policy from overall oppression to socioeconomic development. In the process of colonial development, the modern medical system was expanded and the colonized people's living conditions were improved, leading to decreased mortality rates.

REFERENCES

- Bunet, MacFalane, and David O. White. 1972. *Natural History of Infectious Disease*. 4th ed. Cambridge: Cambridge University Press.
- Choe, Hiyong 崔義楹. 1936. 「朝鮮に於ける内地人の死亡に關する衛生統計的考察」 (A Consideration of Hygiene Statistics on the Deaths of the Japanese in Colonial Korea). 『朝鮮醫學會雜誌』 (Journal of the Joseon Medical Association) 26.8 (August).
- Chun, Myung-Sun, and Yang Il-Suk. 2007. "1918 nyeon hanguk nae inpeullenja yuhaeng-ui yangsang-gwa yeongu hyeonhwang: Schofield baksa-ui nonmun-eul jungsim-euro" (1918 Influenza Pandemic in Korea: A Review on Dr. Schofield's Article). *Uisahak* (Korean Journal of Medical History) 16.2 (December).
- Chung, Jae-Jeong. 1982. "Hanmal ilje chogi (1905-1916 nyeon) cheoldo unsuui singminjijeok seonggyeok: gyeongbu gyeongui cheoldo-reul jungsim-euro" (On the Colonial Characteristics of the Railway Transport in Korea [1905-1916]: With a Focus on the Gyeongbu and Gyeongui Lines), 1 and 2. *Hanguk hakbo* (Journal of Korean Studies) 8.3-4.
- Collier, Richard. 1996. *The Plague of the Spanish Lady: The Influenza Pandemic of 1918-1919*. London: Allison and Busby.
- Crosby, Alfred W. 1989. *America's Forgotten Pandemic: The Influenza of 1918*. New York: Cambridge University Press.
- Government-General of Korea 朝鮮總督府. 1919a. 「流行性感冒の歴史, 症候及豫防」 (The History, Symptoms, and Prevention of the Influenza). 『朝鮮彙報』 (Korea Bulletin) (January).
- _____. 1919b. 「流行性感冒」 (Influenza). 『朝鮮彙報』 (Korea Bulletin) (March).
- _____. 1919c. 「流行性感冒の餘喘」 (The Remaining Traces of the Influenza). 『朝鮮彙報』 (Korea Bulletin) (May).
- _____. 1920. 『大正八年虎列刺病防疫誌』 (1919 Cholera Epidemic Prevention Log).

- _____. 1906-1942. 『朝鮮總督府統計年報』 (Statistical Yearbook of the Government-General of Korea).
- Government-General of Korea, Bureau of Agriculture and Forestry 朝鮮總督府 農林局. 1940. 『朝鮮米穀要覽』 (Korea Rice Handbook).
- Government-General of Korea, Department of Hygiene, Division of Police, Gyeongsangbuk-do Province 朝鮮總督府 警察部衛生課 慶尙北道, ed. 1930. 「迷信的民間療法」 (Superstitious Folk Remedies).
- Government-General of Korea, Department of Hygiene, Division of Police, Gyeongsangnam-do Province 朝鮮總督府 警察部衛生課 慶尙南道, ed. 1933. 「衛生に關する迷信」 (Superstitions Regarding Hygiene).
- Government-General of Korea, Ministry of Home Affairs, Bureau of Hygiene 朝鮮總督府 內務省衛生局. 1922. 「流行性感冒」 (Influenza).
- Hara, Chikao 原親雄. 1920. 「流行性感冒の再襲豫防法に就いて」 (On Methods of Preventing the Repeated Attack of the Influenza). 『警務彙報』 (Police Affairs Bulletin) 178 (March).
- Hayami, Akira 速水融, and Miyoko Kojima 小嶋美代子. 2004. 『大正デモグラフィ: 歴史人口學で見た狹間の時代』 (Taisho Demography: The In-between Age Seen from Historical Demography). 『文藝春秋』 (Literary Times).
- Hayami, Yutaka 速水融. 2006. 『日本を襲ったスペイン・インフルエンザ: 人類とウィルスの第一次世界戦争』 (The Spanish Influenza That Attacked Japan: The First World War between Humanity and the Virus). Tokyo: Fujiwara Shoten.
- Jeong, Minseong. 1990. *Uri uihak-ui yeoksa* (A History of Korean Medicine). Seoul: Hakminsa.
- Jo, Hyeonggeun. 1997. “Singminji jedo-wa uiryojeok gyuyulhwa” (The Colonial System and Medical Disciplinarization). In *Geundae juche-wa singminji gyuyul gwollyeok* (The Modern Subject and Colonial Disciplinary Power), edited by Kim Jin-Kyoon. Seoul: Moonji Publishing.
- Jung, Keunsik. 1997. “Singminjijeok geundae-wa sinche-ui yeoksa” (Colonial Modernity and Politics of Body). *Sahoe-wa yeoksa* (Society and History) 51 (spring).
- Kolata, Gina. 1999. *Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus That Caused It*. New York: Farrar, Straus, and Giroux.
- Lee, Jeong Eun. 1990. “Maeil sinbo-e natanan samil undong jeonhu-ui sahoe sanghwang” (The Social Situation Immediately before the March 1 Movement in the *Maeil Sinbo*). *Hanguk dongnip undongsa yeongu* (Journal of the Institute of Korean Independence Movement Studies) 4.
- Matsumoto, Takenori 松本武祝. 1999. 「植民地期朝鮮農村における衛生・醫療事業の

- 展開」(The Development of Hygiene and Medical Projects in Rural Areas in Korea during the Colonial Era). 『商經論叢』(The Academy of Business and Economic Review) 34.4.
- Palmer, Edwina, and Geoffrey W. Rice. 1992. "Divine Wind versus Devil Wind: Popular Responses to Pandemic Influenza in Japan, 1918-19." *Japan Forum* 4.2.
- _____. 1993. "Pandemic Influenza in Japan, 1918-19: Mortality Patterns and Official Responses." *Journal of Japanese Studies* 19.2.
- Park, Yunjae. 2005. *Hanguk geundae uihak-ui giwon* (The Origins of Modern Medicine in Korea). Seoul: Hyeon Publishing Co.
- Schofield, Frank William, and H. C. Cynn. 1919. "Pandemic Influenza in Korea with Special References to Its Etiology." *Journal of the American Medical Association* 17.14.
- Shin, Dongwon. 1997. *Hanguk geundae bogeon uiryosa* (A History of Modern Public Health and Medical Service in Korea). Seoul: Hanul Publishing Co.
- South Korean Interim Government 南朝鮮過度政府, ed. 1948. 『朝鮮統計年鑑』(Korea Statistical Almanac).
- Takasaki, Soji 高崎宗司. 2002. 『植民地朝鮮の日本人』(The Japanese in Colonial Korea). Tokyo: Iwanami Shoten.
- Zensho, Eisuke 善生永助. 1925. 『朝鮮の人口研究』(A Study of the Population of Korea). Keijo: Chosen Insatsu.