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Estimation of Spanish Influenza Mortality in Imperial Japan: 1918-20

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An Estimation of Spanish Influenza Mortality in Imperial Japan: 1918-20

Akira Hayami

Abstract

This paper re-estimates the number of death during the Spanish Influenza in 1918-1920 in the home land of Japan as well as its colonies in southern Sakhalin, Korea, and Taiwan at the time. Researchers both in Japan and elsewhere have hitherto accepted figures based on incomplete statistics. The author proposes a method to estimate “excess deaths” due to Influenza from the number of deaths due to respiratory diseases. The new estimates are much larger than what has been believed. Also, the damages inflicted were far greater in the colonies of Imperial Japan than on the Japanese mainland.

1. Introduction

Between 1918 and 1920, not even Japan could be spared from Spanish Influenza, which blanketed the world. In May 1918, influenza patients occurred among the crew of a naval vessel anchored at Yokosuka naval port. The influenza spread immediately to the nearby cities of Yokohama and Tokyo, and many people exhibited high fever, but those who died owing to this were not reported at the time. The infection spread rapidly among *sumō* wrestlers, and owing to the impact on the end-of-May tournament in Tokyo, several bouts were cancelled. People of the time called this infectious disease *sumō kaze*. Thereafter, between June and July, patients were discovered in local barracks, but this ended without becoming a major disaster. In July, newspapers started reporting the spread of influenza in Spain and along the Western Front of the war in Europe (*Keijō Nichinichi Shimbun*: 15 July 1918), but no one thought that this was particularly serious.

There was no coverage of the spread of the disease in America and Europe, which started in September, either, but the spread began within Japan in earnest that same month. The appearance of feverish patients was reported spreading from central to all regions of western Japan. This is thought probably to be a symptom caused by Spanish Influenza. From the latter half of October, this infectious disease spread throughout Imperial Japan, including the colonies in Southern Sakhalin, Korea, Kwantung Leased Territory (including Port Arthur), and Taiwan,¹ which were called the “outer territories (*gaichi*)” at the time, with a ferocious power, and gradually burned out by May 1919.

¹ Taiwan became a Japanese colony as a result of the Sino-Japanese War (1894-95), Southern Sakhalin became a Japanese colony in 1905 because of the Russo-Japanese War, Kwantung Territory was leased from China in 1905, and Korea was annexed to Japan in 1910.

In Japan, the spread during the spring of 1918, which is called the first wave of Spanish Influenza internationally, is called the “spring herald,” the second wave, from autumn of the same year to spring 1919 is called the “earlier pandemic,” and the third wave, namely the spread from the end of 1919 to the spring of 1920, is called the “later pandemic.” The author will denote the spreads as “earlier” instead of the second wave or “later” instead of the third wave.

The earlier pandemic, the second wave internationally denominated, was characterized by a high morbidity, but the mortality was comparatively low, whereas the later pandemic, the third wave, was characterized by a lower morbidity but a higher mortality. From this fact, there are observations that think that these two pandemics may be due to different viruses (Rice and Palmer 1993, 393). For the reasons described below, however, I personally think that these two waves were both due to the same virus unanimously recognized today as “H1N1,” and therefore argue from that standpoint.

There are several figures regarding the number of deaths from Spanish Influenza in Japan. In non-Japanese publications, Richard Collier claimed 257,363 (Collier 1974, 305), as did exactly Geoffrey Rice and Edwina Palmer (1993, 393), and Niall Johnson calculated 388,000 (2006, Tab.4.1).

These figures are based on the statistics described in the *Ryūkōsei-kanbō* (Influenza Pandemic edited by Naimushō Eiseikyoku [Department of Sanitation, Ministry of Home Affairs] 1922) [hereafter abbreviated as *Ryūkan*], which was published immediately after the pandemic, calculating the number of deaths within the homeland Japan only. The figure of 257,363 is the number of registered deaths from September 1918 to May 1919 only, as Rice and Palmer noted (1993, 393), whereas the figure of 388,000 adopted by Johnson (2006) includes those who died during the period between December 1919 and spring 1920. Japanese researchers also use these figures for the number of deaths. I would like to start by re-examining these figures. Judging from the results, the calculations to date have all been far too small, and in reality it is clear that far greater number of people died.

Next, Kanagawa Prefecture, which includes the city of Yokohama, published a report on the pandemic describing the spread of infection within the prefecture, with details of the figure of deaths in Yokohama City. This must also be examined.

Finally, we shall examine how the influenza spread in the colonies of southern Sakhalin, Korea, Kwantung Leased Territory and Taiwan at the time. There has been little research on these areas. This is not to say that there is no data of these areas, but rather, with the exception of Kwantung, the administrative authorities of each colony published statistics every year, and Japanese newspapers can also be utilised. By doing these, it was possible to estimate mortality with the same reliability as within the homeland Japanese itself. Through these data with those from within Japan, the overall image of the spread of Spanish Influenza in Imperial Japan became clear for the first time (Hayami 2006).

This article mainly focuses on the human damage that occurred as a result of the spread of infection in both Japan and its colonies.

2. Questioning the Number of Deaths by Spanish Influenza that Has Been Cited Hitherto

The statistics for those killed by Spanish Influenza within Japan have until now depended entirely on the *Ryūkan* report published immediately after the pandemic. This important official document was excellently planned for the time, but statistically speaking, it is far from complete. The statistics at the end of the volume cite figures by combining the number of sick persons and deaths from the start of the pandemic until 15 January 1919 by prefecture, and then cite the number of sick persons and deaths registered every half-month thereafter until 31 July. Further, the total statistics for each prefecture are collated for all the sick and dead, and the number of sick over the total population, the number of deaths among the sick, and the number of deaths over the total population are described, as well as the national totals. The start of the earlier pandemic differed between prefectures (the earliest prefectures were touched in August 1918), and the latest was Okinawa Prefecture in November while most prefectures were already infected in October 1918.

For the later pandemic, the total of sick and total of deaths were listed by prefecture from initial onset to the end of December 1919, and from January 1920, the figures for each month were recorded until the July of that same year. The onset of the late pandemic was earliest in Kumamoto Prefecture during the middle of September, and latest in Chiba and Iwate Prefectures, during early January 1920.

At first glance, these tables appear complete as statistics of the sick people and deaths due to influenza. Consequently, researchers both in Japan and elsewhere have hitherto accepted those figures as the Spanish Influenza deaths in Japan without doubting the printed records that nationally the total number of deaths in the earlier pandemic was 257,363 and in the later pandemic 127,666 for a total of 385,029.² When the tables are examined, however, it immediately becomes clear that statistically, they are entirely incomplete. In many cases, among the prefectures the numbers of dead and sick cease to be entered as the pandemic progresses, or there are no records at the outbreak of the disease. To cite one example, in the case of Osaka Prefecture, the sick and dead people in the earlier pandemic, including Osaka City where the influenza was at its most ferocious stage in Japan, are recorded only until 15 January 1919, with the column from 16 January onwards being blank. Further, the totals of the sick and deaths during the earlier pandemic are calculated only up until 15 January 1919.

Osaka City was the largest city attacked by the Spanish Influenza, and we have no reason to be convinced that the spread of earlier pandemic suddenly halted on 15 January 1919. There must be several thousands more who died after 16 January, as can be easily assumed. This lack of information exists either because the Osaka Prefecture did not report the statistics, or the Sanitary Bureau of the Home Ministry did not obtain them. Similarly, of the 47 prefectures existing nationally, there are ten prefectures for which records are incomplete, so the national totals for the actual numbers of sick and

² When the total number of 3,698 influenza deaths between autumn 1920 and spring 1921, which could be called the “fourth wave,” is added, the number of deaths rises to around 388,000.

deaths during the earlier pandemic must be considerably greater than the recorded figures.

The table for the later pandemic has fewer blank columns than that for the earlier, but even so it is far from complete. Here, too, records for Osaka Prefecture extend only as far as February 1920 and the statistics from March onwards, when the pandemic continued, are missing.

As a result of these examinations, major doubts have arisen concerning the use of the *Ryūkan* report as statistics regarding the human cost of Spanish Influenza. Undoubtedly, anyone would become aware of these deficiencies in the statistical data if they examine the original documents. There is absolutely no trustworthy foundation to these figures. It must be said that the responsibility of scholars who have discussed these figures uncritically, and in particular Japanese researchers, for whom the original data is approachable, is great.

If we assume that the statistical values in the *Ryūkan* are unreliable, how then could we calculate mortality due to influenza accurately? I found a way to solve this problem. I will not utilize the *Ryūkan* to measure mortality, but devised a method to estimate “excess deaths” due to Spanish influenza: I calculated the difference between the number of deaths due to respiratory diseases in “normal years” before and after the pandemic (1916-21), and the number of deaths due to respiratory diseases during the period of the Spanish Influenza pandemic. Moreover, luckily, Japan kept the statistics by age group, month, and cause of death,³ and by combining these figures, Spanish Influenza mortality in Japan could be estimated both for the country and its colonies. The results of the calculations will be described below.

The spread of the earlier pandemic took eight months from October 1918 to May 1919, so the number of deaths for each prefecture during this period due to respiratory disease or for unknown or unclear reasons must be added by prefecture.⁴ Mortality for respiratory illnesses rose due to influenza morbidity, and it is not difficult to imagine it exceeding ordinary times. The number of deaths determined using this method was 266,479, which is considerably higher than the figure in the *Ryūkan* report.

The later pandemic was estimated in the same way. As the later pandemic continued from December 1919 to May 1920, the number of deaths during this six-month period was determined by separating into normal years and influenza years, and then deeming the difference to be “excess deaths” due to influenza. The number was 186,673, and this also exceeds the figures in the *Ryūkan*.

³ Nippon Teikoku Shiin Tōkei (hereafter abbreviated as NTST), eds. Sanitary Bureau of Home Ministry (Annual report of mortality by causes, published in Tokyo).

⁴ The eight categories which are handled here as having influenced the number of deaths due to Spanish Influenza as causes of deaths within NTST official Japanese statistics (*Nippon Teikoku Shiin Tōkei*) are: (1) influenza, (2) pulmonary tuberculosis, (3) acute bronchitis, (4) chronic bronchitis, (5) pneumonia and bronchitis, (6) other respiratory diseases, (7) diagnostically poorly-defined illness, (8) and unknown causes. The number of deaths due to those last two categories increased dramatically in 1918, but at the time no one knew of the Spanish Influenza pathogen (H1N1), so consequently they were likely treated as “other” and “unknown causes.”

Before discussing the content of the newly estimated mortality in detail, I would like to take a brief look at the state of Japan under the Spanish Influenza⁵ crisis.

3. The Earlier Pandemic

In either September or October 1918, and the specified location cannot be traced, but somewhere in Japan a mutated strain of the Spanish Influenza virus with more potent contagiousness came ashore. One newspaper, based in Nagoya in central Japan, (*Shin Aichi*, 20 September 1918) reported that workers of a weaving factory had developed a fever, and that although they suffered for three to seven days, they had not died so far. On the 26 September the same newspaper reported that there were 400 influenza patients among the infantry regiment stationed in Ōtsu near Kyoto.

By mid-October 1918, influenza-related articles had spread nationwide. Articles saying also that there were sick and dead among the soldiers being sent to Siberia could be seen on 3 and 4 October. On 12 October, it was reported that more than 60 elementary school pupils in Yamaguchi Prefecture, at the western tip of Honshū (*Yomiuri Shimbun*), were absent with nosebleeds. Probably, this was a symptom of Spanish Influenza. In the middle of October, the newspapers were covered nationwide in reports of the “influenza epidemic.” In particular, reports claimed that there were numerous influenza patients among military personnel, factory workers, and school children. The influenza took less than three weeks to spread nationwide, because Japan’s railway network was almost complete at that time, and people infected with the virus were able to travel long distances quickly by rail during the incubation period of the virus. Infections consequently appeared in all corners of the country, so that by the end of October 1918, the number of deaths was also gradually increasing.

The reason why articles concerning the deaths increased was probably because of the concentration of fatalities among military personnel, factory workers, and students, and was thus easy to identify. Nowadays it is clear that deaths occur mostly among the age group that normally suffers low mortality, as even healthy organs are destroyed by an excessive immune response that is called a cytokine storm. By this time, the infectious disease was clearly identified as influenza, and on 25 October 1918 the Home Ministry announced that this infectious disease was called Spanish Influenza outside Japan. Generally influenza and cold (*kaze*) were not distinguished at the time, and so the infection came to be called *Supein kaze* (Spanish cold). Even today, the tradition of wrongly calling Spanish flu as *Supein kaze* continues.

The earlier pandemic peaked between the end of October and the middle of November 1918. The majority of victims were in the three cities of Kyoto, Osaka, and Kobe. The newspapers overflowed with reports of closed schools, paralyzed transportation, and major congestion at public crematoria.

The peak seemed to have passed by the end of November. Nevertheless, after 10 December, another reversal occurred during which the numbers of sick and deaths again increased. This was influenced by the system of military conscription in Japan at the

⁵ See also Rice and Palmer, 1993.

time. Because the fresh recruits entered the military on 1 December each year, a large number of young people who were uninfected with the virus swarmed into the barracks. They immediately became, for the virus, a better target to attack than ever before. Several days after being conscripted, numerous soldiers turned up in rapid succession either to enter hospitals or, if the infection was particularly severe, to die within ten days of their conscription. As suitable quarantine measures were not taken, the influenza infection passed from the soldiers to the citizenry, and many Japanese regions consequently experienced a second peak in January 1919.

Patients hospitalised in military hospitals were nearly all fresh recruits. Since hardly any veterans of two years or more could be seen, there was a clear difference between soldiers with immunity to the influenza and those without.

At the time, the influenza pathogen could not be identified anywhere in the world. In Japan as well, there was a great dispute between scholars who agreed and disagreed about the pathogen to be the same microbe identified as the influenza pathogen by the German microbiologist Pfeifer at the end of the influenza pandemic in 1890s (today known to be the H2N8 strain). Of course, today, influenza is known to be caused by the influenza virus, and not to be caused by bacteria (*Pfeifer bacterium*), but at the time, the norm was to assume that infection was caused by filterable microbes, and specific viruses had not been isolated. The Pfeifer bacterium was cultivated, however, and a vaccine created, and “inoculations” were even performed all over the world.

The earlier pandemic in Japan declined with the coming of spring, and in May disappeared from Honshū altogether.

4. The Later Pandemic

Although it is unclear whether the virus was lurking hidden in Japan and suddenly manifested itself, or whether it was brought in from the outside, in November 1919, influenza sporadically flared up again in several locations. Again serious explosion occurred in early December, and was clearly occasioned by the conscription of new recruits to the armed forces. No matter where the forces were stationed, the accompanying hospitals were filled with fresh recruits who were sick with influenza, and there were also cases of sick new recruits being sent home without being conscripted (*Touou Nippō*, 14 December 1919). Nearly all the sick were new recruits, and in the 31st regiment in Hirosaki, of the 148 people hospitalized, 127 were fresh recruits, and of the 15 dead, 13 were fresh recruits. In the end, 41 soldiers died.

The Imperial Guard in Tokyo was a collection of soldiers from all over Japan, and so suffered the greatest casualties, with the dead reaching 100 (*Touou Nippō*, 21 December 1919). All newspapers reported that the mortality was greater than during the earlier pandemic. According to the army's published statistics, there were 531 dead in 1918, 955 in 1919, and 1683 in 1920,⁶ which tells us that the deaths during the later pandemic were considerably more numerous.

⁶ The Statistic Bureau of Cabinet, *Nippon Teikoku Tokei-nenkan* (the Annual Report of Statistics of Imperial Japan).

Conditions were similar for the navy, and as one example, I would like to introduce the case of the light cruiser *H.M.S. Yahagi*,⁷ which occurred during the earlier pandemic (Yamaguchi Den'ichi 1919). During the first World War, the *Yahagi* was part of the fleet dispatched at the request of the Britain under the terms of the Anglo-Japanese Alliance, and was based in Singapore, from where it patrolled the Indian Ocean, Southeast Asia, Australia, and New Zealand. As the German fleet in this area had already been completely destroyed, the armistice was welcomed on 10 November 1918 in Singapore without having gone into battle and the ship was waiting for its relief to arrive. But as the arrival was delayed, the sailors were allowed to go ashore. There, the sailors contracted the Spanish Influenza virus and after the ship set sail on 30 November, the sick appeared one after the other. Upon barely making a scheduled stop at Manila, the sick were all taken into hospital, but a total of 48 of them died, including those who had died whilst still aboard. The proportion of deaths to all crew members was at least 11 per cent, and this rate was the highest compared to other naval ships that had been subjected to Spanish Influenza.⁸

The earlier pandemic followed the order of civilian, military, and back to civilian, but the later pandemic evidently spread along a vector of military to civilians. The spread continued domestically until around May 1920 when the virus disappeared.

This exemplifies the fact that the virus that was the pathogen of the earlier pandemic was the same one of the later pandemic. Otherwise, we cannot explain the small number of sick among the second-year recruits in service while the great number of fresh recruits became sick during the later pandemic.

5. Analysis: Inventing a New Method of Mortality Evaluation

From this point on, I utilize the concept of “excess deaths.” In estimating mortality, the earlier pandemic within Japan covers eight months from October 1918 to May 1919, and the later pandemic six months from December 1919 to May 1920. The total number of deaths, based on the eight categories of respiratory diseases responsible for death previously mentioned, is drawn and estimated from the published official Japanese statistics *Nippon Teikoku Shiin Tōkei* (here called NTST). Comparisons⁹ of the figures are made between “normal” months (from years 1916, 1917 and 1921)¹⁰ and the months of the influenza epidemic.

Deaths by Month

Figure 1 shows the number of influenza deaths by month during the earlier and later

⁷ The *Yahagi* was 4,000 tons with a crew of 400, and was the first light cruiser fitted with turbines.

⁸ Niall Johnson, *Britain and the 1918-19 Influenza Pandemic*, p.113. Table 4.7 Influenza on board ship. This was 9 per cent on the *H.M.S. Africa* therein.

⁹ I take all deaths by respiratory diseases as registered according to the eight related categories, for each month, and I take out the mean number of deaths in the same months that occurred in the two previous years, which were considered as “normal”, and year 1921. I consider that the figure obtained of “excess deaths,” for each period, gives a good estimation of mortality due to Spanish Influenza.

¹⁰ In Korea, as there are no 1921 data, I use 1915, 16 and 17 as normal years.

pandemics estimated according to my method of “excess deaths.” This figure clearly shows that during the earlier pandemic, the number of death rose sharply in November 1918, and was greater than that in any other month. It was so bad in Japan that it can be called “Black November” as was the case in New Zealand (Rice 2005). The excess deaths of 132,908 were 50,000 more than the deaths during the Russo-Japanese War in 1904-05, and these deaths occurred in a single month. Limited to just this month, the number of deaths due to influenza were more than half of the total deaths of 253,926. In addition, the ferocity waned somewhat in December, but the death tolls remained high, and also continued in January, February, and March of the following year (1919).

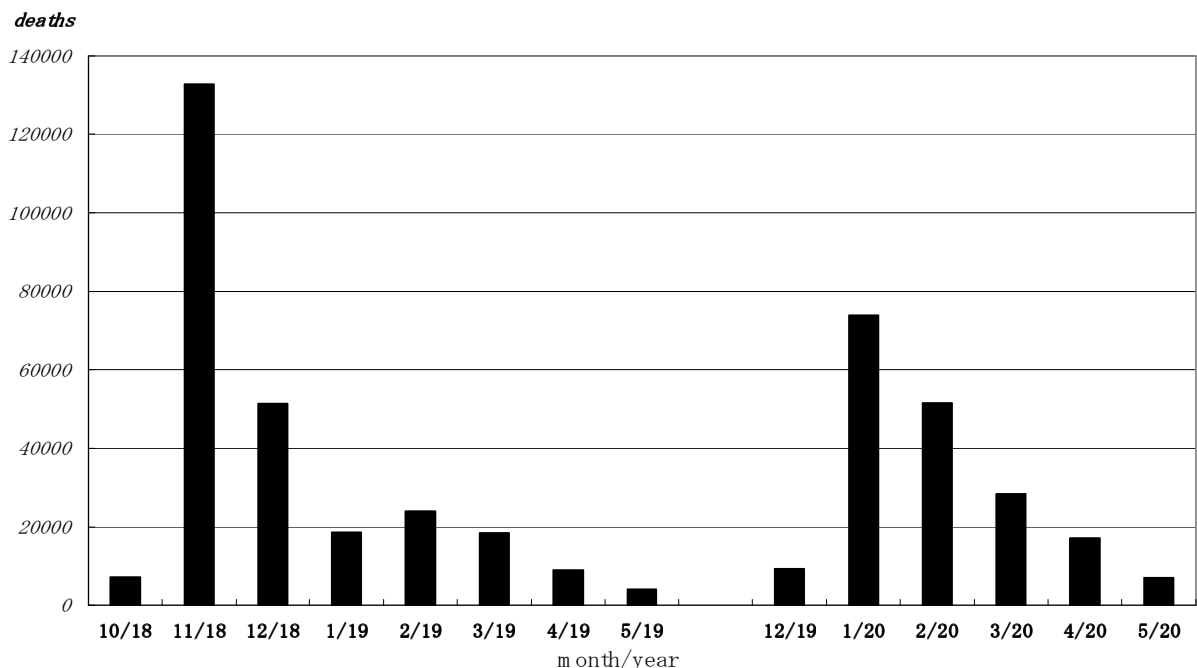


Figure 1. Influenza deaths in homeland Japan (October 1918 - May 1920).

The later pandemic appeared in December 1919, but its peak arrived in January 1920 when the number of estimated deaths related to Spanish flu was close to 80,000, which accounted for 43 per cent of all the registered deaths. As stated above, a major cause of this big number was undoubtedly the sick among the new conscripts who entered the military on 1 December of 1919. During the later pandemic, the percentage of sick against the total population was relatively low, but the mortality among the sick was considerably high. The majority of the population had probably obtained immunity during the earlier pandemic. However, for better or for worse, those who had passed through the earlier pandemic unscathed were caught unprepared at the later pandemic, and became bait for the virus, which had increased in virulence. During both the earlier and later pandemics, the number of deaths was the highest immediately after the influenza arrived, and after the number of deaths peaked sharply, displayed a pattern of slackening off gradually.

Deaths by Day

By determining the daily deaths during the influenza pandemic, we are able to learn the spread of the disease more accurately. In November 1920, the police and sanitary department in Kanagawa Prefecture, which includes the city of Yokohama with a population of 460,310, published the *Ryūkōsei-kanbōshi* (Kanagawa-ken: 1920, [On Influenza] hereafter abbreviated as *Kanagawa-Ryūkan*) immediately after the pandemic. This included vital information concerning the daily total deaths by pneumonia in Yokohama City. The most valuable statistics is the table that compares daily the number of total deaths and deaths by pneumonia for three periods; 1) normal years before the arrival of the Spanish Influenza virus (1 October 1917 to 31 March 1918), 2) the earlier pandemic (1 October 1918 to 31 March 1919), and 3) the later pandemic (1 December 1919 to 31 March 1920).

Firstly, Figure 2 compares the total number of deaths during the above three periods. During the years of 1917-18, the number of daily deaths from the latter half of December through the end of January was a bit high, and at approximately one and a half to twice to the other days. This, however, was before the Spanish Influenza pandemic, and the reason was probably seasonal. During 1918-19, two periods of high mortality can be observed. The first was from the end of October through the middle of November 1918, which was when the influenza spread nationwide. Probably, the influenza pandemic could also be seen in Yokohama at this time. The second was from the middle of January to the middle of February 1919, when the number of deaths peaked at the beginning of February. Apart from the two periods of the pandemic, there is almost no difference compared to the period of 1917-18.

The number of deaths for 1919-20 is remarkable. Until the beginning of January, the number was almost the same with those for 1917-18, but then rose dramatically after 10 January. The two weeks of the second half of January show the mortality nearly three times higher than that of 1917-18. This mortality crisis was also reported in the newspaper coverage of the time almost screamingly (*Yokohama Bōeki Shimpō*: 22-28 January 1920). After 10 February, however, the data converge, and from the end of February settle to approximately the same level as 1918.

In this way, the analysis of the daily records shows that the number of deaths during the influenza pandemic did not continue over a long period of time, but rather, returned to normality after between three weeks to a month during any pandemic periods.

Next, we examine deaths due to pneumonia. Yokohama has a port for overseas routes, so daily death statistics were compiled by cause of illnesses. The Spanish Influenza caused bronchitis and pneumonia when it progressed. Therefore, these death records due to pneumonia can be a proxy for the progress of the influenza. The mortality trends in this figure are strikingly similar to the overall mortality trends in Figure 2. During the period of 1917-18, the number started to rise from the second half of December and was somewhat high until the end of February. This was a cold, dry period, and was also a period of a pneumonia epidemic. Consequently, it must be

acknowledged that there was a certain seasonal component to these deaths due to pneumonia. The trends in deaths due to pneumonia during 1918-19 and 1919-20, however, were no longer due to the season. Figure 3 shows the deaths due to pneumonia collated over every five-day period.

Deaths

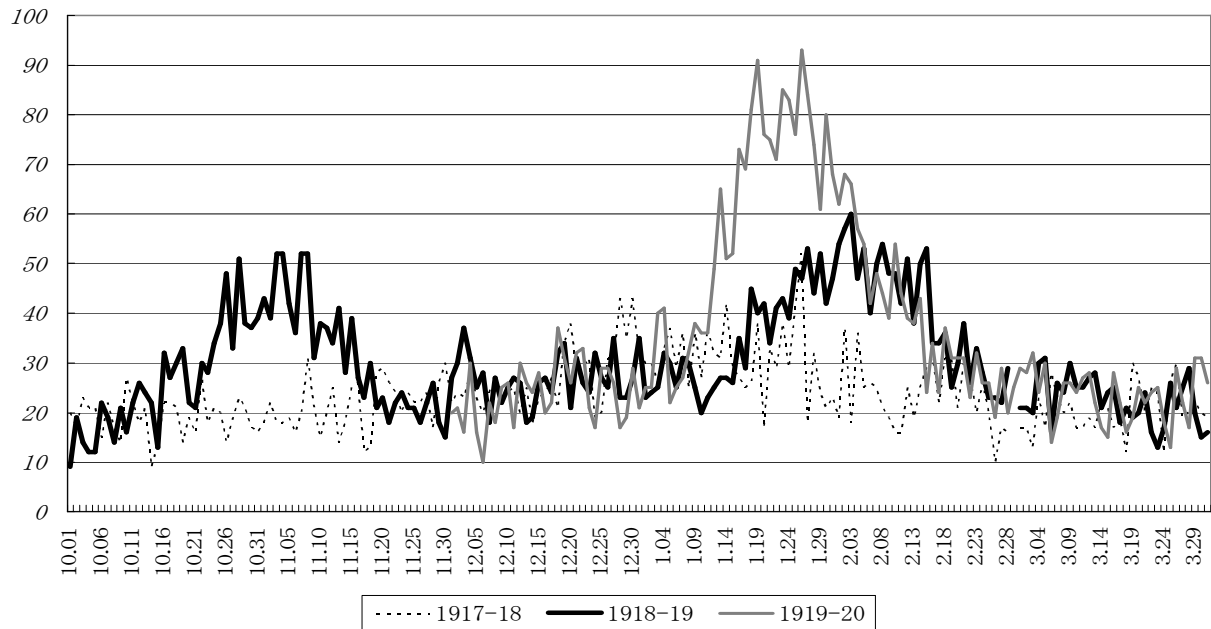


Figure 2. All deaths in Yokohama city (Daily).

Deaths

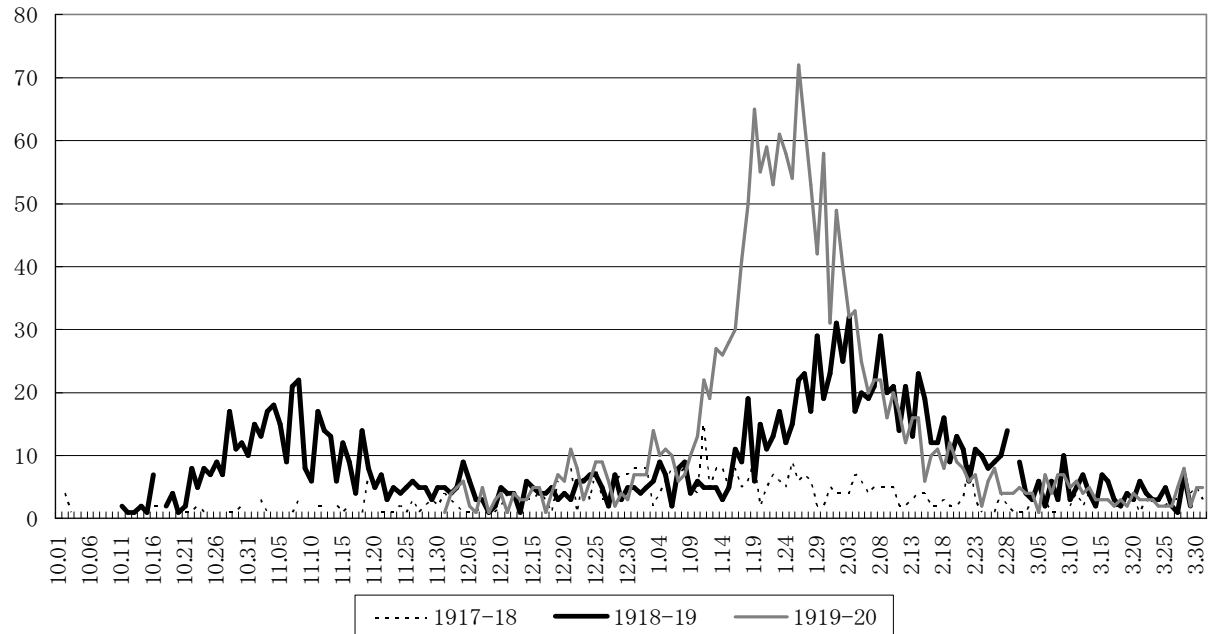


Figure 3. Deaths by pneumonia in Yokohama city (Daily).

First, looking at 1918-19, the first peak is observed during 1-5 November. The death tolls are about ten times of those in 1917-18. The number of deaths gradually declines thereafter. From the end of the year until the beginning of the following year the figure fluctuates at the levels for 1917-18. After 15-19 January, however, the trend rises rapidly, and the second peak, which considerably exceeds that of November 1918, is experienced from 30 January to 3 February. The number of deaths tends to decline thereafter, but it is not until after March that they return to the 1917-18 levels.

The trend in 1919-20 is extremely conspicuous, as we have seen in the total numbers of deaths in Figure 2. The number rose somewhat at the end of December, and then continued to jump dramatically during 10-14, 15-19, and 20-24 January 1920. During the 10-day period from 25-29 January and 30 January to 3 February, a total of nearly 600 people died. This was ten times the number during 1917-18, and was three times that of the pandemic period during 1918-19.

The characteristics that we observe in all death peaks suggest that the peaks are concentrated in three to four-week periods rather than keeping high number of deaths throughout the entire period of the pandemic. Further, the manifestations of the peaks are extremely short, and take a longer period of time to disappear.

Deaths by Age Group

Figure 4 compares the number of deaths by age during the years of the influenza pandemic and the number of deaths in “normal years.” It shows the number of deaths by age during the three years of the pandemic (1918, 1919, and 1920), taking the number of deaths by age during the three normal years (1916, 1917, and 1921) as 100 (Naimusho Eiseikyoku [Ministry of Home Affairs], *Nihon Teikoku Shiin Tōkei*).

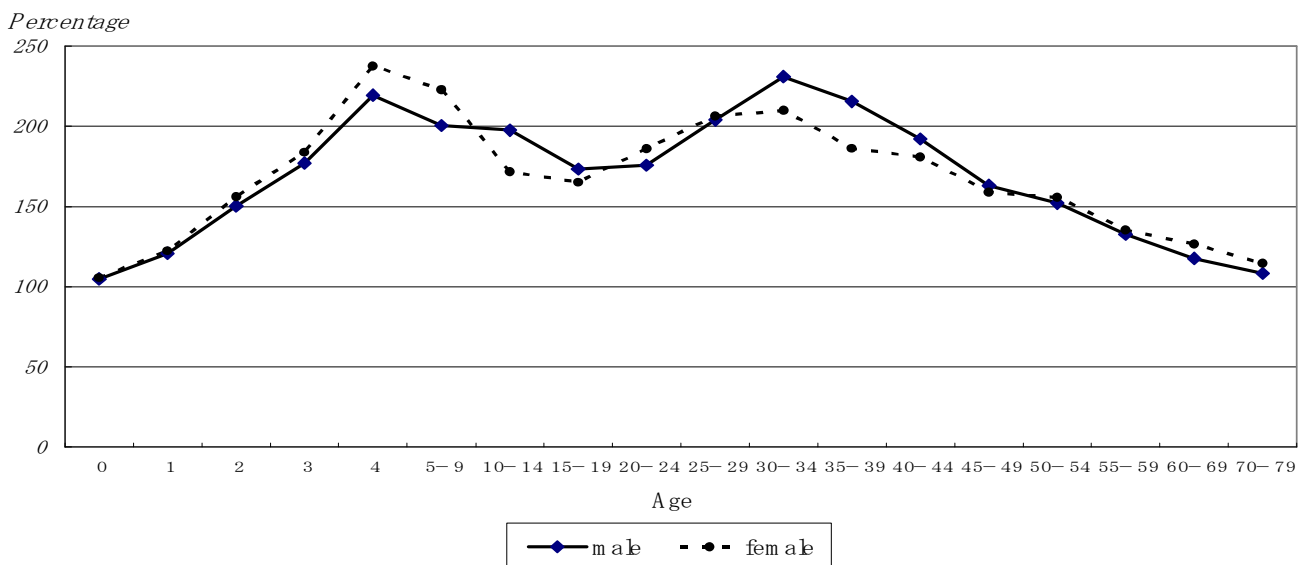


Figure 4. Pandemic year/ Normal year mortality comparison.

Note: The three normal years (1916, 1917, 1921) as index (= 100).

The figure demonstrates in which age group the number of deaths due to influenza was greater than normal years. After passing age 10, the highest was the 30-34 year-old group for both males and females. In this age group, the figure was more than twice of the normal year.

Infant mortality in Japan was always higher than those in the industrialised nations during the same period. It was not exceptionally high during the period of the influenza pandemic. Newspaper articles at the time reported that this bout of influenza had the greatest blow to the younger generations. This fact supports the reports that in the military, the deaths were greatest among the soldiers who had just joined (at age 20), who in our common sense should be the most resilient. This phenomenon is explained by the fact that healthy cells are damaged and cause death in the youthful population. This is an excessive immune reaction called a cytokine storm. The victims started to be observed at the barracks, then flowed out from there to the streets, and subsequently killed a lot of citizen.

6. Pandemic Trends in the Colonies

Japan at the time was an “empire” with colonies in the nearby regions. Of these, there are only simple population sources for the Kwantung Leased Territory at the southern tip of Liaodong Peninsula, Manchuria. There are statistics for the other three regions, and these could be utilized to examine the trends of the Spanish Influenza pandemic.

South Sakhalin

As a result of the Russo-Japanese War, the southern half of Sakhalin Island just south of 50°N, became a Japanese colony, and before and even during the influenza pandemic period, many colonists migrated there from mainland Japan. A large number of seasonal laborers also gathered there during the fishing season because of the prime fishing grounds for cod and herring.

The influenza pandemic in Sakhalin began with a spring herald in May 1918, but in actuality this was considerably later than the case in the homeland Japan. In early November of that year, it was reported that the elementary schools in Toyohara (now Yuzhno-Sakhalinsk) had closed due to the influenza (*Karafuto Nichinichi Shimpō*: 5 November 1918). Thereafter, it spread to all regions, causing 4,063 sick and 144 deaths. It then seemed that the disease had quieted for the moment.

In March 1919, however, the influenza spread explosively on small Kaiba Island (now Ostrov Monaron) off the southern tip of the western Sakhalin coast. The fishing grounds around this island were excellent for herring and fur seals. Numerous seasonal labourers crossed over from Hokkaido and mainland Japan during the March fishing season, and lived communally in rough cottages that had been built for them. As both those infected and uninfected with influenza lived together there, the infection spread in the blink of an eye. Consequently, the telegraph and postal services were rendered incommunicado and doctors and policeman also became sick, such that there were several tens of deaths by 10 April 1919. This “earlier” pandemic in Sakhalin was

characterized by being particularly fierce from the March fishing season onwards rather than during the harsh, cold winter, and by its end being retarded. It was on 19 June 1919 that reports of the pandemic in the newspapers finally ended.

The later pandemic was almost exactly the same, with its first assault being in November 1919, but the majority of deaths came from March 1920 onwards.

Employing the method of “excess deaths,” the number of deaths is estimated at 667 for the earlier pandemic and at 787 for the later, giving a total of 1,481 in south Sakhalin in both pandemics.¹¹ The population at the end of 1919 was 82,409, so the death rate over the two years was at least 18 per mil. This mortality was higher than that on the mainland. Further, there were also aborigine Ainu, Gilyak, and Oroqin peoples living on Sakhalin. These people, who lived a hunter/gatherer lifestyle, lost space needed for living due to the invasion of Japanese and the spread of industrialisation, and their populations were declining in the long term. The Spanish Influenza also attacked them, leading to numerous deaths. The population in 1917 was 2,168. Since 88 died in 1918 and 73 died in 1919, the population in 1920 was down to 2,030. The number of deaths in normal years was approximately 40 to 50, but during the years of the influenza pandemic it was over 70 (Karafuto Chō). This was 33 per thousand of population, which was much higher than the population of Japanese in Sakhalin.

Korea

No local documentation exists regarding the Spanish Influenza pandemic in Korea in the early pandemic stages, apart from short reports from American medical doctors who were living in Seoul (Schofield and Cynn 1919). According to the Seoul newspaper (*Keijō Nichinichi Shimbun*), the attack of the influenza pandemic in Seoul was reported on 17 October 1918. The disease spread across the whole land at almost the same time as within homeland Japan, and school closures and the suspension of railway construction were reported. A newspaper article on 31 October 1918 reported that in one district of Seoul, there were 26,000 sick, and ten Japanese and 138 Korean dead. During November, the pandemic reached its peak, and the daily deaths in Seoul reached 50, which was twice the number in normal years. The cost of medicines was exorbitant, and the majority of the sick were in their 20s and 30s as in Japan (*Keijō Nichinichi Shimbun*: 22 November 1918).

The later pandemic started with the military and spread to towns and cities as well. On 15 December 1919, there were 89 deaths within Seoul, which was the largest number of deaths in a single day.

As for estimating the number of deaths from influenza, Japanese population statistics in Korea ceased to record the number of deaths by month after 1919, and therefore, the pandemic across the entire period cannot be observed monthly. At any rate, however, when excess deaths due to illnesses of the respiratory system are determined

¹¹ Karafuto-Cho, *Karafuto choshi ippan* (Annual Report of Sakhalin).

utilizing the statistics for 1918, between October and December, with its peak in November, there were 982 deaths among Japanese and 121,278 among Koreans. In 1918 alone, the number of deaths reached 122,260 (Chōsen Sōtokufu Tokei-sho [The Governor General for Korea]).

As I noted, if deaths cannot be calculated monthly, it is possible to determine the excess deaths for each year globally. Of the causes of death, deaths due to Spanish Influenza are thought to be included in “respiratory diseases,” “colds,” “infectious diseases,” and “uncertain diagnoses” in the classification of illnesses in the “statistics.” The total number of deaths between 1915, 1916 plus 1917, and 1918, 1919 plus 1920, can be compared in this manner. The statistics for “Japanese homelander” and “Koreans” are separated also as shown in Table 1. Ultimately, the results of the estimated excess deaths due to influenza are 3,384 Japanese and 230,782 Koreans across the three-year period, which are 10.0 and 13.8 per thousand of registered population,¹² respectively the toll of deaths in Korea are more numerous than those in Japan. The virus would attack both Japanese and Korean indiscriminately. The difference in treatment at the contraction of the illness should account for the results shown.

Table 1. Excess death in Korea.

| 1. Homelander | | | |
|---------------|------------------------------|---------------|---------------|
| | Death by Respiratory Disease | | Excess Death |
| | 1915 | 2260 | |
| | 1916 | 2695 | |
| | 1917 | 2453 | |
| total | | 7408 | |
| average | | 2469 | |
| | 1918 | 3504 | 1035 |
| | 1919 | 3548 | 1079 |
| | 1920 | 3739 | 1270 |
| total | | | 3384 |
| 2. Koreans | | | |
| | 1915 | 119717 | |
| | 1916 | 131286 | |
| | 1917 | 132431 | |
| total | | 383434 | |
| average | | 127811 | |
| | 1918 | 256901 | 129090 |
| | 1919 | 168152 | 40341 |
| | 1920 | 189162 | 61351 |
| total | | | 230781 |

Taiwan [Formosa]

Data concerning Taiwan includes the “*Taiwan Nichinichi Shinbun*” journal as recorded data, and the *Taiwan Sōtokufu Tōkeisho* [The Statistics of Governor-General for Taiwan].

¹² As we have no reliable population statistics before 1920, I take the population of 1920.

The classification of diseases in the “Statistics” is the same as that for Japan. Therefore, the difference between normal years and pandemic years can be determined by calculating the deaths based on the sum of the eight causes as we did for homeland Japan.

In Taiwan, a “strange disease” broke out in between spring and early summer 1918, but there is no firm evidence that this was Spanish Influenza. Consideration must be paid, however, to records of an epidemic across the straits in Hong Kong and Amoy (*Taiwan Nichinichi Shimibun*: 21 June 1918, Chinese version).

In October of 1919, the patients appeared among the soldiers stationed in north Taiwan, and gradually spread across the whole island, such that the crematories were three times more busy than normal. This almost completely disappeared by the end of November. However, just as it did in Japan another outbreak occurred among the fresh army recruits in December 1919.

Of the later pandemic, in January 1920, it was reported that some train services were suspended (16 January), but this was during the peak of the pandemic, and normal service resumed by March.

There were aborigine people in Taiwan. Although their populations were not investigated, the influenza raged among them, too. Their dead numbered 2,727 in 1917 before the pandemic hit, and rose considerably above the 1917 level during the following three years as follows: 4,500 dead in 1918, 3,968 dead in 1919, and 3,342 dead in 1920. The reality was probably even harsher, but no more is currently known.

Luckily, statistics by cause of death and by month are recorded in Statistics of Taiwan (Taiwan Sōtokufu), so the number of dead due to respiratory system illnesses can be determined for the two years (July 1918 to June 1920) that includes the period of the pandemic. Table 2 shows the number of deaths due to respiratory diseases by month for both “Japanese” and “Islanders” (i.e., Taiwanese). As can be immediately understood from this table, there were sharp mortality peaks in November 1918 and January 1920. Needless to say, the number of death, which during these periods reached six to eight times the numbers of other months, is a mark of the ferocity of the Spanish Influenza.

Table 2. Mortality of Spanish Influenza in Imperial Japan.

| | Population | Deaths | Mortality (‰) |
|---------------|------------|---------|---------------|
| Homeland | 55,963,053 | 453,452 | 8.1 |
| Sakhalin | 105,765 | 3,749 | 35.4 |
| Korea | 17,284,407 | 234,164 | 13.5 |
| Kwantung L.L. | 687,316 | | |
| Taiwan | 3,654,398 | 48,866 | 13.4 |
| Total | 77,694,939 | | |
| Total* | 77,007,623 | 740,231 | 9.6 |

Note: Total*=without Kwantung L.L.

The two panels in Figure 5 describe the number of deaths due to influenza estimated utilizing excess deaths. According to the statistics, “Japanese” (Figure 5A) and “Taiwanese” (Figure 5B) were observed separately, but whereas Japanese deaths were concentrated on specific months, there were considerably more Taiwanese deaths during the months after the peak. In the end, the results of calculating excess deaths due to influenza during the two periods of the pandemic yield 1,373 “Japanese” deaths and 47,479 “Taiwanese” deaths. The mortality was 9.6 per thousand of Japanese and 13.6 per thousand of Taiwanese. Here too, estimated mortality was higher among the “Taiwanese” than Japanese. Evidently, the “Japanese” showed the effects of better post-illness treatment, care, and hospitalization.

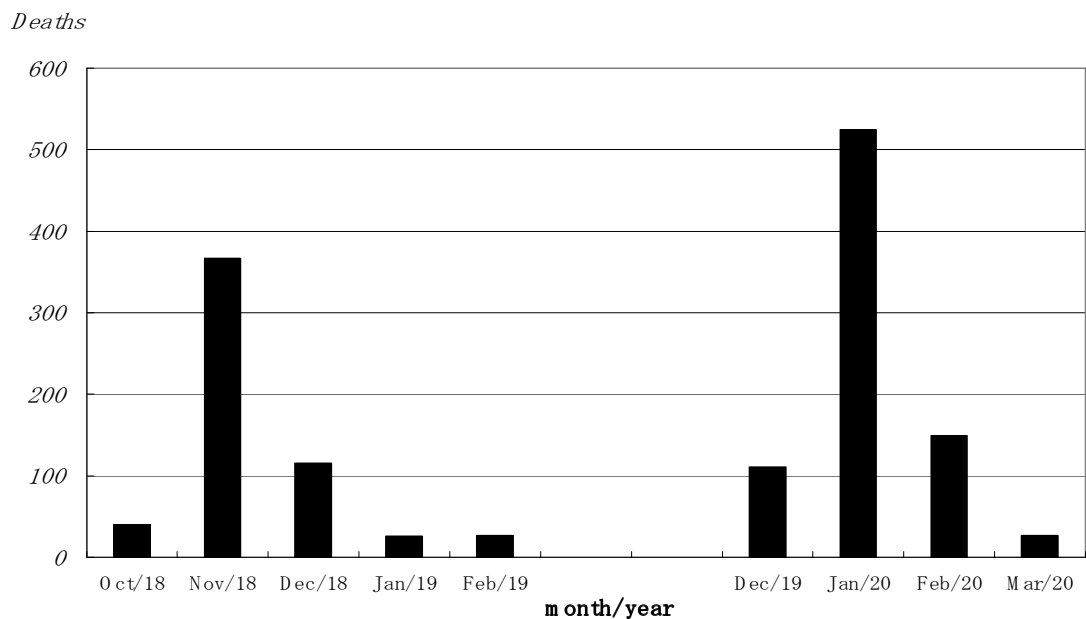


Figure 5A. Excess death in Taiwan: Japanese (October 1918 – March 1920).

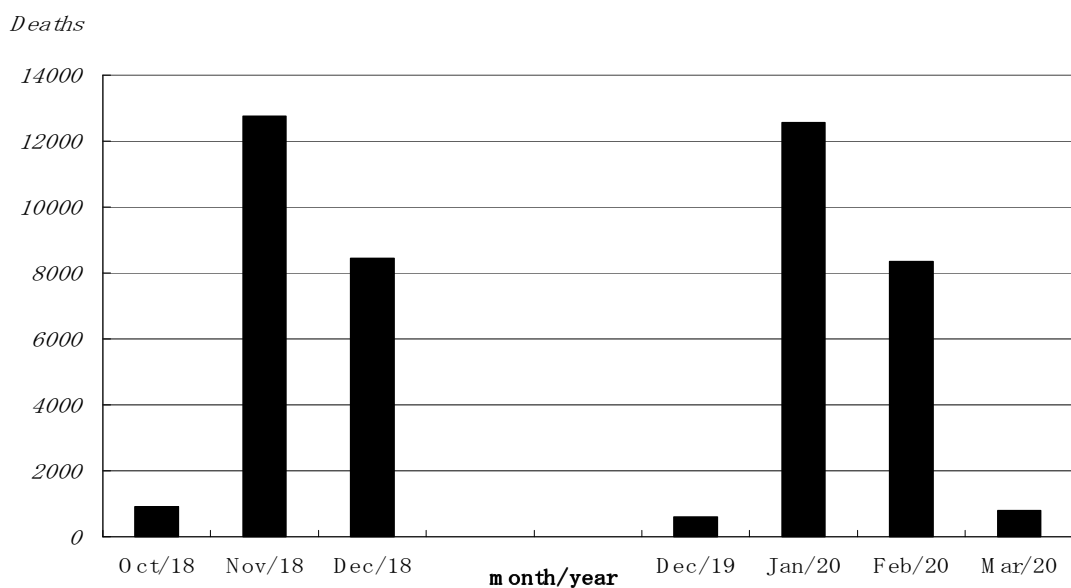


Figure 5B. Excess death in Taiwan: Taiwanese (October 1918 – March 1920).

An overview of the Spanish Influenza pandemic in the Japanese colonies of Imperial Japan suggests that the damages inflicted were far greater than those on the Japanese mainland. There was relatively higher mortality particularly among the indigenous peoples than among the “Japanese.”

7. Concluding Remarks

The overall number of deaths from influenza in Imperial Japan including the colonies (but excluding the Kwantung Leased Territory) exceeded 740,000 and if the Kwantung Leased Territory is included, the estimated number of victims may rise to over 750,000. This number is more than one per cent of the total population of Imperial Japan at the time. This is an unprecedented number. Plus there was no year until World War Two in which the deaths from a single incident exceeded this number.

Nevertheless, Spanish Influenza has passed out of memory even in Japan, and references have disappeared from nearly all written documents. Very recently, alarm has been raised concerning the “H5N2 influenza,” and voices are calling for the lessons of Spanish Influenza to be learned immediately. The type of virus is different, however. On the positive side, medical treatment, preventive systems, and public hygiene have all improved. On the negative side, increased jet travel and rising urban population density facilitate the spread of the disease. Therefore, it is extremely difficult to simply learn from the responses and conditions of the era of Spanish Influenza.

Initially in Japan there was almost no interest in the disastrous affairs wrought by Spanish Influenza, and consequently it has not been the subject of much research. Infection countermeasures dealt almost exclusively with tuberculosis, and influenza countermeasures were completely neglected. Generally, the reasons why Spanish Influenza was regarded so lightly or completely ignored are the same as those pointed out by A. Crosby regarding the U.S.A. (1989: 311-325). In Japan, there is also the major fact that interest all but disappeared due to the large scale of the damage caused by the Great Kantō Earthquake of 1923, which happened hard on the heels of the pandemic. According to recent research, the deaths due to the Great Earthquake numbered approximately 100,000, which is less than one fourth of those killed by Spanish Influenza. But memories of the earthquake have not disappeared in all documents dealing with that period of time. Although this depends on the depth of fear among the authorities and the general populace, it was enforced by the damage plainly visible on photos etc. Many photos still remain of collapsed houses and streets of Tokyo and Yokohama, which had become scorched plains, and these are burned into people’s memory as the “Great Disaster.”

Nevertheless, photos of Spanish Influenza taken in Japan are on the level of people wearing masks and of patients lying down in hospital beds. Therefore, the impact of disaster-illustrated photos is clearly far weaker than that of the Great Earthquake. Essentially, Spanish Influenza is “not photogenic.” People’s perceptions are most greatly influenced by what they can see. This can also be said to be another reason why memories of Spanish Influenza have vanished from Japan.

Demographically, Spanish Influenza did not succeed in reducing the population of Japan. In the major cities of Kyoto, Osaka, and Kobe, however, the populations were reduced temporarily. Further, fertility fell during 1918-19, but rose again during 1920-21. This could well be called a compensatory recovery. When discussing demographic transition in Japan, there is a tendency to view the demographic transition in Japan as having started during the 1920s without considering the reasons for the fall in the fertility by the Spanish Influenza, which was followed by this compensatory recovery. I personally have my doubts, however, as to whether the reasons are that simple (including regional differences within Japan), and believe that the effect of a temporary fall due to Spanish Influenza should be considered. The demographic impact by the Spanish Influenza to the long-term population trends should not be forgotten.

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