

CHAPTER 7

INFLUENZA IN JAPAN'S MILITARY FORCES



Grave marker in Manila for 48 members of the crew of the warship *Yahagi* who died of influenza in 1918, erected on 19 January 1920, see pp. 233–34.

As in other countries, the military forces in Japan were a hotbed of outbreaks of the influenza that spread in 1918–1920. Japan was now a modern power, widely connected to world affairs, and in signing the Anglo-Japanese Alliance, it became involved in the events of World War I as they unfolded in Europe and Asia.

### **Influenza in the Japanese Navy Overseas**

In 1914, the British government requested Japan, under the terms of the Anglo-Japanese Alliance, to dispatch its navy to assist with protection of its transport ships in the Mediterranean against attacks by German U-boats and also to patrol in the South Pacific. The damage inflicted by the U-boats had grown quite serious<sup>1</sup> and the British navy was busy defending transport ships in the Atlantic and western end of the Mediterranean Sea. With the expectation of obtaining former German territories in the Pacific after the end of the war, Japan created the Second Special Fleet in 1917, consisting of a flagship and eight destroyers (another four were added later) and sent it to the Mediterranean. It was based at Malta and engaged in the defense of shipping in the eastern waters of the Mediterranean Sea. In the year and a half until the ceasefire, the fleet performed 348 shipping defense missions, fought in 36 major engagements, and rescued numerous crew members of British and French transport ships that had been sunk or been damaged by torpedo attacks.<sup>2</sup>

Malta (population about 200,000), which was the fleet's home base in the region, was hit by the "second wave" of the influenza epidemic between September and November 1918, and some 9,351 citizens of the island were infected with the virus, along with pneumonia and bronchitis, and 551 died.

Earlier in the year, the royal naval hospital on Malta had counted more than 300 influenza patients during the "herald wave" of May and June 1918, but only one had died of bronchopneumonia. In September the number of influenza patients was 480, in October 289, in November 146, and in December 126; of the 81 whose condition advanced to bronchopneumonia 41 died. The highest number of deaths occurred in October. Looking at how the Second Special Fleet of Japan fared amid the influenza outbreak on Malta, we find a report that there were nine deaths after the anti-U-boat campaign ended in October 1918. Seven of the nine died during the time of the influenza outbreak in Malta. It is a rather noticeable figure to have occurred after the end of the fighting, so the possibility is high that the deaths were caused by influenza. After all, the ships were not simply anchored in Malta, but had been visiting ports around the eastern Mediterranean, some ships even as far as Istanbul, so there is no telling where these crew members might

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1 Britain lost 620,000 tons of commercial shipping to U-boat attacks in the first year of the war, 1914, 1,600,000 tons in 1915, and 2,720,000 tons in 1916. Kino 1979, p. 15.

2 Kino 1979, p. 284, table 7; pp. 332–33.

have picked up the influenza virus. It seems fairly certain, however, that a number of crew members of the Second Special Fleet contracted influenza and that some died from it.

The serious loss of life occurred in the First Special Fleet based on Singapore. The cruiser *Yahagi*, one of the ships patrolling the South Pacific and Indian Ocean, anchored at Singapore just prior to returning to Japan. But as the ship coming from Japan to replace it on patrol came late, *Yahagi* was kept waiting for more than three weeks in that port directly on the equator. Aware of the risks, the captain gave his crew permission for a half watch ashore. Influenza had swept through Singapore earlier, and though its peak had passed, the virus was still active, and the sailors were infected. Between the time the *Yahagi* left Singapore and its arrival at its next port of call, Manila, so many of its crew were felled by the virus that it could barely keep its engines running. The log and report of the *Yahagi* recording the experience of the epidemic on-board was preserved in the archives of the Defense Agency and is translated in full in Appendix 2.

### Influenza and the Siberian Expedition<sup>3</sup>

In August 1918, the Japanese government announced that Japan would participate in the Siberian Intervention, beginning with a naval landing party at Vladivostok. Japanese troops in Siberia fluctuated in numbers but remained stationed there despite criticism from both within Japan and overseas until 1922.<sup>4</sup> Given the frigid climate of Siberia and the fact that influenza was on the rampage during the early phase of the intervention, it is not surprising that many soldiers were infected and died. Statistics regarding the situation as a whole are not available, but data from the recently reported patients' roster of a field hospital of the Siberian expeditionary force indicates that at even one such hospital the number of influenza patients was quite large.<sup>5</sup>

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3 This section was not based on really adequate documentation. At the time of writing I had just learned about Izaō Tomio's admirable *Shoki Shiberia shuppei no kenkyū* based on laborious study of reports in the *Fukuoka nichinichi shinbun* and documents related to the army's 12th Division (Kokura) sent to Siberia. I have not been able to fully examine the local newspapers and military records, so I direct the reader to these sources for further information.

4 Complete withdrawal of Japanese troops from Russian territory, however, did not take place until 1925 with the withdrawal from northern Karafuto (Sakhalin) under the terms of the Soviet-Japan Basic Convention.

5 Under the headline "The Spain Flu Ravages Imperial Japanese Army Ranks," a 17 May 2005 article of *Yomiuri shinbun* reported the discovery of 132 patient medical records from the Siberian Expedition's No. 5 Field Hospital and 398 patient records and hospital bed diaries of the Tokyo 1st Army Hospital. The documents are being analyzed by Dr. Kawana Akihiko and his colleagues at the National Center for International Medicine. Kawana presented some of the results of their study at the 79th annual conference of the Japanese Association for Infectious Diseases in April 2005 under the title "Supein kaze ryūkō kikanchū no Nihon no guntai-nai ni okeru 'ryūkōsei kanbō haien' shūdan hassei jirei no kentō" (A Study of the Case of Mass Outbreak of "Infectious Colds and Pneumonia" in the Japanese Military during the Period of the "Spanish Influenza Epidemic"). The materials are documents from sanitation-related agencies of the former Imperial Japanese Army. I am grateful to Dr. Kawana for allowing me the opportunity to peruse these documents.

The Sanitary Affairs Bureau of the Home Ministry report *Ryūkōsei kanbō* gives the following information: “According to a report from the Japanese consul in Vladivostok issued 28 January 1920, from early November to early December of the previous year, there were many influenza patients but mortality was comparatively low. The number of patients reported by the Imperial Army units from the beginning of the outbreaks to the end of January [1920] was 1,300 and the number of dead totaled 68; there were no patients or deaths reported by the navy.”<sup>6</sup> However, a 5 percent mortality among patients cannot really be called “low.” Newspaper articles published in the prefectures where the regiments sent to Siberia were based, moreover, report large numbers of patients and deaths (see map on p. 243). It is difficult to get a complete picture of what was happening, but I suspect that the numbers of patients and deaths reported in the *Ryūkōsei kanbō* are lower than they should be.

Without gaining complete support within Japan, the Allied intervention in Siberia began with the landing at Vladivostok of Japan’s expeditionary force on 12 August 1918 and that of the United States army on 19 August. Small contingents of British and French forces also participated, but the Japanese army stationed more than 70,000 troops from Lake Baikal eastward and along the border with northern Manchuria, moving far beyond what was necessary for support of the forces of Czechoslovakia that was the original purpose of the expedition, and setting off frictions with Allied countries, particularly the United States. Here I shall confine my remarks to those aspects of the expedition that involved the spread of the influenza.

The vanguard of the Japanese expeditionary force was made up of troops of the 12th Division in Kokura, northern Kyushu. The regiments that made up the division boarded ships at Moji and headed for Vladivostok. But August was also the time of rice riots in Japan, the reverberations of which had caused disturbances in cities around the country, some of which were suppressed with army troops, resulting in some deaths among the rioters. Some point out a connection between the rice riots and the Siberian Expedition, saying it was the cause of the skyrocketing price of rice. Before the rice riots, many people had turned out to see off the troops, but after the harsh suppression, the turnout was low.<sup>7</sup>

The author’s main source here was the *Fukuoka nichinichi shinbun*. An article dated 24 October 1918 is prefaced with the banner lines:

Pestilence spreading along the war front fells more than 1,000 officers and troops:  
Virulent form of the influenza?

The article goes on to report that as a result of the “pestilence,” the No. 2 Field Hospital in Khabarovsk had more than 300 patients in its care, that if patients in other field hospitals

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<sup>6</sup> *Ryūkōsei kanbō*, pp. 54–55.

<sup>7</sup> See Izao 2003, p. 117.

were counted, the total would be more than 1,000 patients, that 17 had died in the No. 2 Field Hospital, and that the symptoms were similar to those of influenza. It quotes the words of one army doctor saying he finds the “relatively high mortality alarming.”

Another article in the same paper on 25 October is headlined “Cause of the Epidemic in the War Zone” and introduces remarks made by an army captain returned from the front who says, “There is a reason our troops are threatened by the flu. It is because of the way buildings are well heated. Because rooms indoors are well heated, Russians have the custom of taking off their heavy coats when they are inside and then putting them on when they go outdoors, and this makes them strong against the outdoor cold. We Japanese, however, do not take off overcoats even when inside, and this makes us vulnerable to catching cold.” Japanese dwellings are famous for not being insulated against the cold, so wearing thick layers of clothing all the time was the widely established custom. This could be the reason for catching colds, but in the case of influenza, it was probably not a factor.

A 3 November article about influenza patients in the expeditionary force reads as follows:

#### Flu at the Front Lines

##### Report from the war zone

The outbreak of influenza in the ranks of the 12th Division has put many officers and men in hospital, their number increasing each day, and on top of that now there have been more than ten deaths. Reportedly the influenza outbreak hit several of our men staying in eastern Siberia around 24 or 25 October and spread with fearsome fury as far as Khabarovsk. The No. 2 Field Hospital was full of patients, and the dreaded flu moved further west and attacked the army units advancing west. All the patients in the No. 1 Field Hospital first and second divisions were influenza patients; there were no injured or non-flu patients at all.

The 12 November paper reports that a memorial service for the dead had been held and that four members of the 24th Regiment from Fukuoka, the location of the newspaper's head office, had contracted the disease, and one of them had died.

The 15 November *Fukuoka nichinichi* quotes the remarks of the chief of a transport battalion who returned to Japan as follows:

The influenza broke out in the expedition territory around the middle of September and spread through all the army units. In our own battalion alone 26 officers and men died and about 100 horses were also felled by the flu. It was a pitiful sight indeed. At the front the outbreak of influenza affects all—officers and men, and even horses.

Under the headline “Officers and Men in West Siberia and the Flu,” the *Fukuoka nichinichi* reported about the 12th and 3rd Divisions deployed in the three provinces of Russian Far East as follows:

The influenza that has been circulating in Japan recently is also spreading everywhere here with ferocity, and is extremely virulent, often advancing to pneumonia so that many patients have perished. According to a recent report, about 40 in the 12th Division and about 30 in the 3rd Division have died. These numbers are greater than for those lost in battle.

The situation was similar—though much smaller in scale—to that seen among the American soldiers sent to fight in Europe in the summer and autumn of that year. Eventually the 12th Division was brought back to Japan, after which there are no more reports in the *Fukuoka nichinichi*.

Now let us look at the record for the 3rd Division (Nagoya) sent to Siberia after the 12th Division (Fukuoka), as reported in the Nagoya-based *Shin Aichi* newspaper. The first article reporting on losses in the 3rd Division appeared on 11 October 1918, relating that two transport soldiers had died of the flu, and then on the 25th of the month, it published an article headlined “More than 1,000 Contract Influenza in Siberia”; it was very similar to the earlier-mentioned 24 December article in the *Fukuoka nichinichi*.

In the early part of November, articles reporting one death a day from the flu appeared, but on the 9th, it reported Division Commander Ōba as saying, “I’m very concerned at the large number of those with the flu. Just the day before yesterday the sub-lieutenant 1st class who was in our surveying group died . . . it is most regrettable to lose officers and men because of disease before they have even heard the sound of gunfire.”

An 8 November article introduced a telegram sent from Vladivostok stating, “All but two men fell ill in many of the companies, but when we told them they would soon go home, they all got up from bed.” The troops had lost all their fighting spirit, said the article. After the 3rd Division was recalled to Japan in February 1919, there were no further articles on the influenza in Siberia in the *Shin Aichi*.

The Japanese expedition in Siberia was so strongly criticized internationally that the troop strength was decreased to one-third the original force. The 14th Division (Utsunomiya) has been sent, but according to the *Niigata shinbun*, there was an outbreak of influenza accompanied by pneumonia among its ranks beginning around November 1919. The same newspaper reported on 22 January 1920 that according to a 16 January report from Vladivostok, the spread of the flu among the expeditionary forces increased even more. The paper cited the report of the chief surgeon of the division: “In the first ten days of January there were 100 new flu patients in the 14th Division and of them four died. The total number of patients since the middle of November last year is 424, of whom 16 died.”

The same article continued, "According to the report of the chief surgeon of the division sent on the 17th from Vladivostok, 22 patients are reported in the area around Zabaikal. New cases are continuing. There are new patients in Nerchinsk, there are many in the Maritime region as well as in the south at Wusuli, with 171 new cases and nine dead. The total number of cases reported in the army is 1,372, of whom 68 died."

After the above report, there is only one related article in the *Niigata shinbun* about a single deceased soldier in the 14th Division, but the 18 November 1919 *Manshū nichinichi shinbun*, published in Dairen, the Kwantung Leased Territory, under the headline "Our Troops Hit Hard: Large Number of Dead and Injured in Siberian Force," cites a telegram from Tokyo giving the number of dead in battle, number of injured, number who died from illness, and number who were ill. The figures given in the article from the time the expedition began to 16 November 1919 are 572 battle dead, 483 injured, 436 dead from disease, and 53,257 patients. (The large number of dead and injured from fighting occurred in the 12th Division soon after landing.) The number lost in battle is not very far from the total war dead in the 1894–1895 Sino-Japanese War (977).<sup>8</sup> The paper attributed the large number of patients to the prevalence of soldiers who could not adapt to the Siberian climate and succumbed to the influenza.

As we can tell from these newspaper reports, the impact of the influenza pandemic on the Siberian Expedition from around September 1918 was considerable. Since there are no systematic statistics available, we cannot ascertain the total number of cases of influenza, the number of deaths, or the infection or mortality, but the reports of overflowing field hospitals give us a picture of the ferocity of the outbreaks.

In 1920, after many of the battalions had returned to Japan, we find an article in the *Shin Aichi* newspaper on 11 January with the headline "1,000 Flu Patients in Expeditionary Force; 53 Dead; Infection Spreading Fiercely," reporting that the forces were much troubled by both frostbite and influenza. In a 2 February article under the headline, "Our Expedition Troops Suffering from Influenza" an officer returned to Tsuruga from Vladivostok is quoted as saying that "Currently, among the Japanese troops stationed in Siberia the influenza is spreading, causing many deaths, with signs that it will continue to rage ever-more fiercely, so the authorities are determined to find ways to halt it." Clearly the troops sent to Siberia were far from being in a normal situation.

One other point that should be noted regarding the report on the death toll from the Siberian Expedition is that the description of the losses is quite explicit. Such freedom of press is not seen in reporting on the wars conducted during the Shōwa era (1926–1989),

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8 Recent research indicates that the number of dead in battle on the Japanese side in the First Sino-Japanese War was 1,415 while the number of deaths from illness was 11,894. See entry on "Nisshin sensō" in the *Kokushi daijiten*, vol. 11. The deaths from illness in that war, eight times as many as deaths in battle, were mostly the result of cholera and beriberi resulting from the diet of white rice fed to the troops. See Yamashita 1988, table 66 on p. 442.



and was possible for various reasons: first because the Peace Preservation Law of 1925 had yet to be passed; second, there was considerable opposition to the Siberian Expedition within Japan, giving special meaning to the recording of the losses on the part of the reporters; and finally because of the “Taishō Democracy” trend in Japan at the time under which the populace was awakening to the “right to information.”

### **The Military and the Epidemic in Japan**

We have just learned how the influenza epidemic affected the Japanese troops sent overseas. Now let us turn to the influenza situation in the army and navy on the main islands of Japan.

#### *Situation in Army Hospitals*

First, I will cite some statistics from the *Nihon Teikoku tōkei nenkan* (Statistical Yearbook of the Empire of Japan) showing the numbers of patients in the army and navy hospitals who suffered from influenza or respiratory diseases. Table 7-1 illustrates how many were treated at army hospitals<sup>9</sup> and how many of them died. The year 1917 was before the outbreak of the influenza pandemic and the figures for that year can be regarded as those of a “normal year.” The number of deaths and the mortality from pneumonia that year may look very high, but this mortality, when calculated in terms of the entire army of 300,000 troops in 18 divisions, would come to only 0.1 percent, not a particularly high figure at all.

The following year, 1918, however, the number of patients with influenza jumped 4.5-fold. The number of patients suffering from other illnesses increased as well. All the respiratory disease patients (including influenza patients) went up four-fold. The number of deaths from the respiratory diseases increased ten-fold and mortality also rose. Patients would have included multiple categories—for example, a patient at first with influenza could develop acute bronchitis and then pneumonia. The figure of over 80,000 patients said to have been diagnosed with influenza was equivalent to a quarter of all the patients in the entire army. At the time of the Early Epidemic, that is, the last three months of 1918, however, what happened in the U.S. army barracks assaulted by a “second wave,” as described earlier, did not occur, and the number of deaths and the mortality were presumably lower than during the “herald” outbreak in the spring of that year. That may have been because, unlike the United States, which was involved in the World War I, Japan was not in a state of war other than in its occupation of Qingdao, the above-described role of the navy overseas, and its expedition to the joint-Allied Siberian Intervention; military drills and marches were not very intensive, either.

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<sup>9</sup> As of 1918 the army had 81 main hospitals and 43 branch hospitals throughout Japan, such as those attached to the headquarters of each division and of each regiment, with a total of 1,980 people on staff, including 264 doctors and surgeons. *Nihon Teikoku tōkei nenkan*, vol. 39 (1918).



**Table 7-1. Numbers of Patients and Deaths, by Disease, at Army Hospitals (1917–1921)**

	Name of disease	1917	1918	1919	1920	1921
Patients	Influenza	1,793	80,471	21,733	37,698	25,159
	Tuberculosis	887	1,190	1,008	1,123	1,148
	Acute bronchitis	15,842	20,383	19,372	20,414	23,269
	Chronic bronchitis	422	440	419	524	415
	Pneumonia and catarrhal pneumonia	1,114	1,559	162	437	466
	Pleurisy	3,535	5,034	5,003	5,962	5,701
	Other respiratory disease	3,456	4,107	4,914	5,972	6,964
	Subtotal	27,049	113,184	52,611	72,130	63,122
Total of patients from all ailments		201,877	311,981	245,908	283,277	294,125
Deaths	Influenza	1	85	646	1,578	60
	Tuberculosis	17	35	32	25	23
	Acute bronchitis	0	0	0	0	0
	Chronic bronchitis	0	0	0	0	0
	Pneumonia and catarrhal pneumonia	60	121	33	33	28
	Pleurisy	7	21	21	7	9
	Other respiratory disease	1	1	42	5	4
	Subtotal	25	263	774	1,648	124
Total of deaths from all ailments		385	651	1,157	1,985	499
Mortality (%)	Influenza	0.6	1.1	29.7	41.9	2.4
	Tuberculosis	19.2	29.4	31.7	22.3	20
	Pneumonia and catarrhal pneumonia	53.9	77.6	203.7	75.5	60.1

Note: The number of patients for each category is a combined figure of patients from the hospitals of army units and of army-related academies on the mainland and hospitals of army units stationed in Taiwan and elsewhere overseas. Source: *Nihon Teikoku tōkei nenkan*, 1917, 1918, 1919, 1920, and 1921.

In 1919, however, while the number of patients with influenza decreased to nearly a quarter of that in the previous year, the number of deaths from influenza shot up 7.6-fold. Rather uneven disparities for deaths from other respiratory diseases compared with the previous year suggest some inconsistency in the statistics. Deaths from influenza clearly increased by a large figure and mortality of patients with influenza rose sharply to nearly 30 per mil. As for patients with pneumonia, while the sample size was small, five out of every ten patients died, virtually the same tragic level as seen in the army barracks in the American South described by Louis Adamic (see Chapter 3). The year 1919 included both the Early Epidemic extending from January to the spring of that year and the Late Epidemic that occurred in December.

The next year, 1920, saw the largest number of deaths from influenza in the three-year period of the pandemic, and the mortality of patients with influenza climbed to close to 42 per mil. The pandemic ended in April that year, which means that the “largest number of deaths” occurred in the first three months of that final year.

One question that arises from looking at this chart is why it does not show deaths from either acute or chronic bronchitis in any of the three years of the pandemic. Many patients with influenza, it was said, died after the influenza was complicated by, or worsened into cases of bronchitis or pneumonia. Therefore, it is hard to believe that there were no deaths from bronchitis.

In the final analysis, at army hospitals in the three-year period of 1918–1920, 2,309 died from influenza, and a total of 2,685 died from respiratory diseases, including the influenza deaths. In 1917, a normal year, the number of deaths from influenza was almost nil and among all patients with respiratory diseases only 25 died. Given these figures, it may be safely said that the patients with respiratory diseases who died in 1918–1920 were those afflicted directly or indirectly by the influenza pandemic. That is the minimum figure, and the deaths from unidentified diseases—therefore classified under the category of “Other”—must have included many who died from influenza as well.

### *Mortality in the Army*

Table 7-2 shows how many died in each of the army divisions by year. The deaths in Siberia in the divisions participating in the Siberian Intervention were apparently excluded. The cities given were the locations of division headquarters at that time. From the table we see that overall deaths in each division increased from 1917 and peaked in 1920, a pattern that agrees with the way deaths from respiratory diseases, mostly influenza, rose as indicated in the table. The increase in the number of deaths in army divisions therefore reflects an increase of soldiers who died from influenza.

Since the number of personnel did not differ much from one division to another, the disparities in number of deaths can be seen as reflecting the degree to which individual divisions suffered from influenza. Deaths for the 3rd Division (Nagoya) in 1919 and deaths for the 13th Division (Takada, Niigata prefecture) were too few, most likely a misprint. The divisions most severely affected in 1918–1920 were the Imperial Guard Division and the 1st Division, both in Tokyo, the 4th Division in Osaka, and the 10th Division in Himeji, all headquartered in or on outskirts of large cities. In the peak year of 1920, deaths also exceeded 100 in the 2nd Division in Sendai and the 12th Division in Kokura.

Among the divisions least affected were the 5th Division in Hiroshima, the 9th Division in Kanazawa, and the 14th Division in Utsunomiya. In connection with the Siberian Intervention, the number of deaths in the 12th Division (Kokura), which was dispatched to Siberia, was small during the Intervention, but jumped up in 1920 after

**Table 7-2. Soldier Deaths by Division (1917–1921)**

Division	Place HQ located (prefecture)	1917	1918	1919	1920	1921
Imperial Guard	Tokyo (Tokyo)	25	25	65	171	30
1st	Tokyo (Tokyo)	27	45	70	137	35
2nd	Sendai (Miyagi)	15	23	64	132	17
3rd	Nagoya (Aichi)	8	19	2	76	10
4th	Osaka (Osaka)	12	37	64	140	18
5th	Hiroshima (Hiroshima)	14	23	23	31	22
6th	Kumamoto (Kumamoto)	16	33	23	89	19
7th	Asahikawa (Hokkaido)	14	10	72	36	16
8th	Hirosaki (Aomori)	18	22	68	96	17
9th	Kanazawa (Ishikawa)	10	21	34	55	5
10th	Himeji (Hyōgo)	14	34	54	209	17
11th	Zentsūji (Kagawa)	15	31	31	81	3
12th	Kokura (Fukuoka)	25	15	21	148	33
13th	Takada (Niigata)	10	30	78	5	7
14th	Utsunomiya (Tochigi)	15	31	52	16	23
15th	Toyohashi (Aichi)	17	23	87	55	18
16th	Kyoto (Kyoto)	19	49	57	45	20
17th	Okayama (Okayama)	12	27	56	78	21
18th	Kurume (Fukuoka)	16	26	30	62	19
Schools		2	7	4	21	12
Other		2	0	0	0	0
Total		306	531	955	1,683	362

its return home. The 3rd Division (Nagoya) also participated in the Intervention in 1918, during which time the division's number of deaths was small, but the number rose sharply the following year.

The differences in number of deaths among the divisions can be attributed, at least in part, to the degree to which the locales where they were based experienced influenza outbreaks. Other conditions specific to each division, such as intensity of exercises and training and medical and sanitary conditions, must have had an effect on the number of deaths as well.

*Naval Hospitals*

Now let us turn to the navy. The statistics available for the navy lack figures for the year 1921. The records for that year may have been burned and lost during the Tokyo earthquake and fire of 1923. The numbers of patients and deaths in naval hospitals<sup>10</sup> are represented in Table 7-3, showing trends more or less similar to those observed in the army. Deaths of patients with influenza, which were very few in 1917, increased sharply in 1918 and then declined considerably in 1919–1920. The annual number of patients not afflicted with respiratory diseases is obtained by subtracting the “subtotal” in the chart (patients with respiratory diseases) from the “total” of all patients. This annual number was constantly about 45,000 over the four years, which means that the fluctuation in the total of all patients from year to year was determined by the rise and fall in the number of respiratory disease patients. This trend indicates that it was influenza that was the cause of changes in the number of patients in naval hospitals.

**Table 7-3. Numbers of Patients and Deaths, by Disease, at Naval Hospitals (1917–1920)**

	Name of disease	1917	1918	1919	1920
Patients	Influenza	95	16,465	5,153	3,238
	Tuberculosis	346	425	567	527
	Bronchitis	3,408	3,331	3,908	3,182
	Pneumonia	119	202	51	454
	Pleurisy	1,085	1,746	1,795	1,531
	Other respiratory disease	863	848	1,086	447
	Subtotal	5,916	23,017	12,560	9,379
	Total	50,037	67,327	57,770	53,842
Deaths	Influenza	1	111	218	53
	Tuberculosis	20	47	45	52
	Bronchitis	0	2	1	2
	Pneumonia	18	32	2	0
	Pleurisy	10	18	23	18
	Other respiratory disease	0	6	3	1
	Subtotal	49	216	292	126
	Total	360	941	551	367
Mortality (%)	Influenza	10.5	6.7	42.3	16.4
	Tuberculosis	57.8	110.6	79.4	98.7
	Pneumonia	151.3	158.4	39.2	0

Source: *Nihon Teikoku tōkei nenkan*. Figures for 1921 are missing.

10 No statistics are available giving the exact number of navy hospitals in those days, but the navy had numerous medically trained personnel; as of the end of 1919, it had 435 physicians and surgeons (eight with rank of admiral, 155 of captain or commander, and 272 of lieutenant) and 1,234 nursing staff (53 with rank of warrant officer, 371 of petty officer, and 810 of seamen). *Nihon Teikoku tōkei nenkan*, vol. 39 (1918).

Deaths from respiratory diseases peaked in 1919, but what is notable is that here, too, the number of deaths not from respiratory diseases—as obtained by subtracting the “subtotal” of deaths from respiratory diseases from “total” deaths—is about 250, both in 1919 and 1920, and this number can apply to 1917 and 1918. “Total” deaths in 1917 is “360” and the subtotal of respiratory patients is 49; that year the destroyer H.M.S. *Sakaki* that belonged to a fleet sent to the Mediterranean Sea was torpedoed by a U-boat off Crete and seriously damaged, resulting in 59 deaths. If this figure and the “49” are subtracted from “360” we will get about “250.” Likewise, we need to consider the fact that some 600 lives were lost in 1918 when the battleship H.M.S. *Kawachi* suffered a magazine explosion off the coast of Yamaguchi prefecture and sank. In the case of the navy, therefore, it could happen that a ship sank with many lives lost, so a sudden increase in total deaths was not necessarily linked to influenza.

**Table 7-4. Deaths of Naval Officers and Sailors (1917–1920)**

Year	1917	1918	1919	1920
On-board	269	732	281	162
Yokosuka marines	25	67	78	53
Kure marines	15	41	69	24
Sasebo marines	27	37	42	49
Maizuru marines	12	32	64	22
Naval bases	4	14	2	5
Schools	7	15	15	15
Other	1	3	0	37
Total	360	941	551	367

On-board: Including deaths resulting from accidents 73 in 1917 and 640 in 1918. Source: *Nihon Teikoku tōkei nenkan*, 1917, 1918, 1919, 1920.

As observed above, the deaths include those not just in Japan but resulting from overseas war operations; even in Japan deaths include those from accidents. The 48 deaths from influenza on the cruiser *Yahagi*, described earlier, were probably included as part of “deaths” from either “influenza” or “pneumonia” for the 1918 statistics.

The mortality pattern in the navy was somewhat different from the army. It was in 1918 that mortality in the navy was at its peak because in this year there was a huge number of deaths resulting from the explosion of the ammunition magazine on the battleship *Kawachi*.

*Newspaper Reporting*

Newspaper articles reporting on the connection between the military forces and influenza are too numerous to cover in detail here, beginning early on with the “spring herald” wave of 1918. The 8 May article in the *Shimotsuke shinbun* (Tochigi prefecture) and the 10 May article in the *Toyama shinpō* about patients in an Imperial Guard regiment in Tokyo were the earliest. The army-related news was given only small space, printed alongside an article about the possible absence from the ring of some sumo wrestlers, including a highest-ranking *yokozuna*, because of serious cases of influenza among the wrestlers facing off in the coming tournament. Also on 10 May, the *Ōsaka Mainichi shinbun* reported that while encamped in the Tanba area starting 9 April, the Himeji field artillery corps found some soldiers suffering from fever and that, after returning to barracks, more than 100 were diagnosed with paratyphoid, including unconfirmed cases. The article does not use the word “influenza” (i.e., *ryūkōsei kanbō*), but it is a report to keep in mind in this study.

More reports of influenza in the military appeared by the end of May (*Ōsaka Mainichi shinbun* and *Kōbe shinbun*, for example). The *Ōsaka Mainichi shinbun* article, dated 31 May, under the headline “Fever in Kokura Regiment,” reported that the hospital of the 14th Infantry Regiment in Kokura (Kyushu) had diagnosed 28 soldiers as having influenza on 21 May, and 17 more on 23 May.

The *Kōbe shinbun* reported quite heavily on the “herald wave.” Its first article appeared on 22 May, headlined “Cerebrospinal Fever at the Army?” It cited an incident in which a soldier in the Himeji 39th Infantry Regiment suddenly died the day after returning from field exercises. The article suspected that he died from cerebrospinal fever (cerebral meningitis), then occurring quite commonly. On 4 June, the same newspaper reported that the cause of the soldier’s death was influenza, adding that 107 soldiers of the Himeji 10th Infantry Regiment had contracted influenza and had been sent to the army hospital, with another 30-some patients being kept in isolation. The regiment’s hospital was soon filled to capacity and isolation rooms set up in the barracks. The patients, however, had gotten better quickly and even those in serious condition had left the hospital within five to seven days, reported the newspaper the following day. However, on 7 May the newspaper had noted a sharp increase of influenza patients in the 10th Regiment, with 69 hospitalized and 438 kept in isolation. One cannot help but wonder whether poor ventilation and natural lighting in the barracks, built in 1874, had something to do with the spread of infection.

The spread of influenza was not limited to the army. An outbreak of influenza on a ship anchored at the Yokosuka naval base was reported in May and the fact that more than 100 personnel had contracted influenza on two warships at anchor at the Kure naval base was reported in the 8 June edition of the *Kōbe shinbun*. Of the latter, 20 had been sent to the local naval hospital where they revived in three to five days. The June 10 edition of the newspaper told of more than 1,000 workmen who contracted influenza

at the naval arsenal in the port city of Maizuru and that over 200 crewmen on a warship in port had also been down with the flu. Then and now a major international port city, Kobe and the local press took a special interest in information about such outbreaks.

What about other newspapers? Two or three conspicuous examples illustrate coverage of the influenza epidemic in the military. In early June 1918, influenza began to spread through the regiments of the 4th Division in Kanazawa (Ishikawa prefecture). The news was reported by the local newspapers *Hokkoku shinbun* and *Toyama shinpō*. The 11 June edition of the former had an article headlined "Military Influenza: 600 Struck within Ten Days," describing the outbreaks in each regiment. The first patient was identified on 1 June, but the article stated optimistically, "The microbe was very weak in the first place and in addition all the doctors of the army hospital took the best measures they could. So, non-serious patients fully recovered in one day and even the serious ones in a few days. Now the epidemic is on the decline." The *Toyama shinpō*, took a more realistic stance: after outlining the situation in each regiment, it alerted readers that "the transmission of the infection is extremely intense" (14 June).

From 12 to 17 July, local newspapers in the Tōhoku (Ōu) region, including the *Tō-ō nippō*, *Iwate nippō*, *Akita Sakigake shinpō*, and *Yamagata shinbun*, all published articles on the outbreaks of influenza in the army regiments of the 8th Division in Hirosaki, Aomori prefecture. This epidemic at the northernmost prefecture of the nation's main island of Honshu was also reported in the *Jiji shinpō* in Tokyo as well as in the *Shinano Mainichi shinbun* in Nagano prefecture and the *Hokkoku shinbun* in Ishikawa prefecture. The *Iwate nippō* gives the greatest detail. According to its 12 July edition, some 1,000 men had contracted influenza in the Hirosaki 52nd Infantry Regiment, 700 in the Division's 31st Regiment (Hirosaki city), 100 in the Hirosaki field artillery corps, 700 in the 17th Regiment (Akita city), and 400 in the 5th Regiment (Aomori city), for a total of 4,000 patients counted since the initial outbreak began. The epidemic then spread to the cavalry regiment (14 July edition) and to the engineering regiment (16 July edition). It appeared that nearly half of the Hirosaki Division's troops had fallen ill. There were no articles mentioning deaths, however, and the patients reportedly recovered within one week.

For some time after the end of summer 1918, there were no newspaper articles on the military in connection with influenza. During the initial stage of the Early Epidemic that began in October, there was little mention of influenza related to the military, with most reports devoted to the widening spread of influenza and the rising number of deaths therefrom among the citizenry in general. That may have been because many officers and men had acquired immunity during the epidemic that had swept the military forces during the "herald wave."

In the final month of 1918, reports began appearing in many newspapers about influenza outbreaks in military barracks. The most notable features of these Early Epidemic outbreaks were the incidences of death and the numerous patients among new recruits. During the "herald wave," many military personnel did contract influenza but I found



no reports of death. In December, however, newspapers began reporting many deaths in the military, mainly among new recruits. In those days most new recruits joined the military on December 1. That year, many died soon after enlisting. Let me introduce a few examples in some detail.

Concerning the 8th Division in Hirosaki, the local newspaper *Tō-ō nippō* reported on 12 December that, while spread of influenza among civilians had slowed, the flu was rapidly spreading through the regiments of the 8th Division. In the 31st Regiment, more than 500 men were struck within five days, and two died at the army hospital. In one tragic case a soldier was diagnosed with influenza one morning and died 12 hours later. The report thus described the worsening of the epidemic in the army despite its having passed by among the general citizenry of the prefecture.

The 21 December edition of the *Tō-ō nippō* included an article saying that a total of 1,476 men in the Hirosaki Division had been infected and that 29 had died, listing the numbers of patients and deaths by regiment. The important information in this article is this passage: “Other than two soldiers in the cavalry corps, the remaining 27 deaths were fresh recruits.” New recruits had passed the physical examination and qualified as Grade One conscripts, but it was they who were the easy targets of the influenza virus. Soldiers who had joined earlier, except for a small number, probably had contracted the virus during the “herald wave” and acquired immunity, and that was probably why most of them were not affected by the Early Epidemic. Most of the recruits, on the other hand, must have been living in rural farming areas of Aomori, Iwate, and Akita prefectures until then and presumably had not been exposed to the “herald wave” nor experienced the autumn phase of the Early Epidemic. Defenseless, they took up residence in the army barracks, breathed in and succumbed to the influenza virus, and some of them died in less than two weeks after joining the army.

One reporter of the *Tō-ō nippō* wrote an article after a visit to an army hospital. Carried in the newspaper on 19 December, it reported that as of the 16th, according to the hospital’s doctors, 125 patients in the internal and surgical departments, all but 40 in the whole hospital, had influenza. Twenty-five of the influenza patients were in serious condition, including 15 new recruit patients from the 31st Regiment. The reporter made the rounds of the wards and described what he saw in Room 5 for patients with serious cases:

Orderlies were disposing of patient excretions, nurses were cooling patients’ heads with icepacks. Everyone was working hard under the doctor’s direction. The patients looked like they were in living hell. Some were in so much pain that they were moaning in pitiful tones or shouting out loud. Others seemed to be in a coma. The expressions of others were grotesque, their eyes virtually popping out of their sockets. It was a ghastly scene almost impossible to describe.

To be sure, soldiers had to submit to the forced limitation of their activities that was part of being in the military, and they could not be freed from the strict rules, the physical training regimens, or the military drills even if they felt somewhat out of sorts. But for the virus, groups of such young men without any immunity and living in such close quarters made the perfect targets. The military forces were ideal propagation populations for the influenza virus, whether in army barracks or in the holds of naval ships.

Another example of reporting on the impact of influenza among new recruits concerns the 13th Division in Takada (Niigata), especially the 50th Infantry Regiment in Matsumoto. The first newspaper to report an outbreak in the regiment was the local paper *Shinano Mainichi shinbun*. Its 9 December 1918 edition carried an article with the headline "Dozens of New Recruits Down with 'Virulent Flu,'" indicating that many new recruits in the Matsumoto 50th Infantry Regiment had contracted influenza and that scores of them had been hospitalized, three having died. According to the 15 December edition more than 200 new recruits had been infected, over 60 hospitalized, and 12 had died. A 17 December article said the flu was not often seen among older soldiers but continued to spread among new recruits to the extent that the hospital could no longer accommodate the influx of patients. "Proper training of new recruits cannot possibly be conducted under these conditions," it said. It also reported that the influenza then spreading, which caused healthy young men to suddenly develop high fevers of 40 degrees C (104 degrees F) and become easily susceptible to pneumonia, was totally different from what had been previously known. Toward the end of the year the influenza activity slowed down, but by then 19 new recruits of the regiment had died.

The plight of the Matsumoto regiment was also reported in the 15 December edition of the *Tōkyō Asahi shinbun*, but it was not the only one to suffer. Other regiments of the 13th Division (Takada), too, were seriously affected. On 16 December, the *Tōkyō Asahi* published a special dispatch from Takada reporting that the number of deaths from influenza in the 13th Division had risen to 35.

The *Shinano Mainichi*, too, shifted its focus from the Matsumoto regiment to the whole 13th Division. Its 16 December edition gave an overview of the situation in the regiments not only at Matsumoto but at Takada, Shibata, and Muramatsu, stating that the latest figure for the total number of deaths was 34. According to the 19 December edition, the number of influenza patients in the 13th Division totaled 1,064, of whom 295 had been serious enough to be hospitalized. A spokesman for the Division said the 13th was hit the hardest of all the divisions in the country and that a medical officer from the Medical Affairs Bureau of the Ministry of Army had come to inspect the situation.

A 21 December article reported that autopsies of some of the soldiers had been performed by army hospital doctors with the consent of parents and bacterial cultures had been studied. Most of the dead soldiers were found to have developed acute pneumonia, their respiratory tracts filling with mucus, and hemorrhaging of the lung tissue. These are

characteristic features of the 1918–1920 influenza pandemic. Today we know that the influenza virus attacks the cells of the lungs, leading to hemorrhaging. Within the scope of medical knowledge at the time, bleeding in the lungs was a matter of great alarm.

The 8 January 1919 edition of the *Shinano Mainichi* showed the number of patients for new recruits and second-year soldiers separately, as well as the number of deaths by regiment. I include this valuable information here in full (Table 7-5), and have added the totals and mortality for further reference.

**Table 7-5. Influenza Patients and Deaths in the Takada 13th Division by Regiment**

Regiment (camp)	Number of patients			Number of deaths	Mortality (%)
	New recruits	Second year	Total		
16th Infantry (Takada)	186	41	227	11	48.5
30th Infantry (Shibata)	192	29	221	8	36.2
50th Infantry (Matsumoto)	273	37	310	22	71.0
58th Infantry (Muramatsu)	251	34	285	16	56.1
17th Cavalry	30	38	68	4	58.8
19th Artillery	4	1	5	1	200.0
13th Engineering	35	16	51	3	58.8
13th Transport	24	4	28	4	142.9
Total	995	200	1,195	69	57.7

As the table shows, there were nearly five times as many new-recruit patients as second-year-soldier patients. The mortality of the former was much higher than that of the latter.

The spread of influenza at the time of the enrollment of new recruits repeated itself in December the following year, and at that time it was reported by almost all newspapers across the country.

Probably because of its experience with detailed reporting on the conditions of influenza in the 8th Division (Hirosaki) the previous year, the local Aomori newspaper *Tō-ō nippō* reported, as early as 7 December 1919, that the Division was watching carefully and that a few, although not many yet, had come down with influenza. As of that point of time, the number of patients with influenza kept in quarantine in the army hospital was 29, of whom 17 were in serious condition and three in critical condition. As in the previous year the most serious patients were new recruits. As the influenza began spreading in the city of Hirosaki, the 9 December *Tō-ō nippō* included an article subtitled “From military forces to civilians.” If that was indeed the direction of infection, the influenza epidemic that year, unlike in the previous year, originated in the army. In 1918 the endemic had begun spread-

ing first among civilians in October and then subsided for a while in December, when it had recurred in the army. The transmission of the virus from civilians to the military was reversed in December 1919.

As if aware of that reverse, the *Tō-ō nippō* reported that citizens infected with influenza were limited to those living in the vicinity of army facilities. Its 13 December edition stated that 205 army personnel of the Division had been hospitalized and four had died. There were some cases, however, in which a new recruit had already contracted influenza by the time he had enlisted and was hospitalized without entering the barracks (14 December edition). That indicated that the influenza endemic had already begun spreading to some extent among citizens of Aomori prefecture by the time new recruits enlisted in the army.

Be that as it may, the spread of influenza was accelerated both in the Hirosaki Division and in the city of Hirosaki, and numbers of patients and deaths continued to rise toward the end of December.

As in the previous year, the overwhelming majority of influenza patients in the Division were recent recruits. The 21 December edition stated that among 148 hospitalized patients from the 31st Regiment only 21 were older soldiers and that among the 15 who had died 13 were new recruits. Cases of influenza in the Hirosaki Division finally declined in January 1920, but the 6 January edition noted that the number of hospitalized patients was decreasing whereas that of deaths was on the increase, and said that 36 of the dead had been cremated as of 5 January. Ultimately, 41 patients died (23 January 1920 edition). In Aomori prefecture in general, the influenza continued much longer, until its "complete end" was reported in the 7 May edition. The epidemic ended in Aomori latest among all prefectures of Japan. Some 565 died, twice the number in the Early Epidemic (281). Newspaper reports such as those above strongly suggest that the Late Epidemic in Aomori prefecture occurred simultaneously in the military forces and among citizens.

The influenza epidemic that struck the army in late 1919 targeted new recruits as in the previous year, and spread more widely through the country. The *Shin Aichi* newspaper reported on the condition at the local regiments in Toyohashi (Aichi prefecture), saying, "influenza hits simultaneously with enlistment" and that the "great majority [of hospitalized patients] were new recruits" (16 December 1919 edition). On the same day, the newspaper reported on the influenza raging at the Kure naval base, and on 18 December it covered conditions in different parts of the country, saying, for example, "The influenza infected 600 soldiers of the Imperial Guard." The report indicated that the suspected reason for so many patients of the Imperial Guard Division might have been that new recruits had entered the Division from throughout the country. Indeed, the 1st Division, also based in Tokyo, whose new recruits were from Tokyo and vicinity, had only a small number of patients at that point of time. On 22 December, the

*Shin Aichi* conveyed the news that regiments of the 16th Division (Kyoto) stationed in Manchuria had many influenza patients and deaths and that in the Tsu regiment of Mie prefecture, 200 were quarantined in its hospital in addition to 150 other patents, with no signs of improvement in the situation. It stated that a similar condition could be found in the marine corps, military academies, and on ships docked at Yokosuka, Sasebo, and Maizuru, and that there were many patients and mortality was high among new recruits who fell ill.

The 27 December edition the *Shin Aichi* reported that the total number of patients with influenza in all the divisions of the Imperial Army had reached 8,500, the division with the largest number being the Imperial Guard (Tokyo) with 1,300, followed by the 8th Division (Hirosaki) with 746, the 20th Division (Yong Sang in Korea) with 700, and the 2nd Division (Sendai) with 680, in that order. With as many as 40 deaths, the Tsu Regiment had requested the Red Cross Hospital to dispatch a relief medical team. On 29 December, the *Shin Aichi* reported that influenza patients in the entire army totaled 9,861, and that 350 (35 per mil) had died. That mortality was much higher than in the previous year, and the newspaper described the epidemic as “even more virulent than last year’s.”

In 1920 the *Shin Aichi*’s first report on the influenza in the military appeared on 7 January, saying the influenza epidemic in the Toyohashi Regiment was coming to an end, with a total number of 17 deaths. The 11 January edition reported on the status of the influenza among the Japanese troops sent to Siberia and also related that the spread of influenza had begun to recur in the Toyohashi Regiment. On the next day, the newspaper devoted a fairly large amount of space to coverage of the status of influenza in various parts of the country, stating that the flu that had broken out in the 19th Infantry Regiment in Tsuruga prior to the enlistment of new recruits, eventually spreading to all the divisions of the army in the country, and ending with 13,200 patients and a devastating figure of more than 600 deaths. In Tokyo, too, it said, along with 100 deaths suffered by the Imperial Guard, many in the 1st Division were contracting the influenza and were dying.

The influenza epidemic in the army finally died down toward the end of January 1920. The 30 January edition of the *Shin Aichi* wrote “Among influenza patients within the entire army a total of more than 1,300 died” and then summarized the status of the influenza in various army units for all of Japan. According to this report, a total of 25,748 members of the Japanese Imperial Army had contracted influenza in the divisions, garrisons, and expeditionary forces of mainland Japan and in its overseas territories, of whom 1,336 died, the mortality of patients being quite high at 52 per mil. As a whole, said the report, the epidemic had slowed, but at the 4th Division (Osaka) new infections were still being reported. The division that had suffered the most was the 10th (Himeji).

The 2 March edition of the *Shin Aichi* concluded its report by saying that “influenza attacked 31,000 and claimed the lives of 1,800,” for a mortality of 58 per mil. Because of many new recruits among the patients, a plan was proposed in the army to vaccinate the young men prior to their enlistment (8 March edition). Whether the plan was carried out or not is not known, but even if some kind of vaccination had been performed, it would not have been able to prevent influenza.

### **High Risk Influenza Hotbed**

Finding desirable hosts in ample supply in the army, the influenza virus went on the rampage. It sometimes spread from civilians to the military and other times from the military to civilians. The most comfortable place for the virus to enter and thrive was the barracks and ships' holds inhabited by young men who had just joined the military, thereby turning the military into a group of people closely related to the influenza epidemic.

Military forces house personnel in close quarters and those housed are subject to various forms of coercion. They cannot request exemption from military drills or training just because they feel unwell. Only when they developed a fever, severe coughing, or congestion did officers and men go to the hospital or consult a doctor. By then, however, their influenza would have progressed to a serious stage. Even if they had been diagnosed earlier, however, there would have been no fewer patients or deaths, for there was no effective method to deal with influenza in those days.

As noted in Chapter 2, the world's first reports of the 1918–1920 influenza concerned the army barracks in the American Middle West. The influenza went on to attack soldiers on both the Allied and German sides on the Western front in World War I Europe. The virus underwent a mutation in port towns of Europe and Africa and circled back, attacking military regiments in the United States again, causing many to die. Carrying the virus with them, American soldiers then crossed the Atlantic and went to the European front, where they infected not only each other but soldiers of France and Britain—of course Germany as well—and hundreds of thousands of lives were lost that had nothing to do with the fighting. It was an army that marched into war bearing the Spanish influenza virus literally within it. In the process, a great many civilians were infected as well; they fell ill, many coming to the verge of death, and many of the unlucky lost their lives.

In the case of Japan, it was not always the case that the virus moved from the military to civilians, but its spread among new recruits who had passed physical examinations for conscription, and entered the army barracks mostly on 1 December was a notable feature. Service in the navy was voluntary but new recruits joined the navy in early December, too, and the combined yearly total of new recruits in the army and navy was probably 70,000 or 80,000. So the date December 1 was significant in the Early and Late epidemics in the military.

In the 1918 Early Epidemic, influenza raged in October and then subsided into a temporary lull toward the end of November. As if waiting for the new recruits to sign up, it spread rapidly among them in the army and navy in December. Almost all influenza patients were new recruits, with only a few in their second or more years of service. Some new recruits contracted the virus and died within ten days of entering the military. They had not encountered the virus in the autumn and gained immunity to it.

The same is basically true of the Late Epidemic, the status of which was described in Chapter 5. According to official statistical data,<sup>11</sup> the number of deaths from the influenza in the army alone was 651 in 1918; 1,157 in 1919; and 1,985 in 1920, each figure far greater than the 300-500 deaths that occurred in normal years. The data include the category “Released from [military] service,” which also showed large figures for the three years, which suggests that the category might include influenza patients who had been discharged.

In the case of Japan, while the number of deaths from the influenza on naval ships sent overseas and among the troops assigned to the joint Allied Intervention in Siberia is not small, there were also many new recruits who contracted the influenza and died not long after they joined the military. In sum, not only in Japan but in other countries as well, the military was an organization at high risk of becoming a hotbed of influenza.

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11 *Nihon Teikoku tōkei nenkan*, vol. 42 (1921), Table 510, p. 494.