was extremely fortunate, too, in having such a delightful companion as Deputy Inspector-General Johnson of the Royal Navy, a most able officer and a most cheery soul.

## Translation.

### ADDRESS DELIVERED BEFORE THE JAPANESE MEDICAL ASSOCIATION AT TOKIO, ON THE 7th APRIL, 1906, ON THE SUBJECT OF THE MEDICAL SERVICES IN THE RUSSO-JAPANESE WAR.[1]

By Surgeon-Lieutenant-General M. KOIKE, M.D.
*Director-General of the Japanese Army Medical Service.*

(1) *The number of Killed, Wounded, and Sick.*—Twenty-one months passed between the declaration of war and the restoration of peace. Some twenty battles, big and small, were fought during these months, causing 220,812 casualties. The details are as follows :—

*Killed.*—47,387, including 19 medical officers.

*Wounded.*—173,425, including 104 medical officers; 450 rank and file of the Bearer Corps were killed and wounded.

The total number of sick admitted to hospitals amounted to 236,223; and of that number 27,158 were infectious cases. In addition to the foregoing there were also 97,850 sick admitted to hospital from mobilised units at home and in Formosa. The grand total of killed, wounded and sick, therefore, amounted to 554,885. If the 77,803 sick and wounded Russian prisoners treated in our hospitals (which number includes 559 disabled Russians who were sent from Port Arthur direct to their own country) are added, the total really reaches the extraordinary number of 632,688.

(2) *Medical Personnel: Officers.*—In the treatment of the above enormous numbers, the following medical *personnel* was employed :—4,517 Army medical officers, including the Principal Medical Officer of the Field Forces; of this number, 2,829 were called out after the outbreak of war. 639 Army pharmacists (officers), including the Principal Pharmacist of the Forces; 487 of these were called out during the war. The total number of medical officers employed, therefore, amounted to 5,156.

*Men.*—7,322 chief nurses; 4,144 assistant nurses; 21,797 attendants. 334 men were employed in the care of medical and surgical instruments.

[1] Published by permission of the Director of Military Operations.

The total number of men employed, therefore, amounted to 33,597. Thus the grand total of officers and men engaged in the treatment of sick and wounded amounted to 38,753.

The Japan Red Cross Society did its best to assist the Army Medical Service. The total of the *personnel* of the Red Cross Relief Sections was 5,479. Of these, 373 were doctors, including the Director, and 175 were pharmacists; the rest were perfectly trained male and female nurses. The relief sections were distributed among hospitals on the line of communications and in Japan, and among hospital ships; they took charge of the transport, treatment and nursing of the sick and wounded in an eminently efficient manner.

Here I must not omit to mention the assistance rendered by the Ladies' Benevolent Society of the Japan Red Cross, and also that given by friends at home and abroad. Among these were princesses, marchionesses, and many other ladies of noble and gentle families. Their hospital nursing and visits produced wonderfully good results on the poor soldiers who had fought for their country.

239 civil doctors, who were doctors of medicine of different academies and colleges, and even doctors from the Imperial Household Department, came to assist. Therefore, besides the 38,753 Army medical officers and men, the following assistance was received from different quarters:—5,709 from the Red Cross Society, including three foreigners.

Consequently, altogether 44,465 doctors and men were engaged in medical services; and of this total I find that 5,131 were military and civil doctors. Statistics, therefore, show that each qualified doctor treated, on an average, 113 sick and wounded men.

(3) *Medical and Surgical Material.*—Never once during the whole war did we experience a shortage of material. On the contrary, we had always a plentiful reserve on hand throughout the armies. Most—in fact all—of these materials were issued from the Army Medical and Surgical Supply Depôt. Nearly 300,000 packages of these materials were used, costing a little over 7,100,000 yen (about £710,000). The "Seiro-gan" pills ("invasion of Russia" pills), *i.e.*, the creosote pills for preventing internal diseases, were manufactured in Tokio, and dressings and bandages were made by the members of the Ladies' Benevolent Society and others. 42,400 triangular bandages were graciously given by H.I.M. the Empress, Crown Princesses, Imperial Princesses, and Princess Arisugawa. When these latter bandages were distributed among the sick and wounded in the hospitals at home and at the front, they were used but once and carefully kept by the recipients, with the object of sending a welcome present to their homes.

(4) *Transport of Sick and Wounded to the Rear.*—This was the hardest task of the medical service. Fortunately, we were able to use the railway line, which the enemy had left untouched. The way we transported the sick and wounded to the rear was as follows:—

Transport to the etappen hospitals, which were always situated near the railway line, was carried out by stretchers, Chinese carts, and even by our general service transport carts. From these hospitals to the hospitals at the ports, transport was carried out by railway trains. Light railways were used by the 1st and Yalu armies in transporting sick and wounded to Antung. The rivers Liao-ho, Hun-ho, Ai-ho, Ta-yang-ho, Yalu, Ta-tung-chiang and Hang-chiang were all used for transportation, while the Tonnaicha Lake was used in Saghalien. Sick and wounded were transported from the following ports to Japan :—Ying-kow, Tai-ren (Dalny), Lien-shuten, Yen-ta-ao, Ta-ku-shan, Yong-am-pho, I-hoa-pho, Chin-nam-po, Ki-chin-pho, Chemulpho, Fusan, Yong-san, Syo-ho-chin, Chhyong-chin, and Syong-jin. In Saghalien, Korshoff and Alexandoroff, Eighteen Army hospital ships were used. Besides these there were six transports improvised for carrying sick and wounded. A few more regular transports were also used for the service of transportation. At times, when 9,000 sick and wounded were collected at Dalny, naval assistance was also asked to convey the men home. Serious cases of illness, wounded, and cases of infectious and mental diseases were conveyed by the hospital ships ; while the other ships were engaged in the conveyance of slight cases. The ports of disembarkation were selected as follows:—Moji for Kiushu Island, Tadotsu for Shikoku, Ujina and Osaka for other places.

Rest stations for sick and wounded were established in each of the above ports, and all sick and wounded were received into base hospitals through these institutions. Aomori was selected for the sick and wounded from Saghalien. Up to the end of December, 1905, a little over 163,000 had been conveyed by the hospital ships, and rather over 157,000 by other ships.

(5) *Results of Treatment.*—The percentage of recovery of all sick and wounded admitted to the hospitals from all units at the seat of war, at home and in Formosa, was 63·23 per cent., while that of deaths was 7·49 per cent. The percentage of recovery of all sick and wounded of the units at the seat of war was 71·58 per cent., and of deaths, 6·83 per cent. Comparing these percentages with those in time of peace, at the end of 1903, the following statistics are shown :—

| | Peace time | War time | |
|---|---|---|---|
| Recoveries .. | 75·05 per cent. .. | 63·23 per cent. | Units at home and at the seat of war. |
| Deaths .. | 1·18 ,, .. | 7·49 ,, | |
| Recoveries .. | .. .. .. | 71·58 ,, | Units at seat of war only. |
| Deaths .. | .. .. .. | 6·83 ,, | |

The above shows that in war time the percentage of deaths is far higher than in time of peace. Let us compare this with the percentages taken in the China-Japan war.

| | | China-Japan War | Russo-Japanese War |
|---|---|---|---|
| Of all the units at home and at the seat of war | Recovery .. | 50·94 per cent. | 63·23 per cent. |
| | Death .. .. | 14·24 ,, | 7·49 ,, |
| Units at the seat of war only | Recovery .. | 54·81 ,, | 71·58 ,, |
| | Death .. .. | 7·65 ,, | 6·83 ,, |

The reason why the latter death-rates are not very different as compared with the war with China is very simple. The Chinese ran away from us at sight, while the Russians made so stubborn a resistance that a battle sometimes lasted a fortnight, and obliged us, as we were under the enemy's fire, to transport the wounded under cover of night; moreover, being short-handed, we conveyed our poor wounded comrades under conditions, the urgency of which interfered with their proper treatment.

(6) *Sanitation.*—The greatest precautions were taken to prevent the following diseases: Infectious diseases, such as plague, small-pox, yellow fever, typhus, typhoid fever, cholera and dysentery; also frost-bite, swollen foot, and sunstroke.

(7) *Individual Sanitation.*—A pamphlet called "Precautions on Individual Sanitation" was published in February, 1904, and thoroughly distributed among the men. Medical officers gave lectures on the subject of individual sanitation once or twice a month at the front. In this pamphlet there were articles which were quite useless in Manchuria and in Korea, and consequently another pamphlet of similar title was published and distributed. In May, 1905, another pamphlet called "Precautions against Cholera and Plague," was published and distributed among the men. The use of the "Seiro-gan" (creosote) pills was made obligatory even among officers. These prevented, in a most satisfactory way, the spreading of such diseases as typhoid fever or dysentery, which usually attack the intestines. The manufacture of pills was started in March, 1904, at Tokio, and nearly four millions of them were made.

(8) *Sanitation in Camps and Quarters.*—In the front lines men lived in tents (*tentes abris*), holes dug in the ground, and in shelters constructed of any materials available. In the rear lines men lived in village houses which had not been cleaned from time immemorial. The first thing to be done, therefore, was to sweep the dirt from the ceilings and floors, paste old newspapers on all the walls, and sprinkle a solution of carbolic acid about. After finishing the inside of a house all refuse was removed and burned. Bath-rooms and latrines were constructed. Drains were dug to such an extent that the soldiers used to say among themselves, "Why, we seem to have come from Japan to clean the Manchurian villages." There were constant medical inspections of the villagers. Among other things, we suffered terribly from Manchurian flies. They were a regular plague, and a very disgusting one. Covers had to be made for food, drinks, cups and bowls, chop-sticks and toothbrushes, so that no flies could get at them. On the other hand, we did our best to destroy

them while still in the larval state. In a report submitted by a doctor of entomology attached to the 1st Kobi Division, he stated that flies lay their eggs in horse-dung and heaps of refuse, and that if these are removed and burned or buried, the flies may easily be destroyed before developing. Quick-lime, ashes of every description, and thoroughly dried earth were sprinkled upon night soil, so that flies could not have direct contact with it.

*Clothing.*—A thick overcoat was issued to each individual in the winter, besides his regular supply of clothing.

*Food.*—A good supply of food was provided, in addition to the usual rations. When men worked over eight hours they were given two *go* of rice (about 12 ozs.) and one-third of the biscuit ration extra. Only in the case of troops operating in the mountains did supplies, on one occasion, run short for a time. The issue of a mixture of rice and barley (four *go*, about 24 ozs., of rice to two *go*, about 12 ozs., of barley) was made compulsory, in order to prevent beri-beri. In summer, when food soon goes bad, 35 grammes (about 1oz. 75 grs.) of vinegar were mixed with every 200 *go* (about 75 lbs.) of rice. In winter, when food becomes quickly frozen, a piece of flannel was issued to soldiers to wrap their mess-tins up in. As far as the circumstances admitted, soldiers were ordered to cook their own rice in their own mess-tins; there were, therefore, very few complaints made by soldiers with regard to their food. Japanese *saké* was issued to the men as often as possible. They were strictly prohibited from buying drink of any kind from villagers, and were only allowed to do so from the military canteens, which the medical authorities examined at least twice a month.

*Water.*—Soldiers were instructed, in peace time, how to draw water from rivers, and also how to filter muddy water.

*Wells.*—Wells which produced good drinkable water were protected by sentries after an analysis of the water had been made by the medical authorities. Care was taken not to allow the villagers to draw water promiscuously from a well for fear one of them might be employed by the enemy to poison the water.

*Unboiled Water.*—The drinking of unboiled water is strictly prohibited in the army, whether in times of peace or of war.

*Refreshment Stations.*—Such stations were established at as many points as possible on the lines of communication, and even in the area of active operations. There were two or three soldiers told off as attendants at each of these stations, and they had boiling water ready night and day. Rough benches were erected under the trees in summer. Guide posts were put up at the sides of main roads showing the way to these stations. Notices were also put up at the entrances of a village showing the number of houses, the quartering capacity, the wholesomeness or otherwise of the wells, and the existence or non-existence of infectious disease among the inhabitants of the villages. In the fighting line men used their mess-tins

to boil water in, thus strictly obeying orders regarding water. Later, when we had captured the kitchen waggons of the enemy, we used them largely and found them of very great service. Mr. Ishiji's filter was also used with good effect. It was used mostly in the fighting line, where no smoke was allowed and fuel was difficult to obtain. This filter was first introduced into the army by Dr. Kitasato, the eminent bacteriologist, and it proved most efficient in destroying bacteria in water, and for converting bad water into purified drinking water, with neither smell nor taste. Mr. Hirayama's disinfecting waggon, and Mr. Yonezawa's pump were introduced to disinfect the rooms, ceilings and floors after a case of infectious disease. We sometimes even burned houses with a view to disinfection, and by working hard we were able to prevent the spread of typhoid and dysentery, though with difficulty.

*The Disinfection of Transports.*—A committee was appointed to each base port, and it visited every transport that arrived from the port. Men and baggage were taken to a quarantine station, and while the men were bathing, their clothing and baggage were disinfected by steam. We did everything we could in order to prevent the spread of disease, except inoculations for typhoid fever, dysentery, cholera and plague. The reason we did not inoculate for the above diseases is simply that we could not afford the time to apply the treatment to all soldiers who were constantly engaged with the enemy at short range; and, moreover, these inoculations are still in the experimental stage and their value is not yet proved.

(9) *Results Achieved by the Medical Service.*—The standard which decides the success or otherwise of the medical service of an army during a war is to be found by comparing the proportion of deaths from disease with the proportion of deaths from wounds, as shown by statistics. In European wars this ratio used to be as one death from wounds to six from disease, while the military medical services were still young, but in later wars this ratio decreased till it became as 1 to 1·18. Now, let us turn to the statistics of the Russo-Japanese war. Our ratio was as one death from wounds to 0·37 from disease, and this is only about one-third of that of European wars. Now compare this again with the statistics of the China-Japan war:—

| | China-Japan War | Boxer Campaign | Russo-Japanese War |
|---|---|---|---|
| Wounded to sick .. .. | 1 to 6·93 .. | 1 to 4·37 .. | 1 to 1·15 |
| Deaths from wounds to deaths from disease .. | 1 ,, 12·09 .. | 1 ,, 1·97 .. | 1 ,, 0·37 |

Let us now take another table:—

| | Casualties in field battles | Casualties in sieges | Casualties in field and sieges combined |
|---|---|---|---|
| China-Japan War .. | 1·35 per cent. .. | 1·69 per cent. .. .. | 1·37 per cent. |
| Boxer Campaign .. | 2·66 ,, .. | .. .. .. .. | 2·66 ,, |
| Russo-Japanese War .. | 13·65 ,, .. | 17·79 ,, .. .. | 14·58 ,, |
| European wars[1] .. | 12·97 ,, .. | 17·51 ,, .. .. | 13·99 ,, |

[1] European wars include wars from 1741 onward.

The following table shows the percentage of admissions and of deaths caused by disease :—

| | China-Japan War | Boxer Campaign[1] | Russo-Japanese War |
|---|---|---|---|
| Percentage of sick .. | 59·20 per cent. .. | 34·88 per cent. .. .. | 36·04 per cent. |
| Percentage of deaths from disease | 9·29 ,, .. | 4·33 ,, .. .. | 2·99 ,, |

Last of all, let us look at the monthly sick reports from each army in Manchuria and compare them with the monthly reports in time of peace, say in 1903. One army reported 6·42 per cent. of fresh cases of sickness, and this was the lowest received. Another reported 11·18 per cent., which was the highest. The average cases of sick reported during peace in 1903 was 10·31 per cent.

In conclusion, I have the honour to assert that the Army Medical Service during the Russo-Japanese war was as eminently successful as the war itself was, as a whole. I cannot help being proud that our medical officers and men carried out their duties just as well as the fighting men and officers of Army and Navy.

[The above address does not contain the full statistics of the war, but is of interest, in so far as it gives a general idea of the Japanese Medical Services from the point of view of the highest Japanese authority on the subject, and sketches broadly the main features of the medical *personnel*, the measures of sanitation in the field, and the general results.

With regard to the portion of the address dealing with the statistics of wounds and sickness, it should be noted that no figures of average strength for the period of twenty-one months are given; nor is it stated on what strength the percentages are calculated. It is, therefore, impossible to use either the gross figures or the percentages for purposes of comparison. However, it may be pointed out that Surgeon-General Koike, like most others who have dealt with the subject of the statistics of the war, and of the great diminution in the proportion of deaths from disease to deaths from wounds, has omitted to draw attention to the most obvious cause of the great alteration in this proportion, namely, the very large increase in the number of wounded and killed as compared with that of the more recent wars. Great increases in wounded influence this proportion, just as much as great decreases in diseases; and the closer one examines the figures the more one is forced to the conclusion that the former and not the latter condition has been the chief influence at

[1] The Boxer campaign is too small a war to compare with the Russo-Japanese war; therefore, the comparisons with the China-Japan war are the best to note, During the China-Japan war cases of frost-bite were 4·21 per cent.; but during the late war only 0·35 per cent. In the China war cases of beri-beri were 17·56 per cent. and during the late war 15·94 per cent. *Kakke* was the most dangerous enemy our Army encountered.

work in determining the marked alteration in the proportion of deaths from disease to deaths from wounds in the Russo-Japanese war as compared with the immediately preceding wars.

A recent announcement in a Japanese newspaper, the *Kokumin*, states that preparations have been made for writing the medical history of the war under different sections, one of which is statistical. The compilation of this work is estimated to take eight years, and until then one can only make approximate comparison of the medical results of the Russo-Japanese war.]

# Current Literature.

**A New Alpine Stretcher.**—In the *Archives de Médecine et de Pharmacie Militaires* for September, 1906, Surgeon-Major P. Eybert, of the Army of Occupation in Tunis, contributes a lengthy paper on the "Transport of the Wounded in Mountain Warfare." After recapitulating the various means for normal transport, and also those for special emergencies, he gives a description (freely illustrated, and extending over 39 pages) of the proposed new Alpine stretcher.

Briefly described, this latter may be said to somewhat resemble the ordinary regulation stretcher, but with the following modifications: the patient's legs rest in two gutter-shaped splints alongside the stretcher-poles, the portion of the canvas between the legs being cut away; the patient is preferably carried head first, as this enables the bearer in rear to look through the gap between the patient's legs and thus see where to place his own feet when on difficult ground; the bearers are fitted with a special form of carrying straps which do not cut the neck or compress the chest, and the length of the braces is adjustable at will whilst the bearers are actually on the march. The loaded Alpine stretcher can also be carried *on the back* by a single bearer, for which purpose the lower cross-bar is made to be removable, and a headstrap gives the bearer the free use of both his hands. The stretcher can also be used as a *litter;* or fixed to a *cacolet*, which enables the patient to sit, recline, or lie down, at will; or fixed on to a *pack-saddle* (either side-ways, or saddle-fashion, and in each case with the patient's buttocks either resting on, or clear of, the pack-saddle). The stretcher can also be readily fastened to a mountain *sledge*, or to a *cart*, or slung across a mountain torrent, or crevasse, or other obstacle, by means of an improvised *crane*, and all these various methods of transport can be carried out without once removing the patient from the stretcher, from the time that he is first picked up until he finally reaches the hospital.

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**Some Observations on the Breeding Ground of the Common House-fly.**—In the *Indian Medical Gazette* for September, 1906, Captain G. D. Franklin, I.M.S., records the results of a series of experiments, covering a