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SOLDIERS IN THE TROPICS

By LIEUTENANT GENERAL HIROSHI KAMBAYASHI

The second year of the Greater East Asia War has just come to an end. It was marked by a series of battles on land, sea, and in the air in the southwestern Pacific which have gone down in history by such names as the Solomons, New Guinea, and the Gilbert Islands. People all over the world have been tensely following the many reports which make up the war history of this year. And as this war has shown again and again that, more than anything else, it is the moral and physical stamina of the individual soldier which counts, it has often been asked how it was possible for the human organism of the Japanese soldier to endure the hardships entailed by the tropical campaigns so well.

Upon our request, Lieutenant General Kambayashi, the Head of the Medical Bureau of the Imperial Japanese Army, has contributed the following article in which he answers this question on the basis of his own experiences on the South Pacific front.—K.M.

"TROPICAL campaigns mean hygiene campaigns." This is the lesson taught by colonial wars in all places and at all times. Strategic preparations and movements as well as methods of supply naturally vary according to climate and actual hygienic conditions. But in the tropics the success or failure of sanitary measures against that invisible foe, disease, really forms the keynote to military victory or defeat. It is hardly necessary to say, therefore, that in our tropical warfare a decisive battle is being waged against this silent but deadly enemy.

Not long ago I returned from an extensive tour of the southwestern Pacific fronts after being in command in the van of an army. The morale of the officers and men at the various fronts was excellent, and sanitary conditions very satisfactory: once again I have been confirmed in my belief in our certain victory. While I had been commander in chief of the medical corps in the warfare in China, I had prided myself on the fact that the standard of hygiene in the continental campaigns had been unsurpassed by any in the history of military hygiene. However, during the two years of the Greater East Asia War the success of our hygienic measures in the tropics, in places said to be the earth's worst centers of disease, has excelled even that obtained in China. The fact that even on the southwestern Pacific and Burma fronts, where fighting continues day and night and where the rules of sanitation and health are hard to abide by, exceptionally satisfactory hygienic conditions and fighting power are being maintained, seems almost incredible.

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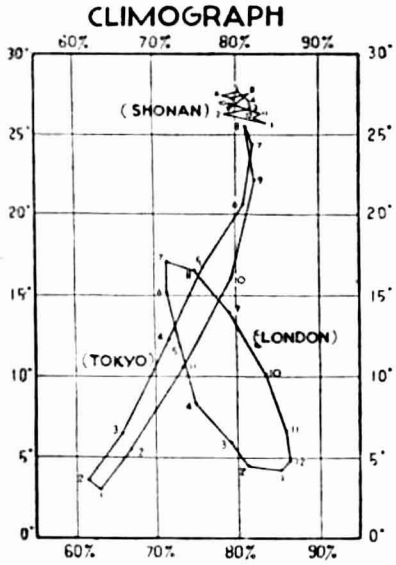
Europeans brought up in a climate where summers are cool and comfortable and winters damp and cold, find the high temperature and humidity of tropical regions hard to bear. Indeed, they are actually handicapped by the climate. The Japanese, however, raised as they are in a climate where the summer is of practically the same high temperature and humidity as the tropics, do not find living in the tropics such a trial, nor are they handicapped by the climate. As, moreover, there is throughout the year a more constant breeze in some tropical regions than in Japan proper, the temperature on the whole seems lower to the Japanese than that of July and August

in their own country. Thus these regions can be regarded as belonging to the comfortable zone and quite endurable to the Japanese.

Even in the low-lying areas along the coast, where the worst effects of tropical climate are to be found, the climate alone has not in any way hindered the advance of the Japanese. Hence it goes without saying that in the mountain districts of the tropics, where the climate corresponds to that of spring and autumn in Japan, efficient action on the part of the troops can be relied upon.

A comparison of the climograph of Shonan with that of Tokyo and London, as shown in Chart I, clearly reveals the similarity between the Japanese summer climate and the all-year-round climate of Shonan.

CHART I



Monthly average temperature (centigrade) and humidity in Tokyo, London, and Shonan

(1 = January, 2 = February, 3 = March, etc.)

Consequently, the climate of the tropics is no obstacle to our Japanese Army; indeed, when compared with the difficulties of the American, English, Australian, and Canadian forces, it represents a considerable advantage on our side. In many tropical places, our Army—from a climatic point of view—finds military operations easier than summer maneuvers in Japan proper. And in many respects concerning clothing, food, and shelter, the Japanese Army may find tropical operations simpler to conduct than those on the Asiatic mainland.

Since the outbreak of the Greater East Asia War, there have been no cases in the Imperial Japanese Army of physical disturbances directly attributable to the influence of tropical climate; in particular, there has been no case of disorder of the nervous system of the brain, nor has any instance of sunstroke been reported.

MALADIES OF THE TROPICS

As a result of their climate, the tropics are a region where epidemics and endemics are rampant. It is, therefore, generally believed that this zone forms a great menace to newcomers, especially to those whose activities must take place under unfavorable conditions, such as in military actions. However, scientific study has proved that tropical maladies and endemics all occur in lower forms of civilization; they are not limited to the tropical zone but have at times been prevalent in the temperate and frigid zones too and actually even break out in these zones. That is to say that epidemics and contagious diseases once widespread in Japan and Europe now only prevail in the tropical regions, because in the civilized world these maladies have been wiped out as the result of improved medical knowledge and sanitary conditions.

Thus we see that the chief maladies of the tropics—malaria, plague, dysentery, typhoid, typhus, cholera, smallpox, leprosy, etc.—can be ousted with the improvement of social and economic conditions among the peoples of the south and with the diffusion and perfection of preventive sanitary facilities. Among these are the supply of clean drinking water, the prohibition of contaminated food, the provision of appropriate sewerage and drainage systems, the maintenance of cleanliness, the improvement of living quarters,

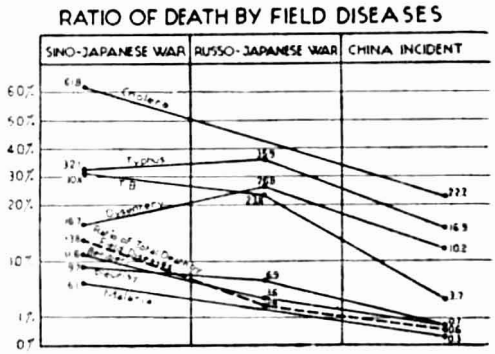
etc. In conjunction with these, the organization of a sufficient number of suitable medical institutions, a thorough education and training in personal and group health, and the cultivation of healthy habits, will prevent the greater part of these tropical diseases and wipe them out from native life. America, England, and Australia have in the last few decades carried out a number of sanitary measures, with the result that some of these plague regions have been transformed into places fit for Europeans to live in; but these places were limited to a few residential districts, while wide native areas have remained in their original disease-ridden state.

It was through such haunts of ill-health that our Army made its advance. Yet the incidence of disease among our troops was really very low. The reason for this may be no other than that the proclamation of war accorded with the will of Heaven, so that all advantages of this struggle have been with our Army. On the other hand, it is also due in part to the excellent hygienic provisions and measures undertaken by the Army.

In comparing the health statistics of the Greater East Asia War with those of former European and American wars, we find that the ratio of incidence of illness among our troops is exceedingly low. The fact that we have achieved an unprecedentedly low mortality rate from sickness in the field is a proof of the progress in war-time medicine made by the Imperial Army and of the indomitable activity of the members of its medical staff.

After victory, a statistical study of the incidence of field diseases and mortality from such diseases will be published; but I can already say here that at the present time, even on the southwestern Pacific fronts where violent fighting is raging in a most unsanitary environment, the ratio of incidence of field diseases is remarkably lower than that of the China incident, not to mention the Sino-Japanese and Russo-Japanese Wars. The following chart shows the ratio of mortality from field diseases in former wars fought by Japan.

CHART II



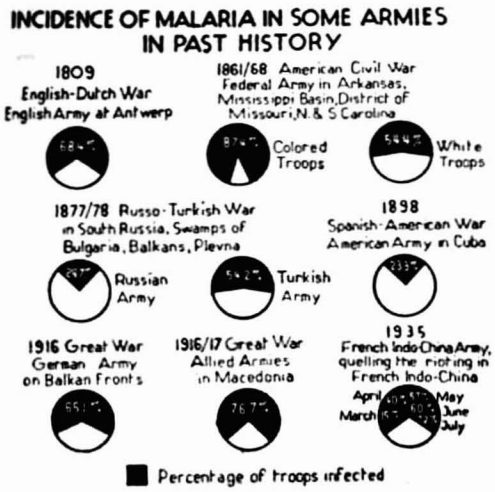
This chart, as well as any study of former wars, clearly reveals that, especially in tropical warfare, an army is usually persecuted by epidemics and endemics. In the following I therefore present a résumé of the Imperial Army's experience regarding the most important of these in its pursuit of the Greater East Asia War.

MALARIA

In the various European and American wars of the nineteenth century, especially in colonial wars, the belligerent nations suffered terribly from the ravages of malaria. Many of these experiences have taught our century important lessons in war-time hygiene. Nevertheless, during the Great War of 1914/18, a malaria epidemic severely harassed even the German and Austrian armies, to say nothing of the Anglo-French forces. The damage was particularly heavy during the third and fourth years of the war; and on the Macedonian front malaria disabled such numbers of troops that war action became impossible. Chart III shows the incidence of malaria in some of the foreign wars of the past.

Let us now turn to the China incident. With the extension of the battle zone from North to Central China and to the tropical and subtropical regions of South China, and with the advance of the Imperial Army into the interior of China —notorious for the fact that the majority of the natives are carriers of the malaria germ—a comparatively large number of malaria cases broke out among the Japanese troops. However, the total

CHART III



number of patients and the death ratio were far lower than expected, and no such alarming condition occurred as in the history of former foreign wars.

The following table shows the ratio of malaria cases during the China incident according to years and regions. From it we see that, on an average of four years, the aggregate number of patients was 0.540 per thousand. Among the various former wars and incidents in which our country was involved, the Sino-Japanese War and the North China incident had shown the highest rate. Although the China incident had twice as high a ratio as the North China incident, the death rate decreased tremendously, dropping *from 6.1 per cent to 0.3 per cent* (see Chart II).

TABLE I

Ratio of Malaria Cases by Years and Regions in the China Incident

(per thousand)

Year	North China	Central China	South China	Total
1937 *	0.008	0.237	—	0.108
1938	0.093	1.329	1.125**	0.719
1939	0.178	1.446	0.603	0.812
1940	0.090	0.754	0.990	0.567
1941 ***	0.040	0.427	0.694	0.329
4-Year Average:	0.098	0.846	0.882	0.540

* July-December
** October-December
*** January-June

Ratio of Malaria Cases in Other Wars

Sino-Japanese War (1894)	0.231
Russo-Japanese War (1904/05)	0.044
North China incident (1916)	0.234
Dispatch of troops to Siberia (1918/20)	0.019

Looking at the ratio of incidence by regions, it is only natural that it was low in North China and high in Central and South China. Table II shows the prevalence of the various types of malarial fever, with three-day fever and tropical fever well in the lead. Three-day fever occurred most frequently in midsummer, while there were many cases of tropical fever from late summer through the autumn into early winter. The types listed under "Others" represent mixed infections or symptoms.

TABLE II

Ratio of the Different Types of Malaria Cases in the China Expeditionary Army

(in per cent)

Region	3-Day Fever	4-Day Fever	Tropical Fever	Others
(1939)				
North China	51.2	1.3	47.0	0.5
Central ,,	67.7	2.3	28.4	1.6
South ,,	66.6	2.4	13.8	17.2
(1940)				
North China	55.8	0.4	2.2	41.6
Central ,,	61.6	1.0	6.8	0.6
South ,,	75.6	0.6	9.2	14.6

The regions of southern Asia are hotbeds of malaria, and the proportion of natives *contracting the disease* varies between 100 per cent in the most severely affected districts and 10 per cent in those least affected.

Consequently, good use was made of our experiences in China in working out a preparatory campaign against malaria for our southern strategy. Owing to preventive measures now being employed against malaria on the spot, exemplary results are being achieved. In the southwestern Pacific and in Burma, the number of cases reached its peak in May 1943 and has since then fallen considerably, so that there is no longer any danger whatever of our fighting power being impaired by this disease.

CHOLERA

East Asia is the original home of cholera, and during the first two years of the China incident the Japanese Army suffered quite a number of infections. However, Chart II shows that, as a result of positive clinical endeavors, the death rate was greatly decreased. Since then, by concerted action on the part of military and civilian health staffs, the outbreak of this disease has been stemmed to the utmost, with the result that today epidemics are practically nonexistent. Even in the most seriously affected districts of Burma, Thailand, and French Indo-China, only a few cases have appeared among the troops.

DYSENTERY AND TYPHOID

In the past, dysentery and other intestinal diseases constituted one of the greatest problems to any army at war. Especially in colonial wars of the past, these epidemics were extremely virulent, and it is unnecessary to quote any examples to show that they were the chief cause for the decline in fighting power. Intestinal diseases still represent the nucleus of war diseases. In the various southern regions these diseases are looked upon as common ailments and are widespread among the natives, thus doubly exposing the Imperial Army to their menace. Nevertheless, their incidence and mortality rate among our troops are very low, and it is a fact that there are even fewer cases in the tropical war areas than in China.

We can say that the credit for this lies entirely with the tireless activity of the troops of the Army Medical Corps in controlling water supplies—an activity of which we may well be proud—and with the discipline of officers and men in abiding by health regulations.

PLAGUE, TYPHUS, BERIBERI, ETC.

In Burma—which adjoins India, the hotbed of plague—as well as in Djawa, Thailand, and French Indo-China, in all of which places there have been frequent outbreaks of plague, the cases of plague in the Japanese Army can practically be counted on the fingers of one hand. This is due to the fact that the spread of the disease among the natives in the occupied regions is being controlled and has been reduced to a minimum. The

CARTOON OF THE MONTH

By SAPAJOU

. . . rules the waves

Army Medical Corps has come to place great faith in its countermeasures.

In many wars of the past and in the present European war, there have been typhus epidemics in various camps which have caused heavy damage. To an army at war, this is one of the gravest diseases; but in our Army there have been but a few cases so far. In the tropical regions, not a single case has been reported yet. Aside from the fact that typhus is not a tropical disease, it may be that the habits of the Japanese, who love to bath and wash, account for this.

Although beriberi and scurvy were so prevalent in past wars in the tropics, a marked decrease in their incidence and mortality rate was to be noted in the China incident, while in the southern war area we have hardly seen any such cases at all. This is credited to the fact that the southern regions are nearly all geographically favorable to the residence of the Japanese and are rich in food resources appropriate to the Japanese, so that a suitable diet is provided.

As for dengue fever, kala-azar, and other such maladies peculiar to the tropics, their incidence is extremely slight and no hindrance to military operations.

In past colonial wars, mortality from sickness in European and American armies by far surpassed that caused by enemy action. In the Greater East Asia War, however, the health of the Imperial Japanese Army has been maintained at an excellent level. Not only has the fighting power not been diminished by field diseases, but the general state of health is in fact better among the troops in the south than among the forces operating in China.

Ever since the Manchurian incident, (1931) the many years of experience in hygienic measures in zones frigid or tropical, on islands large or small, have led to new research. The practical application of the results of this research has in turn led to further precious experience, thus enabling us to make rapid strides in army hygiene. Hence when Japan faced the forces of America, Britain, and Holland, her Army Medical Corps was prepared.

In our numerous recent campaigns we have been able to obtain a hygienic level never reached in any war of the past. And with our reserve forces it is our aim to develop sanitation in the various southern regions and to provide medical treatment and disease prevention to the natives. Some of the results we have thus achieved entitle us to the belief that we are contributing our share toward the acquisition of final victory.

THE WORLD'S YOUNGEST REPUBLIC

By ADAM VOLLHARDT

Adam Vollhardt, the head of the Tokyo office of the German DNB news service, was the only foreign journalist to participate in the recent ceremonies on the occasion of the Philippine declaration of independence in Manila. In the ensuing weeks he had ample opportunity to become acquainted with the conditions and problems of the world's youngest republic in the course of numerous discussions with the leading personalities of the country.—K.M.

WHILE coming down to land, our plane slowly made three wide circles over the capital of the Philippines. This gave us a fascinating, bird's-eye view of the city lying embedded in tropical green at the edge of a deep bay. Manila was a peaceful sight. Nowhere was there a sign of destruction or any other trace to indicate that a bare two years ago a battle had been waged for the city.

This impression of peace was strengthened when, later in the evening, I went out into the gay, brightly lit streets of Manila. Coming as I did from war-time Germany and war-time Japan, these sur-