

THE PLACE OF TROPICAL MEDICINE IN INTERNATIONAL HEALTH¹

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The world crisis has already reached the stage at which plans are being laid for the future international organization to preserve peace and advance human welfare. The completed plans will undoubtedly give prominent place to provisions for effective collaboration between nations in promoting and protecting health, and will not overlook the outstanding problems of tropical medicine.

War, which might be regarded as a highly virulent infectious disease of society, is now in the final stages of its greatest pandemic. The best thought of our statesmen is being concentrated on future prevention. It is clearly recognized that to prevent war the causes of discontent and conflict must be diminished, while direct action will have to be made possible for application as a last resort. Likewise in the field of international health it is more important to remove conditions which give rise to disease, and to suppress it wherever it is first established, than to depend primarily on keeping pestilences from moving about after they have developed somewhere under neglect. Quarantine measures will still be necessary to curb the results of the limitations and failures of the broader international effort proposed, just as armed intervention may be needed at times to enforce peace when the more fundamental measures have been inadequately or belatedly applied. In the near future, however, we may expect to see the quarantine principle yield its dominant position to the more adequate and more friendly concept of helpful international collaboration in the suppression of disease wherever it still flourishes.

Tropical disease has been prominent in the history of international quarantine. Plague, cholera, yellow fever, typhus fever, and smallpox were the diseases specifically dealt with in the International Sanitary Convention of 1926. They included the pestilences which frightened nations into their early desperate efforts in health protection through ship quarantine. At least four of the five are

classed as tropical diseases. In a later period tropical medicine contributed a large proportion of those brilliant discoveries and those successes in their application, which have made quarantine more scientific and effective and less burdensome, and have also given hope that most diseases can be effectively controlled at their points of origin.

It would be a poor outlook, however, if we should be satisfied with the application of these successes of the past and could expect only the application of existing knowledge and methods. The very rapidity of the recent advance in tropical medicine is indication that a great body of useful knowledge still lies ahead and invites discovery. The members of this Society should accept the challenge of the situation and should not fail to ward off the slump which might come with the cessation of the special demands of the war. The narrowing of certain research fields now specially favored should be more than offset by expansions in other directions where there has been unavoidable temporary neglect. If we fail to spur the efforts to accumulate new knowledge of tropical disease and to plan for its fullest application it may become difficult to justify this scientific Society. I have no fear, however, that tropical medicine in this part of the world will fail for lack of your interest.

Soon it will no longer be possible to excuse delay in disease control on the familiar ground that "there is a war on". It will again be possible, with reasonable support, to secure adequate personnel and materials. With the world war coming to an end, the war against disease will still be building up. What will be most needed for success is wise central planning and the giving of advice and assistance to countries with the greatest health problems of international interest. Here is where an effective and progressive international health organization comes into our picture. Without it health progress is bound to be spotty in distribution, reaching high levels in some countries and leaving others quite unable to cope with disease problems which may be unusually difficult and of great international importance. In fact

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disease itself may lower the power of the country to cope with it.

There are many new factors which increase the possibilities of rapid advance in the future control of tropical disease under adequate national and international organization. The now depleted civilian forces against disease will have many new recruits who have acquired experience and interest in tropical diseases while in military service in foreign lands, or while engaged in subsidized research related to the war effort. The present assistance to the teaching of tropical medicine in the medical schools should produce a succession of new doctors who already have interest and some fundamental knowledge in tropical medicine. The war-time revelation of the inadequacy of the instruction in tropical diseases has had a salutary effect. There is also a growing interest in securing greater facilities for post-graduate instruction and research in a few selected University Schools. This whole movement for adequate education and research deserves the fullest support.

It might be profitable to speculate as to the future of malaria control. This disease has already been openly threatened with a war of extermination in the United States after the world war ends. The recent demonstration in Brazil that under certain circumstances a dangerous species of anopheline can be exterminated throughout a wide area by systematic measures, has led to the commencement of similar attempts in South America and North Africa even before the end of the war. The war-time experience in West Africa has emphasized the need for thorough suppression of anophelines throughout important malarious areas and in vital ports by equally comprehensive and vigorous methods. Success in these ventures should be possible when the manpower and materials and trained leadership become available; especially as larvicidal substances more effective than paris green will probably be at hand.

The planning of the critical first demonstrations of complete control in difficult situations should be thoroughly done and preferably with central guidance, perhaps by a commission created by the future international health organization. We need a central strategy board which can map the places of danger, measure the risks, and make a time schedule for the campaign. It could also estimate the costs in terms of personnel and materials, and propose ways of allocating them.

Such a commission could decide what quarantine and control measures are necessary to prevent

dangerous species of anophelines from invading the malaria-free islands of the Pacific, or again crossing the Atlantic to re-establish themselves in South America. It could determine the order of preference, in relation to danger and need, of projects for controlling malaria in the infected countries.

The review of the world situation with regard to typhus fever by an international health organization or a special commission appointed by it, is overdue. The louse-infestation which permits epidemics of typhus should be eliminated by methods now well understood. Living conditions and standards of hygiene should of course be fostered which would be incompatible with lousiness, but in addition the more rapid measures of delousing by simple powdering should be systematically applied under the direction of the health authorities. The body louse should be easily exterminated in any threatened area, and then there should be no fear of serious epidemics of typhus. Such a commission could also decide the conditions under which vaccination against typhus should be utilized in addition. Certainly we should cease to regard certain regions as permanent endemic centres of typhus, when there are effective methods for rendering communities non-infectible at low cost. What is needed is the stimulation and guidance of a central agency in which each of the countries involved participates.

In the case of yellow fever, that most typical of tropical diseases, there will be opportunity for still further advances toward complete control. The past decade has seen marked improvement in methods, but a comprehensive international system of prevention is still to be devised. Only through a common plan can all the interested countries protect each other and themselves. Even our present knowledge should make it possible to devise and carry out a yellow fever program which would be a model for international disease control.

With yellow fever firmly entrenched in animals and mosquitoes of the tropical forest in South America and Africa complete extermination of the disease from the world has had to be indefinitely postponed. It must at least await new discoveries not yet foreseen. In the meanwhile local extermination of the urban disease through elimination of the vector *Aedes aegypti*, and the confinement of the infection to the endemic areas of jungle yellow fever by barrier vaccination can most certainly be accomplished. Moreover, in-

ternational quarantine regulations relating to yellow fever can be modernized and liberalized so that threatened countries will receive all possible protection while restrictions on infected countries can be safely reduced if they keep their seaports and airports and surrounding regions noninfectible.

It would seem that an adequate international system of yellow fever control would include five essential parts which I shall enumerate:

1) There should be frequent and adequate surveys of all endemic and suspected regions, with immunity tests of men and animals on a sampling basis and with adequate mapping and statistical analysis. Only by constant vigilance can we ascertain where precautions are needed and avoid being taken by surprise from an unexpected quarter. An international organization is necessary for the even exercise of such a function for the benefit of all nations.

2) Barriers should be erected around endemic areas of jungle yellow fever through vaccination of the inhabitants and the extermination of *Aedes aegypti* if present in neighboring towns. The object would be twofold—to protect the local people themselves and to keep the disease from wandering out in infected persons and starting widespread epidemics.

3) Infected or threatened cities, and particularly seaports and airports, should be made completely non-infectible by the extermination of *Aedes aegypti*. If this is done and there is constant vigilance to prevent the return of this insect, it would be impossible for yellow fever to spread if introduced from the jungle.

4) Adequate international quarantine provisions would be needed as a third line of defense to prevent the conveyance of yellow fever from port to port or country to country in case it should pass the barrier around the jungle area and find a port in which *Aedes aegypti* has not been fully suppressed. Yellow fever quarantine measures are receiving special attention in the revision of the International Sanitary Convention of 1926 and the International Sanitary Convention for Aerial Navigation of 1933. Convinced that the Office international d'Hygiène publique, on account of the war situation, is not now in a position effectively to carry out the duties assigned to it under these conventions, the Council of the United Nations Relief and Rehabilitation Administration recently approved in principle proposed amendments bringing the conventions up to date and

providing for their administration for the time being by UNRRA, but without prejudice to the return of the functions to the Office international d'Hygiène publique. As soon as the new conventions carrying the amendments have been signed or acceded to on behalf of ten or more governments, they will come into force. For the immediate administration of the conventions and particularly for the determination of endemic areas for purposes of quarantine, UNRRA's Technical Committee on Health has set up an Expert Commission on Quarantine which will cooperate closely with the Pan-American Sanitary Bureau.

5) International facilities for promoting education and research in the health field and for exchanging knowledge and experience, is the fifth of the essential parts of the program for the control of yellow fever, and it would apply equally to any other important disease problem. Means must be found to encourage and enable health officials and medical scientists of the interested countries to study and confer wherever the opportunities are most favorable. They should meet and investigate where disease is active in its natural environment and also at centers where medical science is reaching its highest development. Only when research is promoted and knowledge freely exchanged shall we acquire a body of participating health administrators and scientists able to make a success of the international health organization we envisage.

Classic typhus, cholera, and yellow fever are among those diseases dependent for survival on correctible conditions. In fact these diseases have disappeared completely from many countries which have become practically non-infectible, although once ravaged. We know what would have to be done to eliminate any one of these diseases from the people of any locality. It follows that if we are really interested in having a healthier world, as well as one safer from war, we should begin thinking in global terms. We should organize our forces to strike wherever preventable disease is prevalent, and to apply by preference those measures which lead steadily to conditions incompatible with its persistence. Sometimes this means providing pure water for twenty-four hours in the day; sometimes more soap is needed and better housing and improved economic conditions for the groups hardest hit. There are always, however, additional scientific methods of direct attack to hasten victory. It is obvious that the best effort of each nation as well

as of the whole group will be required under ideal cooperation. If the vulnerable diseases, including especially infectious and nutritional diseases, among which many are classed as tropical, are to be thoroughly suppressed in our time, there must soon be established an effective cooperative world health organization. The Health Organization of the League of Nations made a good beginning after the last World War. UNRRA should add valuable experience in its developing war-emergency health work. The time is surely ripe for setting up the ideal permanent international health organization.

My message to the Society, as its retiring president, is to urge that each member look beyond his own specialty within the broad field of tropical medicine and beyond the geographical boundaries

of the lands plagued by the diseases of his dominant interest and contribute to the thought and statesmanship which will be needed for setting up a suitable and acceptable world health organization. We can then hope soon to reach a situation in which every country, no matter how small or how poor, can handle its own problems with such central help as may be necessary and can cease passing pestilences to its neighbors.

No country can live to itself in disease prevention any more than in political relations and commerce. We must reach a state of knowledge, a state of organization and a state of mind which permit our recognizing that all nations are allies in the fight against disease, and that the failure of one is the failure of all.