SMALL-POX AND VACCINATION IN THE PHILIPPINES.

BY

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THE report for the year 1922 by Dr. Vicente de Jesús, Director of the Philippine Health Service, shows a decided improvement in the manner of preparation and in accuracy as compared with some previous volumes. It has a useful table of contents, and the index, appreciably shorter, is much better arranged. The activities of the Health Service during the year are summed up in the following introductory passage:

"Substantial decreases in the general mortality and in infant mortality rates constituted the salient points of the year. The work on leprosy investigation was expanded by more liberal appropriation and by the detailing of expert technical personnel at Culion and at San Lazaro Hospital; the vaccination campaigns for the eradication of small-pox, cholera, and typhoid were continued and conducted in an intensive and systematic manner; and with the co-operation of the Rockefeller Foundation, malaria and hookworm surveys were effected, resulting in a decided practical contribution to public health conservation. Special investigations were also conducted in different provinces with a view to eradicate yaws and tropical ulcers. The greatest achievements of the year, however, were attained in the suppression of epidemics and in keeping up and raising the moral of health officials, resulting in greater individual activity and efficiency, and a higher conception and better comprehension of their duties and responsibilities.

"Compared with the figures for 1921, notable reductions in the general mortality and infant mortality rates have been accomplished in 1922—namely, from 21.22 to 18.94 per 1,000 population in the case of general mortality, and from 170.46 to 154.94 per 1,000 births in the case of infant mortality. The reductions in this regard have resulted, undoubtedly, from: (a) suppression of epidemics; (b) slow but gradual control of preventable disease through effective health measures and permanent sanitary improvements; and (c) improvement of individual health through health education and publicity, and the subsequent awakening of the sanitary conscience of the people at large."

The special interest of the Philippines reports for several years past has related to the facts as to small-pox and vaccination in the islands. These were discussed by me pretty fully in the *BRITISH MEDICAL JOURNAL* last year (1923, vol. i, p. 158, and vol. ii, p. 421). Happily variola has been much less prevalent since the great epidemic of 1918-19. The following have been the recorded deaths in the six years 1917-22 inclusive:

	Manila (Capital City).	Provinces (including Mindanao-Sulu).
1917	2	434
1918	989	15,158
1919	55	49,196
1920	5	7,100
1921	0	719
1922	0	19

The health authorities attribute the disappearance of the disease in Manila to "the continuous vaccination and revaccination campaign against small-pox . . . from 1918 to the present date," and in the provinces to "continued and extensive vaccinations, especially of the newly born infants." It may be recalled, however, that in the years previous to the epidemic there had been an enormous amount of alleged vaccination and revaccination, but that inquiry raised serious doubt as to the value of much of the vaccine used, whether owing to original inactivity or to loss of efficacy as a result of defects in preservation and transport in a warm climate. The natives had proved incompetent and unreliable, and many parents had deliberately wiped off the lymph immediately after insertion. Further, it had not been found practicable to inspect anything like the whole of the vaccinations performed; and, finally, a huge percentage of those inspected were found to have given no local result. Many of these failures, however, were probably due to immunity owing to previous successful vaccination or revaccination. It may be freely admitted that these defects were largely unavoidable, but their general effect has been to leave serious doubt as to the actual amount of reliable vaccination and revaccination in the Philippines. In these circumstances the health authorities, though naturally rejoicing now in the disappearance of small-pox, should be warned by their previous experience. They know—none better—that small-pox is an epidemic disease. Even in

parts of the world where it may be regarded as endemic, there are great fluctuations in prevalence. In Europe and America, in centuries when there was neither vaccination nor small-pox inoculation, there were everywhere intervals of practical freedom from the pestilence. Epidemics came in some places about every four years, and in others less frequently. Are Dr. de Jesús and his colleagues quite sure that even now their vaccine material is always and everywhere reliable; that it is never rendered inert by the heat of the climate combined with defective storage and transit; that their vaccinating parties, admirably conceived and arranged, are even yet wholly composed of skilled and trustworthy men; and that if an epidemic again occurs they will not again find out that their system has been defective?

The demonstration of the power of vaccinia over variola requires no buttressing by data which cannot be tested and proved in every detail. Since the days of Jenner history throughout the world has accumulated evidence of the value of his prophylaxis, and serious disservice is done to the cause of preventive medicine by claims which may be too hurriedly made or cannot stand the minutest scrutiny. In 1922 in the capital city of Manila, with its population of close on 300,000, there were 111,649 vaccinations and revaccinations, but only 21,919 were inspected as to the result, and in 5,652 it was negative. How many of the total were primary and how many were revaccinations does not appear, but the fact is that only 16,267 of the whole 111,649 are recorded as positive. In the great southern archipelago of Mindanao and Sulu, where it might be reasonably supposed that administration is more difficult than in the capital of the Philippines, the proportion of inspections is much higher, and yet the figures are accompanied by a modest explanation of why they are so low.

There was "the difficulty of performing the inspection, because of the nomadic way of living of the Mohammedan natives and the difficulty of communication."

As to the material used, "dry vaccine has been preferred in remote places and where transportation facilities were difficult or irregular; and the fresh vaccine only in places where ice was available for its preservation."

Also "the low percentage of 'takes' may be attributed to the occasionally defective classifications made by the sanitary inspectors in determining or distinguishing positive vaccinations from slight reactions. Besides this, some of the persons vaccinated had already previous successful vaccinations."

All these considerations are relevant, and indicate a grasp of essential facts. Of 108,449 vaccinations in Mindanao and Sulu, 72,590 were inspected, and 39,134 were reported positive. In the Provinces, of 1,900,704 vaccinations, 1,384,910 were inspected, and of these 846,532 were positive, 538,378 being negative.

Unquestionably the health department of the Filipino Government is striving after better things. But its difficulties are immense, and no good will be done by too ready assumptions as to cause and effect in the domain of disease prevention. It is certain, however, that good vaccine, skilfully used and not destroyed on the skin of the vaccinee, will protect against variola those who resort to it and who renew their protection as may be required.

As regards fatality rates of small-pox in 1922, the figures are (fortunately) insufficient to be of much statistical value. In Manila there were no cases, in the Provinces 12 deaths occurred in 126 cases of small-pox, and in Mindanao and Sulu 7 deaths in 14 cases. In addition there were in the Provinces 183 cases of "varioid" with 4 deaths. If these be added to the small-pox figures the fatality rate is, of course, lowered. It is regrettable that neither in this nor in previous reports is any statement made as to the differential diagnosis between variola and varioid, as the terms are used in the Philippines. It would be worth knowing whether merely mild cases are put in the latter category and more severe cases in the former, or whether there are two recognizably different types of the disease. The latter view is rather supported by the fact that in nearly all the provinces where "varioid" occurred there was no "small-pox." Bohol had 61 varioloids, and Cavite 63, without a single death or a single registration of small-pox. The province of Oriental Negros, however, had 115 small-pox cases with 10 deaths, and 6 varioloids with one death, while Samar had no death in 6 small-pox cases and 7 varioloids.

Very remarkably, Sorsogon had no small-pox cases, but 3 of varioloid, all of which were fatal. Perhaps in his next annual report, or even earlier, which would be better, the Director of Health will deal with this question, bearing as it does on the whole subject of mild small-pox, which is of so much interest to epidemiologists at the present time.

PORT AND SHIPPING SANITATION IN THE FAR EAST.

IN August, 1922, the Health Committee of the League of Nations decided to dispatch a mission to the Far East. The main object was to gain the information necessary for framing a convention governing port health procedure which would receive the approbation and adherence of all Far Eastern countries. The mission was entrusted to Dr. F. Norman White, who, after making a tour of 35,000 miles extending over nine months, during which a vast amount of information was accumulated, presented a voluminous report, a copy of which has just reached us. The principal places visited were Bangkok, Singapore, Java, Hong-Kong, Shanghai, Japan, Formosa, Korea, Harbin, Mukden, Darien, Newchwang, Peking, Manila, Haiphong, Saigon, Kuala Lumpur, Penang, Rangoon, Calcutta, Simla, Bombay, and Colombo. Nominally the subject-matter of the inquiry was already covered by the International Sanitary Convention of Paris, but this convention was framed primarily with the object of protecting the countries of the West from invasion by infection from the East, and the local conditions peculiar to the East received insufficient attention. For instance, the Paris Convention endows the human being with an importance as a vehicle for the transmission of plague infection from port to port that he does not possess in the East, and most vessels which have in the past done so much harm in spreading plague infection from country to country might still be designated "healthy" in the terms of the Paris Convention. The convention is regarded with unqualified disapproval in the East, and it is considered that mere revision would be insufficient to convert it into a satisfactory document. Dr. Norman White, however, thinks that with certain additions it could be adapted to the conditions prevailing in the Far East, and he has drafted a series of articles which, he suggests, might be incorporated in the Paris Convention.

The articles, twenty-three in number, are concerned partly with definitions necessary to the understanding of the effective provisions. The diseases regarded as within the scope of the provisions are typhus, bubonic or rat plague, pneumonic plague, cholera, small-pox, and yellow fever, the incubation periods of which are reckoned at six days for plague, cholera, and yellow fever, fourteen days for small-pox, and twelve days for typhus. The existence of a "plague epizootic" is to be regarded as established by the discovery of a plague-infected rat in the local rat population, or the occurrence of a non-imported case of bubonic plague. Ports are classified in three categories: "first-class ports," having (1) an adequate health staff, (2) apparatus for fumigation of large vessels, (3) a staff for rat scrutiny, (4) a quarantine station for detention and disinfection of deck passengers, (5) a bacteriological laboratory, (6) an infectious diseases hospital, (7) a good water supply, and (8) machinery for dealing with vital statistics; "second-class ports," in which conditions (1), (3), (5), (6), (7), and (8) are fulfilled; "third-class ports," those not falling within the above. A "suspected port" is one in which a non-imported case of disease has occurred or a plague epizootic is present. A first- or second-class port is to be deemed an "infected port" when twenty-five cases of disease have occurred during any one week, or, in the case of plague, when rat infection has been proved in any harbour area; the occurrence of five deaths from disease other than yellow fever within one week shall be sufficient to constitute a third-class port an "infected port." One case of yellow fever shall suffice to constitute a port of any class infected. A port shall cease to be considered suspected when no case has been reported during two weeks; also, in the case of plague, when no infected rats have been found during two months. A port shall cease to be considered infected (and shall pass into the "suspected" category) when for three weeks the number of cases has fallen to fifteen a week in the case of first- and second-class ports, or to three deaths a week in the case of third-class ports; provided that no first- or second-class

port shall cease to be deemed infected until one month from the discovery of the last plague-infected rat in the harbour area. In the case of yellow fever, a port shall be considered healthy when no case has occurred for two months.

The effective provisions of the draft are:

1. The signatory Government shall undertake a systematic examination of rats in the harbour area during a period of six months after a port of the first or second class has ceased to be suspected.
2. In the event of plague occurring in the interior of the country, outside the port area, the Government shall disinfest all goods likely to harbour rats, before shipment.
3. Passengers, other than cabin passengers, coming from a territory in which cholera, typhus, or small-pox prevails, shall be dealt with at the port of departure in accordance with the requirements of the Government of the port of destination.
4. Notification by the signatory Government of the first case of disease recognized in its ports shall be made immediately by telegram to a central intelligence bureau, giving details of the case and the preventive measures taken; and in the case of first-class ports, a weekly notification of fresh cases shall be made, until the disease is no longer epidemic or sporadic; second- and third-class ports are to make fortnightly notification.
5. The signatory Governments shall take cognizance of any ship during her voyage from suspected or infected ports, and of vessels from clean ports which have cases of disease or "plague-suspicious" or "cholera-suspicious" cargo on board (the nature of the goods likely to convey rats or the cholera-virus is specified).
6. The measures to be taken against ships of which the signatory Governments take cognizance shall be left to the discretion of the authorities at the port of arrival. These measures will include such matters as inspection, quarantine, and disinfestation, and will vary according to the health condition of the port of departure and of the passengers and cargo; and, more particularly, (a) in the case of ships from clean ports carrying plague-suspicious cargo, measures for rat destruction shall be applied at the anchorage before discharge of cargo is permitted or pratique given; (b) any ship, of whatever origin, arriving at any port of the first class, which has not been fumigated within the preceding six months, shall be fumigated before her departure, and in the case of vessels whose trade is confined to the Eastern arena, three-monthly fumigation shall be imperative; (c) any ship arriving at a first-class port shall have her drinking-water tanks cleaned and sterilized, unless this has been done within the previous three months; (d) the departure of every ship of which cognizance is taken shall be notified by telegram to the next port of call.
7. A ship leaving any port in the Eastern arena for a foreign port shall obtain a bill of health. This should be made an important document, corresponding practically to the vessel's case-sheet or hospital notes, giving its past history, present state, and treatment.
8. A ship leaving an infected port shall be inspected by a health officer prior to her departure. The inspection shall include such examination of the vessel, cargo, passengers and crew, food and water supply, the ship's relations with the shore, manner of loading and possibility of invasion by rats and insects, as will enable the officer to determine whether the requirements of the convention have been complied with. No communication with the shore shall be permitted after this examination. A similar inspection at suspected ports of departure may be demanded by the country of the port of destination.
9. When local conditions render the above provisions unsuitable the necessary modifications shall be made by general agreement of the signatory Governments.

Mention has been made above of a central intelligence bureau as a necessary part of the scheme. No department of the kind at present exists, and the author suggests that Singapore would be a most suitable site for establishing a Central International Epidemiological Intelligence Bureau for dealing with this and cognate matters. The possibility of such a bureau being installed for a term of years on an experimental basis through the agency of the Health Organization of the League of Nations is deserving of careful consideration. The signatory Governments of the Far East would, naturally, demand control, through some form of advisory board, of an organization in which they were primarily interested, and it is possible that one of the existing medical organizations in the Far East would be willing to undertake this duty, and no more suitable body could be found than the Far Eastern Medical Association. Apart from its utility under the proposed convention outlined above, such a bureau would greatly facilitate and improve the port health procedure as at present carried on. It is difficult to estimate the cost of the bureau, but the annual expenditure would probably approximate to £10,000.

Dr. Norman White has not specifically considered the Mecca pilgrim traffic and the labour traffic from country to country. The former is regulated by the International Convention, but the protection of the health of the East from diseases conveyed by returning pilgrims appears to have received too little attention in the convention. The migration of labour forces is governed by shipping ordinances and labour ordinances in most of the countries chiefly concerned, and bilateral agreements further control the traffic. There is, however, room for improvement, and the trade might be made the subject of a future convention. It is important that shipowners interested